

A MIXED-METHODS STUDY INVESTIGATING FACTORS INFLUENCING RURAL
YOUTHS' PARTICIPATION AND EXPERIENCES IN OUTDOOR, NONCOMPETITIVE
PHYSICAL ACTIVITY

by

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(Under the Direction of Marsha Davis)

ABSTRACT

Given the high prevalence rates of childhood obesity and current trend towards increased sedentary lifestyles, the promotion of physical activity among youth has become a major public health concern. Most of the current research on youths' physical activity has been focused on participation in physical education, structured exercise, and competitive sports. Hence, little is known about the participation of youth in physical activities that are unstructured and noncompetitive. However, the potential benefits of youth engaging in these activities have been shown to be vast and include physical, psychological, emotional, and behavioral spheres. The outdoors presents an optimal setting in which to promote physical activity among rural youth since it offers more varied terrain and children tend to be more vigorously active when they are outdoors as opposed to indoors.

The current study examined the influential factors of rural youths' engagement in noncompetitive outdoor physical activity utilizing a mixed-methods design where both the quantitative and qualitative data collection and analysis were given equal priority and weight. Early adolescents' aged 10-14 years ($n = 1032$) from one rural middle school completed a self-

administered questionnaire that assessed the constructs of an integrated conceptual model of self-determination theory and the theory of planned behavior related to participation in noncompetitive outdoor activity. Structural equation modeling was utilized to analyze the relationships among these constructs. In depth qualitative interviews were then conducted with a subsample of those who completed the questionnaire ($n = 24$) to elicit detailed descriptions of early adolescents' experiences of participation in outdoor physical activities.

Quantitative results provide evidence that early adolescents' self-determined motivation to engage in noncompetitive outdoor activities predicts attitudes, subjective norms, perceived behavioral control, and intentions related to participation in these activities. Qualitative results provide support and detailed description for the relationships within the integrated conceptual model. The qualitative results also indicate the presence of a complex dynamic relationship of social and physical environmental factors influencing early adolescents' participation in outdoor activities.

Discussion of the study results includes implications for future research and practice. The researcher's reflections on the benefits and issues faced while conducting a mixed-methods study are presented.

INDEX WORDS: Early adolescents, Mixed-methods, Noncompetitive activity, Outdoor physical activity, Phenomenology, Qualitative methods, Self-determination theory, Self-determined motivation, Structural equation modeling, Symbolic interaction, Theory of planned behavior, Youth

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DEDICATION

To my wife and best friend Kathleen

&

my Mom and Dad

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CHAPTER 1: INTRODUCTION

Statement of the Problem

Childhood obesity is a growing problem in the United States. In fact, obesity rates have been on the rise in children since the 1980s and have only recently begun to plateau (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010; Ogden et al., 2006). In Georgia, the rates and severity of youth being overweight or obese are higher than the national average with the highest rates being among African American, rural youth (Lewis et al., 2006). The evidence to support a relation between weight gain in children and inadequate levels of physical activity is relatively strong and consistent (Berkey et al., 2000). Children's physical activity levels are currently receiving much attention in the field of public health. This is mostly due to reports of a steady decline in physical activity among children and an increase in time spent in sedentary behaviors such as watching television and using computers and video games (Zimmerman, Christakis, & Meltzoff, 2007). The current recommended guidelines suggest that children and adolescents engage in at least 60 minutes of physical activity per day that targets aerobic capacity and muscle strength (Centers for Disease Control and Prevention, 2008a). Research has indicated that children, by two years of age, watch television for more than 1.5 hours (Zimmerman et al., 2007) and approximately 35.4% of middle and high school students watch more than 3 hours of television per day on an average school day (Centers for Disease Control and Prevention, 2008b).

Despite the increasing efforts of public health professionals, the levels of physical activity among children in the United States remain low (Centers for Disease Control and Prevention, 2003). Research has provided strong evidence that continually engaging in proper

levels of physical activity is associated with numerous health benefits later in life (Centers for Disease Control and Prevention, 2004). These benefits include, but are not limited to a decreased risk of heart disease, diabetes, various forms of cancer, and other chronic diseases. Furthermore, the early development of adequate physical activity habits during childhood has been shown to be associated with an increased likelihood of engaging in regular physical activity during adulthood (Gordon-Larsen, Nelson, & Popkin, 2004; Tammelin, 2005; Thompson, Humbert, & Mirwald, 2003).

Longitudinal studies on youth predictors of physical activity during adulthood find the strongest relationships to be directly attributed to the natural athletic abilities of children (Tammelin, 2005; Telama, Yang, Laakso, & Viikari, 1997). Children with increased motor fitness, fine motor skills, physical activity self-efficacy, and participation in competitive sports are more likely to be active as children and adults. A primary concern then is to increase the levels of physical activity of children who are not athletically gifted, have low perceived competence in their athletic abilities, or who may not have an interest in participating in competitive sports (Barnett, Morgan, van Beurden, & Beard, 2009). An increase in these children's physical activity can increase their motor skills, fitness, and self-efficacy and may promote increased participation in physical activity throughout life.

Currently it is unclear what strategies are effective at increasing children's and early adolescents' activity levels. Most of the research on youths' noncompetitive outdoor physical activity has focused on correlates of activity at the school playground and been conducted with students in elementary school and to a lesser extent in preschool (W. H. Brown et al., 2009; Cardon, Labarque, Smits, & De Bourdeaudhuij, 2009; Colabianchi, Kinsella, Coulton, & Moore, 2009; Dymont & Bell, 2008; Farley, Meriwether, Baker, Rice, & Webber, 2008; Ridgers,

Stratton, Fairclough, & Twisk, 2007). Few studies have been conducted with adolescents who compare their specific interest and involvement in noncompetitive outdoor play with that of young children. However, a fundamental difference exists in physical activity behavior among young children and adolescents. Studies indicate that young children who have the opportunity to spend time outdoors tend to be physically active, whereas adolescents provided with similar opportunities tend to participate in more sedentary activities (Aaron, Storti, Robertson, Kriska, & LaPorte, 2002; Caspersen, Pereira, & Curran, 2000; Cordell, Betz, & Green, 2009b; Sallis, 2000).

Students of middle school age are considered to be in a psychological and social transitory period in between being a child and an adolescent. This period can be marked by changes in youths' interests and participation in physical activities that continue throughout adolescence resulting in a decline in regular physical activity (Eime, Payne, Casey, & Harvey, 2010; Sallis, 2000). Therefore, it is important to understand children's and early adolescents' intentions to participate and their engagement in outdoor physical activity. This understanding may enable researchers and practitioners to design more efficient interventions to promote physical activity throughout the life span.

The findings from research on the benefits of outdoor play have shed some light on a largely untapped setting, the natural environment, to target physical activity among youth. Studies investigating the impact of natural environments on unstructured play have shown that children play at more vigorous levels of exertion when they are outdoors as opposed to when they play indoors (Baranowski, Thompson, DuRant, Baranowski, & Puhl, 1993; Klesges, Eck, Hanson, Haddock, & Klesges, 1990; Sallis, Nader, et al., 1993). The rewards of unstructured

play for youth are vast and include physical, psychological, emotional, and behavioral benefits (Burdette & Whitaker, 2005b).

Noncompetitive physical activities include those activities that do not require participants to compete against one another. Activities of this type include biking, skateboarding, swimming, hiking, climbing trees, and playing noncompetitive games such as tag. Also included within noncompetitive physical activity are those activities that have skill components of competitive sports, but that do not naturally involve competition between participants. Examples of such activities are playing catch with a baseball or football and casually kicking around a soccer ball. During these activities, the participants determine their own level of involvement and establish parameters of any rules concerning time limits and any social interaction between participants. These activities usually involve little direction by others (i.e., adult supervision) and therefore allow early adolescents to be creative, self-sufficient, problem solvers, and overall leaders of their own activities. In contrast, competitive activities are usually supervised by others (i.e., referees, parents, or teachers) and are bound by established rules that determine the expected level of participation, the characteristics of participants' interaction, and the amount of time that the activity will last.

The natural outdoor environment presents a promising setting for the promotion of physical activity among children and adolescents, especially those without natural skills and ability in sports or interest in sports. The reason for this is that youths' physical activity in the outdoors is usually in the form of noncompetitive, creative, unstructured play that appeals to them (Pate, Baranowski, Dowda, & Trost, 1996; Rivkin, 1997; Vadala, Bixler, & James, 2007). The outdoors also provides less restriction on existing space for activities as compared to the indoor environment consisting of walls and ceilings. The outdoors naturally fosters youths' sense

of adventure and curiosity and allows them to explore the outdoor environment in a way that is not possible indoors. Within rural communities, the outdoor environment could offer more open green space that allows for opportunities for play than urban communities. According to a recent review of the literature, rural children spend more time in the outdoors engaged in unstructured activities than urban children (Sandercock, Angus, & Barton, 2010). The potential that the outdoor environment provides for increasing physical activity among youth is important to consider in Georgia, since youth living in rural settings have been shown to have higher rates of obesity (Lewis et al., 2006).

Until relatively recently, research has overlooked youths' physical activity in the outdoors. Studies indicate that neighborhood safety, proximity to parks, and the number of park facilities are associated with youth involvement in outdoor physical activity (A. Carver, Timperio, & Crawford, 2008; Evenson, Scott, Cohen, & Voorhees, 2007; Floyd, Spengler, Maddock, Gobster, & Suau, 2008; Kerr, Norman, Sallis, & Patrick, 2008). In schools, correlates of youth outdoor physical activity are the specific features of playgrounds such as playground markings and age appropriate equipment as well as opportunities for school recess (Farley et al., 2008; Hannon & Brown, 2008; Loucaides, Jago, & Charalambous, 2009; Stratton & Mullan, 2005). Parents' encouragement to be active, perceptions of safety, and own activity levels have been associated with youths' outdoor activity (Beets, Vogel, Chapman, Pitetti, & Cardinal, 2007; Ferreira et al., 2007; Hinkley, Crawford, Salmon, Okely, & Hesketh, 2008; Welk, Wood, & Morss, 2003). In terms of youth themselves, increased amount of time spent outdoors, interest and participation in activities, perception of own athletic abilities, fitness attributes, and decreased time spent using the computer have been shown to be associated with their outdoor

activity (Castelli & Erwin, 2007; Cleland et al., 2008; Hinkley et al., 2008; Welk & Schaben, 2004).

The current study is intended to help fill a gap in the literature regarding early adolescents' motivation and intention to engage in noncompetitive physical activity and play in the outdoors. Understanding youth with little athletic ability, low fitness, low perceptions of ability to perform physical activities, and little interest in participation in sports is important since these youth are most at risk of physical inactivity. These youth tend to push away from participation in competitive sports and games, which can contribute greatly to their total daily physical activity. Noncompetitive outdoor physical activity could appeal to these youth and allow them to develop confidence in their athletic abilities by increasing physical fitness and honing the skills needed to engage in physical activity throughout their lives. Research on early adolescents' noncompetitive outdoor play has recently been a growing area of focus, however little is understood about the factors that influence their engagement in outdoor play.

The study will be guided by the integration of the self-determination theory (SDT) and the theory of planned behavior (TPB) as detailed in Figure 1. The SDT speculates that self-motivation to perform a behavior is a process involving the interplay of various psychological, social, and environmental conditions (Ryan & Deci, 2000, 2002). The TPB states that the most influential factor in determining behavior is behavioral intention (Ajzen, 1991). Behavioral intention is determined by individual's attitudes concerning the behavior, beliefs about how others view the behavior, and perceived control over the behavior. The conceptual model guiding the study hypothesizes that engaging in physical activity is predicted by behavioral attitudes and perception of behavioral control that determine intentions of engaging in physical activity, which

are predicted by self-determined motivation (Hagger & Chatzisarantis, 2009). Past experience of participation in physical activity is seen as a distant predictor of all components of the model.

Purpose of the Study

The purpose of this study was to investigate youths' participation in noncompetitive outdoor play to increase knowledge on influential factors of engagement. This study will help to fill a gap in knowledge by investigating youths' participation and engagement in noncompetitive outdoor play from the perspective of the youth themselves rather than from adults.

The study has four specific objectives. These objectives are to: 1) examine the conceptual model of the relation of early adolescents' past involvement in outdoor physical activity, perceived autonomy support, self-determined motivation, attitudes, subjective norms, and perceptions of behavioral control on intentions to participate in noncompetitive outdoor physical activity; 2) identify the social and physical environmental factors that influence the determinants of early adolescents' self-determined motivation and intentions to participate and engage in noncompetitive outdoor physical activity; 3) explore the differences and similarities in experiences of noncompetitive outdoor activity among early adolescents by gender and current physical activity levels to identify characteristics of noncompetitive outdoor activity that early adolescents find the most engaging; 4) utilize a sequential explanatory mixed-methods design to meet these objectives and to further the ongoing methodological discussion concerning the merits of mixed-methods research designs in the social and behavioral sciences.

Research Questions

This study will seek to answer the following research questions related to the specific objectives stated in the previous section. First, this study will answer questions related to the

conceptual model. The broad question then is, how well does the conceptual model integrating SDT and TPB explain the motivation and intention to engage in noncompetitive physical activity in the outdoors? Based on the literature as will be discussed in more detail in chapter two, questions related to specific hypotheses concerning the importance and direction of relationships of constructs will be addressed. These constructs include early adolescents' past engagement in noncompetitive outdoor physical activity, perceptions of support for their autonomy in engaging in outdoor activity, self-determined motivation to engage in outdoor activity, attitudes about engaging in outdoor activity, subjective norms related to engaging in outdoor activity, perceptions of control over engaging in outdoor activity, intentions of engaging in outdoor activity, and current engagement in outdoor activity.

The questions then are the following:

- 1) How does past participation directly and indirectly influence early adolescents' perceived autonomy support, motivation, attitudes, subjective norms, perceived control, intention, and current noncompetitive outdoor physical activity behavior?
- 2) How do early adolescents' perceptions of autonomy support influence their self-determined motivation for engaging in outdoor activity?
- 3) How does early adolescents' self-determined motivation influence their attitudes, subjective norms, perceptions of control, intentions, and current engagement in outdoor activity?
- 4) How do attitudes, subjective norms, and perceptions of control influence early adolescents' intentions to engage in outdoor activity?
- 5) How do intentions to engage in outdoor activity influence current engagement in outdoor activity?

Questions addressing the second objective of this study concern the social and physical environment and the relationship with determinants of early adolescents' self-determined motivation and intentions to engage in outdoor activity.

The questions are the following:

- 1) What aspects of the social and physical environment support and hinder the development of self-determined motivation and intentions to engage in outdoor activity?
- 2) In what specific ways do the social and physical environment support and hinder early adolescents' self-determined motivation and intentions to engage in outdoor activity?

The question addressing the third objective of this study concerns the comparison of experiences of engaging in outdoor activity between physically active girls, physically inactive girls, physically active boys, and physically inactive boys.

The question is the following:

- 1) How do the experiences of participating in activities in the outdoors differ between physically active and inactive boys and girls?

The questions related to the fourth objective of this study concern the sequential explanatory mixed-method design of the study where both the quantitative and qualitative data are given equal weight.

The questions are the following:

- 1) How did the use of a sequential explanatory mixed-method design facilitate in answering the research questions related to objectives one, two, and three?
- 2) How did the equal priority given to the quantitative and qualitative data within this research design influence the overall study and findings?
- 3) What aspects of conducting this study using this research design could have been improved?

Significance of the Study

The majority of the research on physical activity among youth has focused on structured forms of activity such as participation in physical education and competitive sports. While these activities benefit youth, they may not fully attract and engage youth of all ability levels as activities that are less structured and noncompetitive. It is essential to understand what youth view as important in their decisions to participate in noncompetitive physical activity. The current study will help to fill the gap in the research knowledge by investigating factors that influence early adolescents' participation and engagement in noncompetitive physical activity in the outdoors to impact policy and intervention programming in schools and communities that promote the development of healthy living environments for youth.

Few studies have focused on children and early adolescents as the key informants of determinants of their participation in outdoor play. Most research has focused on parents and teachers for information on what engages children in outdoor play. This study will give children a voice as informants of their participation in outdoor play from both a quantitative and a qualitative social constructivist perspective. From the social constructivist perspective, children are the most important informants of their experiences of participating in noncompetitive outdoor activities as well as the individual and environmental factors that affect their participation.

This study will build upon the research literature concerning the utility of integrating SDT and TPB in identifying the process by which youths' motivation and intentions influence their participation in outdoor physical activity and how the environment promotes or discourages the process. The determinants of self-motivation and the impact on intention to engage in noncompetitive physical activity can be expected to be different in adolescents and children. Adolescents have a tendency towards developing extrinsic goals related to weight loss and

physical appearance rather than intrinsic goals related to personal enjoyment (Gillison, Standage, & Skevington, 2006). Conversely, children may be more likely to develop intrinsic goals related to personal enjoyment and fun in participating in physical activity than extrinsic goals. Much of the difference between adolescents and children in their self-regulating behaviors may be attributed to differences in the relative importance given to social pressures and peer norms among adolescents versus children. This study will focus on early adolescents' in the transitional stage between being a child and an adolescent. The results from this study will have practical implications to understand how early adolescents' social and physical environments can be altered to support self-determined motivation to engage in outdoor physical activity that can promote continued engagement in physical activity into adolescence and adulthood.

This study will seek to uncover how early adolescents' experience outdoor play and what factors influence their motivation and engagement across gender, race and ethnicity, family social class, and current physical activity levels. It is expected that factors influencing motivation, participation, and engagement will differ on these characteristics. A mixed method approach is preferred for this investigation since the strengths of quantitative and qualitative techniques are capitalized upon. This approach brings together the ability of statistical analysis to identify factors influencing early adolescents' noncompetitive outdoor physical activity with the rich data gleaned from qualitative techniques to provide a fuller understanding of how youth conceptualize outdoor activities to inform theory and practice. A mixed method approach is important for a complete understanding of early adolescents' noncompetitive outdoor physical activity to identify how best to create a physical activity promoting environment for youth.

The results of this study will be important for public health practitioners in designing programs targeting youth physical activity by creating social and physical environments that

support youths' development of self-motivation and increased intentions to engage in physical activity. This study will also be important for practitioners in fields such as education and natural resource management to create programs that engage youth in the outdoors to develop environmental consciousness and awareness through outdoor education and positive recreational experiences (Hanna, 1995; Tanner, 1980).

Delimitations

Broadly, the study will be delimited to 6th and 7th grade students enrolled in one rural county middle school in Georgia. This selection will exclude those 6th and 7th grade students enrolled in private schools and home-schooled within the county. Since the county is considered to be rural, this study will be delimited to rural youth.

CHAPTER 2: REVIEW OF RELATED LITERATURE

The following chapter will review and critique the research literature on children's physical activity in the outdoors as well as provide an overview of the theoretical framework guiding this study. This review will effectively afford a justification for the importance of the study, the research design, and the hypothesized relationships that will be examined.

Correlates of Outdoor Physical Activity among Youth

For the purpose of this section of the review, outdoor physical activity will include unstructured play in the outdoors and will not include structured, competitive sports. Very little research has been performed on adolescents in terms of unstructured outdoor physical activity. Since children between the ages of 3-12 years or those in preschool or elementary school have been the focus for most of this research, the term children will refer to these ages unless otherwise stated. The correlates of children's outdoor physical activity will be the focus. Since children's activity in the outdoors encompasses a variety of places including the backyard, school playground, and nearby parks the determinants of children's physical activity at these settings is important to understand from an ecological perspective. Therefore, the research investigating the correlates of children's outdoor physical activity will be discussed in terms of correlates at the community, school, family, and individual levels.

Community-Level Correlates

Neighborhood safety has been one of the most studied correlates of children's outdoor physical activity. Research has consistently found that neighborhood safety is associated with

children's activity in the outdoors (A. Carver et al., 2008; Evenson et al., 2007; Gomez, Johnson, Selva, & Sallis, 2004; Kerr et al., 2008). Most of the studies that were reviewed measured neighborhood safety as either parent's perception of safety or through children's perceptions of safety (Burdette & Whitaker, 2005a; Evenson et al., 2007; Kerr et al., 2008). These studies, with the exception of Burdette and Whitaker (2005a) who reported no relationship, found that children were more likely to be active outdoors when their parents or they themselves perceive their neighborhoods as safe. In addition, Kerr et al. (2008) also found that girls with parents who perceive their neighborhoods as less safe were more likely to benefit from home-use rather than outdoor-use exercise equipment in order to meet physical activity guidelines. However, Kerr et al. (2008) should be interpreted with caution as a convenience sample was employed. Activity among adolescents in this study was not found to be related to perceptions of safety. However, Evenson et al. (2007) measured neighborhood safety through adolescent's perceptions of safety and found that adolescents' were more likely to be active outdoors when they perceive their neighborhoods as safe. Burdette and Whitaker (2005a) noted that their results were hindered by the fact that for neighborhood safety the only measure was social instability which may have led to construct invalidity. It is also important to note that the results of most of these studies were hindered by reports of low reliability for safety measures.

In a recent review of the literature on neighborhood safety and children's physical activity, Carver et al. (2008) found that parent's perception of safety was more influential than children's perceptions. However, it was also found that few studies have measured neighborhood safety objectively. Of the studies reviewed here, only one used an objective measure of neighborhood safety by collecting official crime data. This study found an inverse relationship between adolescent girls' outdoor physical activity and the density of neighborhood crime,

however no relationship was found among adolescent boys' outdoor physical activity (Gomez et al., 2004).

The number of parks within close proximity to where children live has been found to be positively associated with outdoor physical activity (Cohen et al., 2006; Evenson et al., 2007; Floyd et al., 2008). However, these studies are limited due to their lack of a measure of quality of features of parks which could also influence children's use of parks. Cohen et al. (2006) did use site visits by trained auditors to assess the facilities of nearby parks, but failed to allow for comparisons to be made among specific park features concerning their ability to promote physical activity. However, Cohen et al. (2006) did control for confounding factors related to the parks including features of the parks when assessing the association with proximity. Two other studies that have focused on parks have found no relationship between proximity of parks and children's body mass index (Potwarka, Kaczynski, & Flack, 2008) and an inverse relationship between number of park facilities and children's outdoor physical activity (Timperio et al., 2008). However, Potwarka et al. (2008) was not directly addressing children's physical activity since body mass index was the intended measure. While physical activity has consistently been shown to influence weight, body mass index is not a good proxy measure of physical activity, especially in children. Timperio et al. (2008) found that the presence of trees providing shade and signage about dogs was positively associated with adolescent girls' moderate and vigorous after-school physical activity. These results were limited by the measure of park facilities being the number of facilities and not any measure of the quality of facilities. There was also a failure to account for possible seasonal weather that may have influenced children's activity.

Crawford et al. (2008) investigated the relationship between neighborhood socioeconomic status (SES) and features of parks and public open space. This study found that

public parks in higher SES neighborhoods had more amenities such as water fountains and toilets and were more likely to have shade providing trees, water features such as ponds, walking and biking paths, adequate lighting, signage regarding dog access, and signage restricting other activities than public parks in lower SES neighborhoods. While the study did not assess physical activity, it does provide evidence for the differences in access of quality facilities for outdoor physical activity for residents in high and low socioeconomic status neighborhoods.

The relationship between neighborhood walkability and children's and adolescents' physical activity in the outdoors was examined using a survey of parents (Grow et al., 2008). Results showed that walking and biking as transportation was associated with increased use of parks. Proximity to parks was also associated with increased use and among adolescents, walking and biking to parks was associated with increased perceptions of neighborhood safety. However, in the study 'use of parks' was obtained by a proxy measure of physical activity as users of parks may be physically inactive.

School-Level Correlates

The primary focus of children's outdoor physical activity at the school level has been the use of the playground or play space both during recess and after school. It is important to note that both community and school playgrounds and play spaces have been investigated by research with little to no differentiation being made between them. Part of the reason for this is that school playgrounds are often used as community playgrounds after school hours and community playgrounds are often used by nearby schools that have no onsite playground area. Given this situation, community and school playgrounds and play spaces will be discussed together here.

Unlike correlates at the other ecological levels, the studies investigating school level correlates consist of not only cross-sectional studies but also intervention studies.

The cross-sectional studies consistently find that children who play at playgrounds engage in at least moderate physical activity during recess and after school (Beighle, Alderman, Morgan, & Le Masurier, 2008; Cardon, Van Cauwenberghe, Labarque, Haerens, & De Bourdeaudhuij, 2008; Colabianchi et al., 2009; Dymont & Bell, 2008; Mygind, 2007). Most of the studies found that boys were more moderately and vigorously physically active at the playground than girls (Beighle et al., 2008; Cardon et al., 2008; Ridgers, Stratton, & Fairdough, 2006). Contrary results were found in one study where girls' physical activity at the playground during recess was higher than boys (Mota et al., 2005). However, the results of this study could be due in part to the small sample size from only one school or cultural influences as this study was conducted in Portugal.

Several studies have examined seasonal differences in physical activity at the playground (Beighle et al., 2008; Ridgers, Stratton, Clark, Fairclough, & Richardson, 2005; Stratton, 1999). Ridgers et al. (2005) found no difference between children's activity in the winter and summer. This study was limited by a small sample size and short data collection period that did not account for weather variations. More recently, Beighle et al. (2008) investigated a large sample size and found that children engaged in more physical activity in the spring than in the winter. More studies such as this with larger sample sizes are needed in order to determine whether there are seasonal and weather differences in children's activity levels.

When looking at children's activity in schools in Denmark where class is conducted outdoors instead of indoors, Mygind (2007) found that children's activity is higher when learning outdoors than on normal indoor school days. Furthermore, this study found no difference in

children's activity when learning outdoors compared to normal indoor school days where two sessions of physical education were attended. One possible factor that could have influenced these results is that the outdoor learning days were one to one and a half hours longer than the indoor school days allowing more time for the children to be active.

While investigating the quality of playground environments, Colabianchi et al. (2009) found that boys were more vigorously active at playgrounds that had been renovated with new equipment than at non-renovated playgrounds. However the difference was small and no significant difference was found between children's moderate-to-vigorous activity at renovated versus non-renovated playgrounds. Haug et al. (2008) found that playground equipment, open fields, and outdoor obstacle courses were associated with more participation in physical activity among young adolescents'. This study was complicated by both the combination of school-level data with student-level data and physical activity measurement by self-report which has problems with accuracy. Brown et al. (2009) also found open fields to be associated with activity in children as well as higher levels of activity during child-initiated play versus teacher initiated play. Dymont & Bell (2008) found that higher levels of physical activity among children were seen in 'green areas' of the play space as opposed to hard surface areas composed of turf and asphalt.

Cross-sectional studies find that physical activity at the playground may contribute between 5-40% of children's total daily physical activity (Ridgers et al., 2006; Zask, van Beurden, Barnett, Brooks, & Dietrich, 2001). Physical activity at the playground may also contribute between 5-26% of boys' and 5-21% of girls' total daily physical activity (Zask et al., 2001). The substantial contribution to daily physical activity is important to consider when

determining whether or not it is advantageous to use the playground as a setting for the promotion of children's physical activity.

Conversely, studies find that children who play in natural environments such as wooded areas during school recess score better on tests of gross and fine motor skills than children who play on traditional playground equipment (Fjortoft, 2001, 2004). Quasi-experimental research designs were used with kindergartens in separate schools being matched and placed into experimental and control groups. The children in the experimental kindergarten were allowed to play in the nearby forest during designated play times while children in the control kindergarten were only allowed to play on the school playground. However, Fjortoft (2001, 2004) did not control for children's other leisure activities outside of school recess or possible contamination due to maturation. However, the results could be important when considering the development of children's skills needed to perform physical activity. Since only motor fitness was measured, more research needs to be conducted to determine if play in natural environments can increase children's total daily physical activity. Studies have shown that children with increased fitness are more likely to be physically active both as children and as adults (Tammelin, 2005; Telama et al., 1997). Fjortoft's (2001, 2004) findings on the benefits of the outdoor environment are supported by Ozdemir (2008) who found that children engage in more active behavior when school play areas are spacious, vegetated, and landscaped.

Intervention studies have investigated the use of a playground markings intervention to increase children's physical activity (Cardon et al., 2009; Loucaides et al., 2009; Ridgers et al., 2007; Stratton & Leonard, 2002; Stratton & Mullan, 2005). These interventions involved adding painted markings to areas of playgrounds for games such as hopscotch and foursquare as well as to visibly distinguish between areas of the playground that were designated for certain types of

activities. Stratton and Leonard (2002) and Stratton and Mullan (2005) both found that children's physical activity increased after exposure to the intervention and that the children's physical activity was higher in the intervention than in the control group after exposure. These studies had short follow-up periods that did not account for the possible immediate effects of any alteration to children's playgrounds that could wear off over a longer period of time. Ridgers et al. (2007) also found that children's physical activity was higher in the group exposed to the intervention; however the differences were not significant. A complication of this study is that only one day of data collection was taken at baseline, six weeks post-intervention, and six months post-intervention. Loucaides et al. (2009) investigated the separate effect of playground markings and the addition of areas for team games separately. The study found that children in both of the intervention groups had higher physical activity than children in the control group. No difference was found between children's physical activity in the playground markings intervention group and the team game areas intervention group. Unlike the previous studies, Cardon et al. (2009) found no benefit to playground markings on children's physical activity. The effects of adding playground equipment on children's physical activity was also found to have no benefit. However, a convenience sample was utilized and the study did not account for possible contamination effects of children from both the intervention and the control groups being in close proximity and having access to all of the playgrounds.

Hannon and Brown (2008) investigated the effect of adding playground equipment on children's physical activity. The added equipment was carefully chosen to be age appropriate for the study sample. Hannon and Brown (2008) utilized a quasi-experimental time-series design and found that after the children were exposed to the intervention their sedentary behavior decreased and their physical activity increased. An important note is that there was a short

follow-up period. Farley et al. (2008) investigated the effect of distinct playground activity areas such as installed play equipment, open grassy areas, and concrete areas with basketball hoops. Children were found to be more likely to play in the areas with installed play equipment, but no differences were found in children's physical activity between any of the activity areas. Results were limited by the fact that it was conducted at only one school play setting with no control group and data was only collected at one time point.

Farley et al. (2007) implemented a low cost intervention to increase the safety of the playground. The intervention consisted of installed lights and paid playground monitors that watched for strangers and bullying among the children. Farley et al. (2007) found that children were more likely to visit the playground and were more active in the neighborhood and at the playground after the safety modifications. A limitation of this study is the lack of a control group with a playground to account for any possible contamination.

Alhassan et al. (2007) investigated the effect that increasing the amount of time children were allowed for recess had on their total physical activity at the playground. The results showed no difference between children's total physical activity in the intervention and control groups. However, the study was limited by a small sample size consisting of only one school and a short follow-up period.

These intervention studies indicate that certain features of playgrounds can have a positive influence on children's physical activity. These features include playground markings, designated zones for specific activities, and age appropriate equipment.

Family-Level Correlates

The role of the family has been investigated as an influential factor in children's physical activity in the outdoors. Most of the research has involved children's parents and the roles that they play in their children's activity. However, these studies are few in number when focusing on outdoor activity.

Parental factors on children's outdoor activity have been studied in the context of social support in several studies (Beets et al., 2007; Castelli & Erwin, 2007; Welk et al., 2003). Beets et al. (2007) found that fathers participating in physical activities with their sons and that mothers playing with their daughters outdoors significantly contributed to activity. The results are limited by the use of a small and homogenous sample of mostly White families.

Welk et al. (2003) reported that parental factors account for about 20%, 26%, and 28% of the variance in children's physical activity, attraction to physical activity, and perceptions of competence, respectively. However, these numbers are probably high due to potential for over reporting by parents caused by the use of direct categorical estimates of parental physical activity. These categorical estimates involved asking parents directly whether they perform moderate or vigorous physical activity rather than asking parents what physical activities they do and then assessing the intensity levels of these activities. The authors also mentioned problems with self-report of physical activity by children and adults as potential sources of error of results.

Castelli & Erwin (2007) used a unique mixed method design involving surveys to select physically active and inactive children and in-depth interviews with open-ended questions to compare the attributes and experiences of the children. It was found that active children tend to report more opportunities for outdoor activity at home and for learning activity-related skills than inactive children. Unfortunately, participants were not probed for more information on the

parent's specific role in these opportunities at home. The rest of Castelli & Erwin's (2007) findings will be discussed in the next section on individual level correlates.

Contrary to these studies, Patnode et al. (2010) found that parent support was not significantly associated with physical activity in adolescents. A significant relationship was found with peer support among boys, but not among girls. Accelerometry was utilized as an objective measure of moderate and/or vigorous physical activity.

The results of these studies indicate that parents' encouragement to be active and own activity levels have been shown to be associated with children's outdoor activity. Two recent and large reviews of the literature on family factors related to children's physical activity confirm the association between fathers and children's activity as well as the positive relationship of family income, and parental encouragement to play (Ferreira et al., 2007; Hinkley et al., 2008). These reviews also found that studies reported strong correlations between parents who are active and increased activity among their children.

Individual-Level Correlates

The amount of time children of all ages spend outdoors has consistently been found to be positively associated with increased physical activity (Castelli & Erwin, 2007; Cleland et al., 2008; Cordell, Betz, & Green, 2009a, 2009c; Hinkley et al., 2008). Cleland et al. (2008) reported that time spent outdoors was associated with total activity and higher levels of activity on the weekends. Data was collected at two points over a three year period which increases the reliability of the results. Cordell et al. (2009a, 2009c) examined a national surveillance system of children's outdoor activity and found that children spend a good deal of time outdoors during the week and on the weekends, but their time outdoors is more on the weekends than during the

week. The results showed a general downward trend in time spent outdoors with decreasing family income and that adolescents spend less time outdoors than children. A limitation was the collection of outdoor time by parental recall and no measure of actual physical activity among children.

Using the mixed methods design described in the last section, Castelli & Erwin (2007) found that children who are active tend to report spending more time in the outdoors than children who are inactive. Unfortunately, whether the reason for this may have been due to the active children having more opportunities to spend time outdoors or whether active children preferred spending time outdoors was not explored. Active children were also found to have greater motor fitness, higher participation rates in sports, and higher perceptions of their athletic abilities than inactive children. Welk & Schaben (2004) found that among children with equal opportunities for activity, children with high perceived athletic competence have higher levels of activity. However, the small sample size and possible restriction of range due to low variability among the study participants was a limitation. Castelli & Erwin (2007) also found that children who were active reported their favorite activities as organized sports whereas inactive children reported their favorite activities to be unstructured games.

Attewell et al. (2003) found that children who spend over eight hours per week on the computer spend less time on outdoor activities than children who do not use the computer. However, no difference in time spent in outdoor activity was found between children who spend less than eight hours per week on the computer and children who do not use the computer. Attewell et al. (2003) is problematic in that it used parent and teacher reported measures of children's outdoor activity and computer use which may not be accurate since parents and teachers are not always aware of what children are doing at all times.

These studies indicate that the amount of time children spend outdoors, their interest in activities, participation in activities, perception of own athletic abilities, fitness attributes, and time spent using the computer are associated with their outdoor activity. Individual characteristics of adolescents that significantly correlate with their physical activity in the outdoors have been studied in terms of demographic profile, perceived competence, intentions of engaging in activity, depression, and previous physical activity behavior (Sallis, Prochaska, & Taylor, 2000).

Gaps in the Literature

A major gap that exists in the research literature is at the state-level. Currently, there is little research that investigates the impact of state policies on children's outdoor physical activity. Gaps also exist in terms of the relationships between community, school, family, friends, and individual level factors that have an influence on children's outdoor physical activity. Research is needed to address these relationships in order to fully understand the complicated nature of children's outdoor activity.

Individual characteristics of children such as interest and participation in outdoor activities, perception of athletic abilities, and motor fitness have been shown to be positively associated with increased outdoor physical activity. More research needs to be conducted to determine the possible relationship between these characteristics and children's time spent outdoors. Children's time spent on the computer has been shown to be inversely related to time spent outdoors when computer time is more than eight hours, however research needs to be extended to other sedentary behaviors such as time watching television.

Research has shown consistently that children who spend more time outdoors have increased activity levels. In fact, the association with time spent outdoors has been so consistent that it has been used as a proxy measure of physical activity by some studies. However, use of time spent outdoors as a proxy measure runs a serious risk of construct invalidity since children can spend their time outdoors being sedentary, as has been indicated by studies with adolescents (Cordell et al., 2009b). The amount of time children spend outdoors has been shown to be associated with parent's perceptions of neighborhood safety and encouragement to be active. In addition, parents who perceive their neighborhood as being safe have been shown to have more than two times the odds of reporting that they would encourage their children to use playgrounds (Miles, 2008). Both of these parental factors have been shown to be associated with objective measures of neighborhood safety, although parental perceptions of such aspects of neighborhood safety as 'stranger danger' have been unfounded based on crime statistics (A. Carver et al., 2008). More research is needed to determine whether interventions that increase community and school playgrounds affectively influence playground use, although research so far has been promising (Farley et al., 2007). More research is also needed to determine the relationships of adolescents' perception of safety, time spent outdoors, and outdoor activity. Studies also need to investigate the role of friends in encouraging outdoor activity as this is an especially important factor to consider when looking at adolescents whose lives are many times characterized by socialization.

Parents' decisions to allow their children to play outdoors could also be influenced by their proximity to community parks. Since studies on park proximity have been cross-sectional, the possible independent effect of proximity cannot be determined. It could be that families who

are active may choose to live near parks. More research is needed in this area to determine if proximity to parks independently influences children's outdoor activity.

The number of community park facilities has been shown to be positively associated with increased outdoor activity among children. However, research is lacking in determining whether the specific qualities of park facilities affect children's activity levels.

Research is also lacking on other aspects of the community environment and children's outdoor activity. Several studies have indicated that neighborhood 'greenness,' including neighborhood vegetation and trees, is associated with lower body mass index and less psychological distress in children (Bell, Wilson, & Liu, 2008; Wells & Evans, 2003). These environmental factors could also have an influence on children's activity levels and amount of time outdoors.

The amount of time children spend outdoors and their total daily physical activity could also be associated with school recess. The importance of opportunities for children to be physically active during school was investigated by Dale et al. (2000) who looked at whether children compensate for inactivity during school (no recess and physical education class) in the time after school. The results showed that children were less active after school on days where activity was restricted during school, supporting the importance of activity during school to promote children's activity after school to increase their total daily activity. In terms of the amount of time allowed for recess, increasing recess time does not appear to be associated with children's activity levels (Alhassan et al., 2007). While recess seems to influence children's outdoor activity compared to when no recess time is allotted during the school day, increased time for recess may not further increase activity levels. In addition, outdoor classrooms could influence children's time spent outdoors and activity levels (Mygind, 2007). However, to fully

understand these relationships, more studies investigating the influence of in-school activity, recess time, and the impact that outdoor learning may have on children's total daily activity are required.

Features of school playgrounds were found to be associated with individual characteristics of children and activity levels. Motor fitness was found to be increased in children who play in more natural and 'green' school environments. Increasing children's abilities to perform physical activities could also influence perceptions of their abilities and self-efficacy of performing activities. This would be especially important in children who are not naturally athletically gifted or do not prefer to participate in competitive sports. More research is needed to determine these relationships. Interventions have shown that playground markings and adding age appropriate equipment are associated with increased activity levels of children. However, state and school policies regarding time for recess can have an influence on children's exposure to playgrounds.

The current physical activity guidelines as published by the U.S. Department of Health and Human Services are aimed at public health professionals to present best practices for physical activity in children (Centers for Disease Control and Prevention, 2008a). However, these guidelines do not include any specific recommendations regarding the benefit of unstructured play in the outdoors and at playgrounds. These guidelines can influence state policies regarding school recess time.

The Outdoors as an Optimal Environment to Promote Physical Activity among Youth

The realization that understanding children's relationship with the outdoors is an area of great importance began with the first widespread indications that children were spending less and

less of their time in the outdoors and that the time they did spend outdoors was of low quality in terms of establishing a connection with nature (Kytta, 2004). Research has shown that humans now spend more than 90% of their lives indoors (Evans, 2003). Additionally, it has been reported that from 1981 to 1997 the amount of time that US children aged 6-8 years old spent outside decreased from 15 hours per week to 11 hours and 10 minutes per week, a decrease of about 25%. During the same time frame, the amount of time children 6-8 years old spent in school increased by about 5 hours per week (Hofferth & Sandberg, 2001). The reason for this decrease in children's time spent outdoors has been attributed to increased urbanization of children's environments (Chawla, 1999) and increased fear of strangers leading parents to not allow their children to freely play and explore their neighborhoods and nearby nature (Herrington & Studtmann, 1998; Pyle, 2002).

The growing interest in the importance of children in the outdoors led researchers in fields such as education and psychology to investigate the potential benefits of children's play in the outdoors. Research has found that the benefits of unstructured play for children are vast and include physical, psychological, social, emotional, and behavioral spheres (Bjorklund, 2007; S. Brown, 2009; Burdette & Whitaker, 2005b). Researchers have shown that active, spontaneous, free play in natural environments allows young children to develop a wide range of skills associated with the interaction of this environment including personal, social, and cognitive skills such as problem-solving, creativity, peer interaction, self-reliance, and overall confidence in physical abilities (Frost, 1992; Rivkin, 1995). According to Rivkin (1997), a leading figure in research on the benefits of children's time outdoors, the institutionalizing of children's time in activities such as team sports, lessons, and camps has taken time away from children's free play where they can take ownership of their own time that is outside of the parameters and boundaries

of adult supervised and led activity. Rivkin (1997) and others have indicated that outdoor free play away from adults is invaluable to children's well-being and development and may also be beneficial to their health in terms of physical activity. Since many of the skills children develop in outdoor play are important in order to engage in all kinds of physical activity, attention has turned towards the benefits of outdoor play in fields such as public health.

The focus of most of the public health research on children's physical activity over the past 20 years has been on participation in competitive sports and physical education. The importance of school recess, activity at the playground, and other noncompetitive activities on children's daily physical activity has only begun to receive serious attention. Studies have indicated that the playground can contribute significantly to children's total daily physical activity. This is important to consider when determining whether or not it is advantageous to use the playground as a setting for the promotion of children's physical activity. By implementing an after school recreation program consisting of gardening and noncompetitive group activities, Kien and Chiodo (2003) found that noncompetitive activities significantly increase the physical activity levels of youth who would otherwise be sedentary. Studies investigating the impact of the natural environment on unstructured play have shown that children play at more vigorous levels of exertion when they are in the outdoors as opposed to when they play indoors (Baranowski et al., 1993; Klesges et al., 1990; Sallis, Nader, et al., 1993). However, the only time that many children may engage in unstructured play is during school recess time (Mota et al., 2005). Schools in rural areas have been found to offer fewer after school programs and supports for youths' physical activity outside of competitive team sports than urban schools (Edwards, Kanters, & Bocarro, 2011).

Currently, the research on children's physical activity in the outdoors is complicated by the apparent separation with research on the other benefits of children's time spent in active free play in the outdoors (Burdette & Whitaker, 2005b). The term "nature" is rarely seen in research articles on children's physical activity. More collaboration between researchers interested in children's outdoor play for all of the benefits this activity brings could help to solidify the movement to get children outside and to build the evidence to enhance the promotion of children's well-being. Jain et al. (2001) argue that messages targeted towards parents in terms of their children's health need to be reformatted in their language and set of outcomes to hold the most meaning for parents. Burdette and Whitaker (2005b) suggest that changing intended outcomes to children's well-being rather than physical activity, fitness, or body weight could aid in overcoming some of the problems seen in physical activity research including promoting parents to encourage their children to play and reaching parents who resist labeling their children as obese or sedentary. Parents may be more motivated by the potential cognitive, social, and emotional benefits for their children of active outdoor free play rather than the physical benefits. The overemphasis on increasing participation in competitive sports could be creating an inseparable link between physical activity, exercise, and sports. For children who are not athletically gifted or are overweight, this could serve as a kind of negative reinforcement for increasing physical activity (Kien & Chiodo, 2003). A shift in the overall viewpoint towards recreation for everyone could help to create an environment that nurtures activity among these children. Since all of the benefits for children of outdoor play are intertwined, a refocusing on children's overall well-being could break the lines that have been drawn between child development and obesity.

The outdoor environment presents an ideal setting to promote children's activity. Future research should focus more heavily in natural environments as they have the potential to attract children who are the most at risk of physical inactivity (Fjortoft, 2001). Children who do not naturally possess the physical attributes desired to participate in competitive sports may often shy away from these activities as well as from physical education classes. These children may be more attracted to unstructured, noncompetitive outdoor play. Furthermore, by participating in unstructured forms of outdoor play in natural environments these children may develop the physical motor skills that are desired and required in more competitive forms of activity (Bjorklund, 2007; S. Brown, 2009; Fjortoft, 2001, 2004). To promote children's outdoor play it will be important for future research to investigate children's motivation to engage in active free play in the outdoors through their experiences of participation in these activities. This information can then be used to create school and community outdoor programs that are more finely tuned to children.

An Integrated Theoretical Explanation of Early Adolescents' Engagement in Noncompetitive Outdoor Physical Activity

Theory of Planned Behavior

The theory of planned behavior (TPB) focuses on factors related to individual motivation to engage in specific behaviors. The TPB includes constructs related to attitudes, subjective norms, and perceived behavioral control that predict the intentions of individuals to engage in a behavior. According to the TPB, an individual's attitude concerning a behavior consists of the beliefs that the person holds about engaging in the behavior (Ajzen, 1991). An important distinction about the attitude constructs concern whether attitudes about the object of the

behavior or the behavior itself are of primary interest. As shown by Fishbein and Ajzen (1975), attitudes concerning the behavior are better predictors of intention to engage in the behavior than attitudes concerning the object of the behavior. In terms of physical activity, this then indicates that a person's beliefs about engaging in physical activity rather than beliefs about the health effects of obesity will determine whether their attitudes concerning engaging in the behavior are positively or negatively oriented. The construct of subjective norm consists of the beliefs a person has concerning what other people who are important to them think about engaging in the behavior and the person's motivation to comply with these important others (Ajzen, 1991). Perceived behavioral control is the beliefs that a person has concerning their control over the behavior. Perceived behavioral control over performing physical activity encompasses individual cognitions such as a person's self-efficacy and factors within the social and physical environment that either facilitate or thwart engagement in physical activity.

According to the TPB, behavioral intention stands as the most important behavioral determinant (Ajzen, 1991; Ajzen & Madden, 1986). Intentions to be active have consistently been found to be associated with children's and adolescents' physical activity (Sallis et al., 2000). The TPB has been used extensively to determine engagement in physical activity and studies consistently have found a strong relation between the TPB and initiation of physical activity (Godin & Kok, 1996; Hagger, Chatzisarantis, & Biddle, 2002b). While few studies have investigated the relation between the TPB and the maintenance of physical activity, these studies indicate that the TPB constructs are significant predictors of exercise maintenance with the most important construct being perceived behavioral control (Armitage, 2005; Miller, Ogletree, & Welshimer, 2002; Sallis et al., 1990).

Self-Determination Theory

Like the TPB, self-determination theory (SDT) is an individual-level theory focusing on individual's motivation to engage in specific behaviors. Underlying SDT is the assertion that all humans have an innate propensity towards growth and health (Deci & Ryan, 2002). According to SDT, self-determined behaviors are established through environmental support of three basic psychological needs: 1) volitional control over behavior or autonomy, 2) competence in performing the behavior, and 3) feelings of connectedness and acceptance by others (Deci & Ryan, 2000). When persons experience these three basic needs, they feel that their behaviors are their choice and within their own control. The evidence to support the role of these three basic needs to provide psychological wellbeing has been well established (C. S. Carver & Scheier, 2000; Kernis, 2000; Ryan & Deci, 2000).

Another important component of SDT is the inclusion of an organismic integration mini-theory (Ryan & Deci, 2000). This mini-theory focuses on the means by which the environment supports the framing of goals related to behavior as either intrinsically or extrinsically regulated (Gillison et al., 2006; Vansteenkiste, Matos, Lens, & Soenens, 2007). Intrinsically regulated behaviors are performed for their own inherent enjoyment whereas extrinsically regulated behaviors are performed to meet goals that are influenced by some outside means. Intrinsic goals related to physical activity include physical fitness, personal pleasure, and enjoyment whereas extrinsic goals include weight loss, attractiveness, and physical beauty. Intrinsic goals are necessary for the promotion of self-motivation as they provide support for the three basic needs (Deci & Ryan, 2000; Ryan & Deci, 2000, 2002). Extrinsic goals detract from the fulfillment of the three basic needs and therefore hinder self-motivation by diverting attention away from the

activity itself. Therefore, it is important for the environment to support perceptions of autonomy, control, and the framing of goals as intrinsic to promote maintenance of physical activity.

However, Ryan and Deci (2000) point out that not all behaviors can be intrinsically motivated and therefore the real concern is how individual's are extrinsically motivated so that they have a high degree of behavioral quality and well-being that influences the maintenance of behavior. The lack of true intrinsic motivation is especially prominent outside of childhood as adolescents and adults become more impacted by outside social pressures (Ryan & Deci, 2000). Importantly, nonintrinsically motivated behaviors can become self-determined through processes influenced by the social environment. Ryan and Deci (2000) therefore describe aspects of self-determined motivation on a continuum rather than as dichotomous. Types of motivation and their associated styles of behavior regulation along this continuum move from motives that are nonself-determined towards ever increasing degrees of motivation that are self-determined.

Studies have consistently found that engaging in physical activity is associated with self-determined motivation and that interventions based on self-determination theory increase youth participation in leisure time physical activity (Chatzisarantis & Hagger, 2009; Gillison, Osborn, Standage, & Skevington, 2009; Kipp & Amorose, 2008; Standage, Sebire, & Loney, 2008). In terms of autonomy and framing goals, competitive activities tend to promote the framing of goals as extrinsic that may detract from feelings of autonomy and control as they place emphasis on demonstrating one's ability and outperforming others rather than the act of participation in the activity itself (Vansteenkiste et al., 2007). Conversely, the framing of goals associated with noncompetitive physical activities may have greater intrinsic potential and thus would prove optimal for the development of perceptions of autonomy and control that supports self-determined motivation.

Integrated Model of TPB and SDT Explaining Early Adolescents' Engagement in Outdoor Activity

According to a recent meta-analysis, studies integrating the TPB and SDT have shown that the two theories complement each other and draw off of their respective weaknesses and strengths (Hagger & Chatzisarantis, 2009). Furthermore, most of the research integrating the TPB and SDT has been focused on behaviors associated with physical activity. The TPB provides a framework upon which to explain the variance in intentions to engage in health behaviors, but fails in identifying the origins of the antecedents of behavioral intention (attitudes, subjective norms, and perceived behavioral control) that may be accounted for within SDT (Chatzisarantis, Hagger, & Smith, 2007). In effect, the TPB does not explicitly state reasons for the pursuit of individual beliefs. The SDT offers a means to place outcome beliefs within intrinsic or extrinsic regulation to help better understand the contextual framing of individual beliefs (Shen, McCaughy, & Martin, 2007). Likewise, SDT does not provide a mechanism for the transition of a person's motivational characteristics into intention to perform a behavior. The findings from Hagger and Chatzisarantis (2009) support this integrative approach in studies focused on complex behaviors such as physical activity. The specific hypothesized relationships that are included in the integrated model used for the current study are supported by existing research and are depicted in Figure 1.

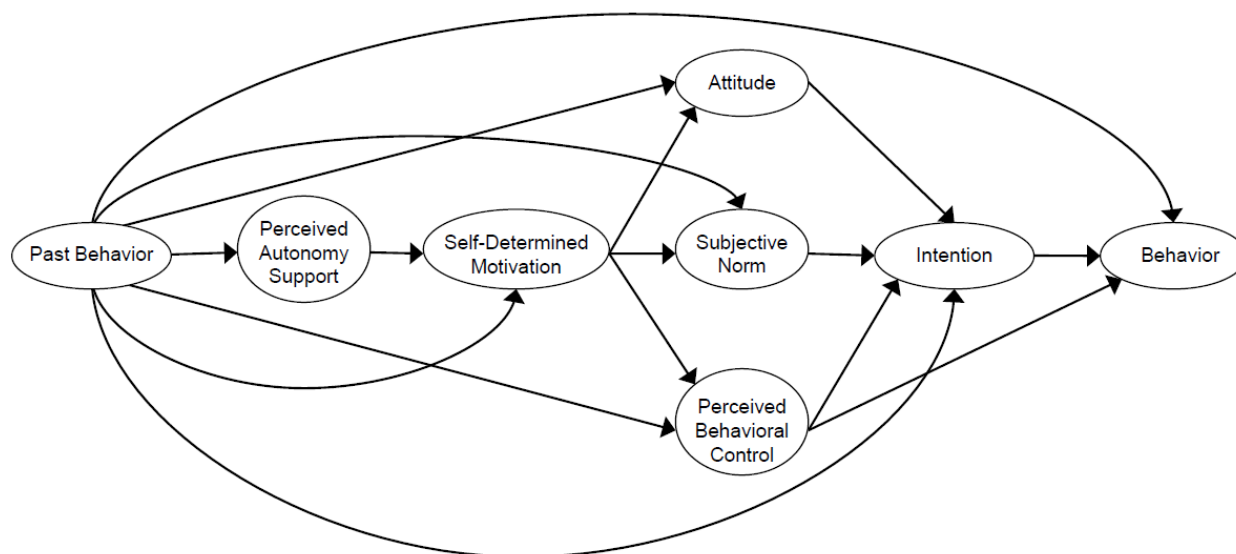


Figure 1. *Integrated Conceptual Model of Self-determination Theory and the Theory of Planned Behavior* (adapted from Hagger & Chatzisarantis, 2009).

Hypothesized Structural Relationships

The Role of Past Behavior

The influence of a person's past behavior on their intentions to engage in that behavior, their future engagement in that behavior, and the other constructs of the TPB has been established (Bagozzi, 1981; Bentler & Speckart, 1981). Past engagement in a behavior is often measured as the frequency that a person has engaged in a behavior in the past. Therefore the higher the frequency of past engagement, the greater the likelihood of intentions to engage in a behavior, to actually engage in the behavior in the future, to have positive attitudes and subjective norms, and to perceive control over engaging in the behavior (Hagger, Chatzisarantis, & Biddle, 2002a). Furthermore, studies investigating the relationship of the constructs of the TPB to behavior have found that the relationships between attitudes and intention and

subsequently intention and behavior are attenuated when past behavior is included in the analysis (Bagozzi, 1981; Hagger, Chatzisarantis, Biddle, & Orbell, 2001). Lastly, Bentler and Speckart (1981) have shown that the effects of attitude, subjective norms, perceived behavioral control, and intentions are distinctive when controlling for past behavior.

Similarly, past engagement in physical activity has been shown to attenuate the effects of attitudes on intention and also intention on engagement in physical activity (Hagger, Chatzisarantis, & Biddle, 2001; Hagger, Chatzisarantis, Biddle, et al., 2001). Furthermore, Hagger and Chatzisarantis (2009) also found attenuation effects for constructs of SDT along with constructs of the TPB when controlling for past engagement in physical activity. However, while this study found that past engagement in physical activity significantly predicted all of the constructs in their model, the effects of constructs in the model remained significant when controlling for past engagement. Therefore, past engagement in physical activity does not account for all of the variance explaining future engagement in physical activity in an integrated model of SDT and the TPB. These results indicate the importance of accounting for past engagement in physical activity within studies. Few, if any solid hypotheses have been put forth and tested that help explain the mechanism through which past engagement in physical activity behavior influences intentions and actual engagement in physical activity (Hagger et al., 2002a).

Relationship between Perceived Autonomy Support and Self-determined Motivation

As discussed previously, autonomy is one of the three basic psychological needs stated within SDT. The construct of autonomy support has been proposed as a means to account for the role of interpersonal factors in promoting self-determination (Deci, Eghrari, Patrick, & Leone, 1994). The autonomy support that an individual receives from others around them is instrumental

in the development and promotion of feelings of autonomy of the individual and subsequent intrinsic motivation (Reeve, Bolt, & Cai, 1999). The autonomy support that a person receives that is specific to the behavior has the most influence on the intrinsic motivation to engage in that behavior (Hagger et al., 2007). Furthermore, it is the individual's perception of the autonomy support that they receive from the social environment that has the most influence on the degree of their feelings of autonomy (Deci et al., 1994; Hagger et al., 2007; Reeve et al., 1999). Therefore, perceived autonomy support has been shown to be a good proxy for the supportive elements of an individual's self-determined motivation. These perceptions of autonomy support have also been shown to be influential in the promotion of self-determined motivation in health-related behaviors (Hagger et al., 2007). This then makes the promotion of environments that support the autonomy of individuals an important aspect to consider for health-related areas (Chatzisarantis & Hagger, 2009).

In terms of physical activity, most of the research on autonomy support has been focused on self-determined motivation to engage in exercise and leisure-time activity such that the more autonomy support a person perceives the more self-determined motivation they have to engage in the activity (Chatzisarantis & Hagger, 2009; Hagger et al., 2007; Hagger et al., 2009; Shen et al., 2007). Research has shown that aspects of the environment that youths perceive as supportive to their autonomy in engaging in exercise and leisure-time activity include being provided with choice, options, and encouragement by adults in the types of activities and whether or not to engage in activity, feeling that adults listen and understand why they choose to engage in certain types of activities, feeling that adults provide positive feedback and are willing to answer questions about their activities, and feeling that adults care about their activities (Hagger et al., 2007; Hagger et al., 2009; Shen et al., 2007).

Relationships between Self-determined Motivation and the Constructs of TPB

Self-determined motivation to engage in physical activity has been shown to be an important factor in the proximal antecedents of intention to engage in physical activity (Hagger & Chatzisarantis, 2009). Research has consistently shown that self-determined motivation has a significant effect on attitudes and perceived behavioral control (Chatzisarantis, Hagger, Biddle, & Karageorghis, 2002; Hagger & Chatzisarantis, 2009; Hagger et al., 2002a). Individuals with a high degree of self-determined motivation to engage in physical activity are more likely to report positive attitudes and perceptions of control concerning physical activity that are consistent with their self-determined motives (Hagger & Chatzisarantis, 2009). Providing support for this relationship is the suggestion provided by Vallerand (2007) that self-determined motivation will predict cognitive beliefs concerning a target behavior.

What is less consistent is the relationship between self-determined motivation and subjective norms. Much of the research investigating the relationship between SDT and behavioral intention has found that self-determined motivation does not have a significant direct effect on subjective norms, although subjective norms has been found to be a mediator of the indirect effect of self-determined motivation on intention (Hagger, Chatzisarantis, Barkoukis, Wang, & Baranowski, 2005; Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003). The lack of a direct effect of self-determined motivation on subjective norms has been hypothesized as being due to the controlling nature of subjective norms. Subjective norms represents the controlling force of pressure by others rather than as self-determined perceptions (Hagger & Chatzisarantis, 2009). From this view, subjective norms are more representative of external beliefs and extrinsic motivators than intrinsic motivators. Contrary to the findings from these studies, Hagger and Chatzisarantis (2009) found a significant and positive effect of self-determined motivation on

subjective norms through a meta-analytic review. This finding was hypothesized as potentially due to subjective norms usually being measured as the controlling factors of not just others, but of significant others. This is because an individual may view the controlling aspects of their significant other as being supportive of their self-determined motivation (Iyengar & Lepper, 1999). Therefore, in the eyes of the individual their significant other is merely acting for their benefit and is a support to their autonomy rather than a controlling force. Hagger and Chatzisarantis (2009) have speculated that the simultaneous reflection of controlling and internal aspects of social beliefs that are represented by subjective norms have led to the inconsistent findings in the research on the effect of self-determined motivation on subjective norms.

Studies have consistently found that self-determined motivation has an indirect effect on intention to engage in physical activity (Hagger & Chatzisarantis, 2009; Hagger et al., 2009; Pihu, Hein, Koka, & Hagger, 2008; Shen et al., 2007). Furthermore, this indirect effect is mediated by the predictors of intention of the TPB that includes attitudes, subjective norms, and perceived behavioral control. These studies also found that self-determined motivation has an indirect effect on physical activity behavior through the mediating effects of the TPB that includes the direct effects of attitudes, subjective norms, and perceived behavioral control on intention and the direct effect of intention on physical activity behavior. Strack and Deutsch (2004) posit the relationship between self-determined motivation and intention and behavior to be due more to a reflective process through which self-determined motivation influences intention and behavior than an impulsive process. This means that the reason a person with a high degree of self-determined motivation is more likely to have intentions of engaging in physical activity and to engage in physical activity may not be due to the person's instinctive

inclination towards intention and participation, but rather due to the more complicated cognitive process through the constructs of the TPB.

The possible direct effect of self-determined motivation on intention to engage in physical activity is inconsistent. Some studies have found a direct effect of self-determined motivation on intention to engage in physical activity (Chatzisarantis et al., 2002; Hagger et al., 2005; Hagger et al., 2009). This direct effect has been hypothesized as the potential impulsive process through which self-determined motivation influences intention and engagement in behavior (Hagger, Chatzisarantis, & Harris, 2006). This would mean that when a person reports a high degree of self-determined motivation, they may be less likely to engage in deliberation over their intended future behavior. Other studies have found no direct effect of self-determined motivation on intention to engage in physical activity (Hagger & Chatzisarantis, 2009; Hagger et al., 2003; Pihu et al., 2008; Shen et al., 2007). As stated previously, these studies did find an indirect effect of self-determined motivation on intention through the mediation of constructs of the TPB and therefore lend support to the reflective process whereby self-determined motivation influences intention and behavior described by Strack and Deutsch (2004). Consistent with these studies and the findings from the meta-analytic review of Hagger and Chatzisarantis (2009), the current study does not include any direct relationship between self-determined motivation and intentions or actual behavior.

Relationships between the Constructs of TPB

As discussed previously, the TPB posits that a person's attitudes, subjective norms, and perceived behavioral control influence their intentions of engaging in a behavior. The influence of these constructs in terms of physical activity has also been previously discussed. An important

distinction in the conceptualization of the TPB that needs to be addressed is that of Ajzen (1985) and Ajzen and Driver (1992). Ajzen's (1985) original conceptualization of the relationships between the constructs of the TPB states that attitudes, subjective norms, and perceived behavioral control each independently effect intention to engage in a behavior and subsequently that intention predicts actual engagement in the behavior. In focusing on behaviors related to leisure-time activity, Ajzen and Driver (1992) further modified the TPB to include the relationships between attitudes, subjective norms, and perceived behavioral control as well as the direct influence of perceived behavioral control on actual engagement of behavior. In this modified conceptualization of the TPB, a person's cognitive beliefs about a behavior and their perceptions of control concerning the behavior are all influenced by each other. These relationships have been shown to be significant in a meta-analytic review of studies utilizing the TPB in terms of physical activity (Hagger et al., 2002b) and in more recent studies examining physical activity utilizing the TPB (Armitage, 2005; Hagger et al., 2003; Motl et al., 2002). The structural model for the current study does not include these relationships due to the integration of SDT and the TPB. Structural equation modeling techniques do not allow for the designation of correlations between constructs that are predicted by other constructs in the model (those that are endogenous). Only those constructs that are not predicted by other constructs (those that are exogenous) may be correlated.

The direct influence of perceived behavioral control on actual behavior has been shown in studies utilizing the TPB in examining physical activity behavior (Armitage, 2005; Hagger et al., 2002b; Hagger et al., 2003). Ajzen and Driver (1992) state that the combination of intentions and perceptions of control determine engagement in leisure-time physical activity behavior. In addition, while perceived behavioral control does influence intention and therefore indirectly

influences behavior, it also directly influences behavior. For instance, two individuals may have the same intentions of engaging in a specific physical activity but if they have different perceptions of their abilities and access to resources to engage in the activity they will have different likelihoods of actually engaging in the activity (Ajzen & Driver, 1992). Contrary to the structural model examined by Hagger and Chatzisarantis (2009) that did not include this direct relationship, the structural model for the current study includes the direct relationship between perceived behavioral control and behavior.

Summary

Studies indicate that environmental factors such as neighborhood safety, proximity to parks, the number of park facilities, and features of playgrounds are associated with children's outdoor physical activity. Aspects of the family social environment and opportunities for outdoor activity have also been shown to be associated with children's outdoor physical activity such as parents' encouragement to be active, parents' perceptions of safety, parents' own activity levels, and opportunities for school recess. In terms of children themselves, the amount of time children spend outdoors, interest in activities, participation in activities, perception of own athletic abilities, fitness attributes, and time spent using the computer have been shown to be associated with their outdoor activity. This review of the literature indicates the complexity of children's engagement in outdoor physical activity and the need for research to account for physical and social environmental factors as well as individual level factors.

Given the literature that has been reviewed here, there are a number of hypotheses that underlie the current study:

1. Aspects of the social environment that are perceived to support autonomy will positively influence self-determined motivation.
2. The greater degree to which motivation to engage in outdoor physical activity is self-determined will directly positively influence cognitive beliefs concerning the activity and indirectly positively influence intention to engage in outdoor physical activity.
3. The relationship between self-determined motivation and intention to engage in outdoor physical activity is mediated by the influence of attitudes, subjective norms, and perceptions of control on intention.
4. The greater the intentions of a person to engage in outdoor physical activity the more likely they are to engage in outdoor physical activity.
5. Aspects of the physical and social environment that are perceived as aiding in one's ability to engage in outdoor physical activity will positively influence engagement in outdoor physical activity.
6. The past engagement in outdoor physical activity influences all of the previously mentioned relationships concerning future decisions to engage in outdoor physical activity.

CHAPTER 3: METHODOLOGY

Research Design

Overview

This study has a mixed-methods research design that incorporates quantitative and qualitative research methods. Mixed-methods research uses the same data collection and analysis as traditional research, but integrates research approaches that have generally been viewed as separate and distinct. Crotty (1998) points out that the dividing line between quantitative and qualitative research is usually traced back to the epistemological view or theoretical perspective of the research, but that separation at this level is not necessarily defensible. Rather, the distinction between quantitative and qualitative research actually occurs at the methodological level. This allows for both quantitative and qualitative research to be conducted amicably under the same epistemological umbrella (Crotty, 1998).

The issue surrounding epistemology and theoretical drive when conducting mixed-methods research remains contested. Morse (2003) states that a single study cannot be both directly inductive and deductive since it is based on the research questions that must be either inductive or deductive. Therefore, either the quantitative or qualitative data will take precedence while the other form of data is supplementary. In contrast, other researchers have argued that the mixing of ways of thinking, understanding, and perceiving the world and not merely quantitative and qualitative methods is where mixed-methods research carries the most potential to further social and behavioral inquiry (Greene, 2007; Tashakkori & Teddlie, 2003). This stance allows

for the equal treatment of qualitative and quantitative data within a single study rather than one having to take primary importance.

The benefit of a mixed-methods design that combines quantitative and qualitative methods is the ability to offset the weaknesses of one research approach with the other to provide a more comprehensive understanding of the issue that the research intends to address. Of course, there are challenges to conducting mixed-methods research including the longer time requirement, decisions concerning how and where data integration should occur in the research process, having to be competent in two forms of methodology, and higher cost of conducting the research (Creswell, 2003; Johnson & Onwuegbuzie, 2004; Morse, 2003).

The mixing of quantitative and qualitative research methods in a single study has developed considerably over the past 20 years so that currently there are numerous texts devoted to the topic and the procedures for conducting this type of research (Creswell, 2003). For a full discussion of mixed-methods research designs, it is encouraged that readers consult Creswell (2003), Greene (2007), Johnson and Onwuegbuzie (2004), and Morse (2003).

This study collected and analyzed data according to a sequential explanatory design. Utilizing this design, the study consisted of a quantitative data collection and analysis phase, followed by a qualitative data collection and analysis phase, followed by an integrated data analysis phase where the quantitative and qualitative data were jointly analyzed. The quantitative phase consisted of the development of a self-administered paper-based questionnaire that was given to early adolescents to assess the conceptual model combining the constructs of the SDT and TPB as it relates to outdoor activities. This phase was conducted during the summer and fall of 2011. The qualitative phase consisted of in-depth semi-structured interviews with a subsample of early adolescents to explore their experiences of outdoor activities and what meanings these

experiences hold for them. This phase was conducted during the fall and winter of 2011-2012. The final phase brought the data gathered from the previous two phases together to examine the experiences of early adolescents that are important to behavioral intention to engage in outdoor activity and the role of self-determined motivation in behavioral intention. The final phase was conducted during the winter of 2011-2012. In a review of studies using mixed-method designs, Bryman (2006) found that the combination of questionnaire methods with semi-structured interviews was the most common.

This chapter consists of the following. First, a discussion of the sequential explanatory research design will be presented followed by a discussion of the rationale for choosing this research design for this study. Second, the quantitative and qualitative data collection and analysis phases will be explained. Last, the final phase of integrating the quantitative data and the qualitative data will be explained.

Mixed-Methods Design: The Sequential Explanatory Design

Greene (2007) has provided two dimensions of distinguishing between mixed-methods designs: (1) whether the methods are conducted independently or integrated at all levels of study design; and (2) whether the methods are given equal priority or if one takes precedence over the other. The sequential explanatory design is considered the most straightforward of the major mixed-methods designs due to the quantitative and qualitative data collection and analysis being separated into distinct phases (Creswell, 2003; Morse, 2003). This design is characterized by a quantitative data collection and analysis phase followed by a separate qualitative data collection and analysis phase. Usually the quantitative phase is given the higher priority with the qualitative phase being conducted primarily to aid in interpreting the results of the quantitative phase

(Creswell, 2003; Morse, 2003). Morse (1991) has mentioned that this design is most advantageous when the qualitative phase is used to help explain any unexpected results that may have arisen from the quantitative phase. As shown in Figure 2, the sequential explanatory design is depicted using notation used by Morse (1991) with the phase being given the higher priority represented by uppercase letters (i.e., QUAN) and the phase given the lower priority represented by lowercase letters (i.e., qual). Of primary importance to the sequential explanatory design is the sequential nature of the process as is represented by the arrows. This is opposed to concurrent designs where quantitative and qualitative data collection and analysis occur simultaneously. This concurrent approach is usually represented by a plus sign instead of an arrow.

An important adaptation to the sequential explanatory design that is considered appropriate and advantageous for certain studies is to give equal weight to both phases (Morse, 2003). This shares most of the same advantages as the previous approach in supporting the quantitative phase, but adds the value of a full methodologically rigorous qualitative phase to obtain a deeper understanding of the research question. This approach also can aid in the purposeful sampling of the qualitative phase since participants can be selected based on traits measured in the quantitative phase (Morse, 2003). The primary disadvantage to this is the length of time that is required to conduct data collection for a full quantitative phase and a full qualitative phase (Creswell, 2003; Morse, 2003). For the current study, a sequential explanatory design was utilized where both the quantitative and qualitative phases were given equal priority. The modified design is shown in Figure 3, using the notation with both phases represented by uppercase letters to indicate that both are given equal priority and weight in the data collection and analysis.

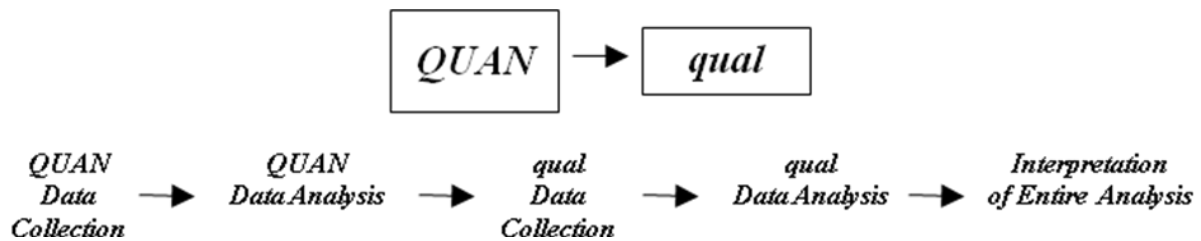


Figure 2. Sequential Explanatory Mixed-methods Design Depicting the Quantitative Phase being given the Higher Priority over the Qualitative Phase (adapted from Morse, 2003).

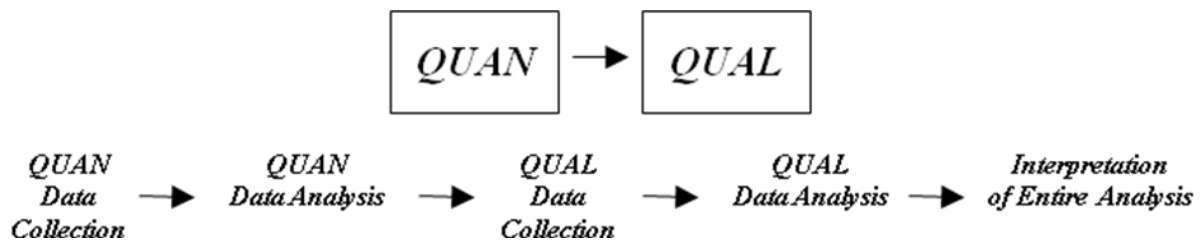


Figure 3. Sequential Explanatory Mixed-methods Design Depicting the Quantitative Phase being given Equal Priority with the Qualitative Phase.

Rationale for a Mixed-Methods Design

The rationale for choosing a mixed-methods design, and specifically a sequential explanatory design where both the quantitative and qualitative phases are given equal priority, will be discussed using the schema provided by Bryman (2006):

1. The use of this design provides a means for triangulation of the findings from both phases to mutually corroborate the results.
2. The design allows for the strengths of each method to alleviate the weaknesses of the other method to some degree.

3. The design offers a more detailed and deeper understanding of early adolescents' outdoor activities than would be possible using only one of the methods.
4. Both methods help provide explanations for the findings from the data collected through the other method.
5. The qualitative methods help to understand any unexpected findings from the quantitative methods.
6. The results of the quantitative phase aid in the sampling of participants for the qualitative phase.
7. The results of the qualitative phase facilitate richer illustrations of the results of the quantitative phase.

Phase One: Quantitative Data Collection and Analysis

Questionnaire Development

The questionnaire was designed to assess the constructs of the model guiding this study. To assess the constructs of the model integrating SDT and the TPB, survey items were developed to enhance their relevance within the study population of 11-13 year old adolescents. The initial step of this process was a full literature review of all available measurement variables and scales that have been assessed for reliability and validity. In cases where there are good measures of constructs already available it is often not recommended to develop new measures from the ground up (Streiner & Norman, 2008). Since the model has been researched previously in terms of physical activity, valid measures were found that provided an appropriate starting point. Measures that were adapted for the study included the Perceived Autonomy Support Scale for Exercise Settings, the Behavioral Regulation in Exercise Questionnaire-2, and the Leisure Time

Exercise Questionnaire (Godin & Shephard, 1985; Hagger et al., 2007; Markland & Tobin, 2004). The standard items for attitudes, subjective norms, perceived behavioral control, and behavioral intention were utilized (Ajzen, 1991; Armitage, 2005). The items from these instruments were adapted for the study population and for noncompetitive outdoor physical activities based on the results of focus groups with the target population and pilot-testing.

Two focus group interviews were conducted by the PI with a subsample of the study population ($N = 7$) of students from the middle school. Participants included four girls and three boys. The focus groups were conducted at the local YMCA facility ($n = 4$) and Boys and Girls Club ($n = 3$) with participants that were identified directly through the YMCA. Each focus group lasted approximately 30 minutes and each participant was given a \$10 gift certificate to the local movie theater. The aim was to identify the most salient beliefs associated with sources of autonomy support, motivation, and attitudes concerning noncompetitive outdoor activity as well as assess the comprehension of the measurement instrument items. Parental permission and minor assent was sought from participants prior to each focus group. The parental permission form is provided in Appendix A and the minor assent form is provided in Appendix B. The focus groups were semi-structured and were conducted utilizing an interview guide with questions that allowed for open ended responses and discussion. The focus group interview guide is included in Appendix C. It was intended for both focus groups to be audio recorded so they could be played back during analysis, however only one of the focus groups was recorded since the second focus group was conducted in a noisy room that did not permit the use of an audio recorder. The focus groups were analyzed on an ongoing basis for themes relating to the constructs of interest and the comprehension of the measurement items. Particular attention at this step was also paid to issues

of scaling and face validity of the items through the opinions of experts in the area of developing questionnaires for youth (Streiner & Norman, 2008).

Analysis of the focus group data demonstrated that the constructs of the theoretical model were salient and that the measurement items were at an appropriate reading and comprehension level for the study population. By showing the participants measurement items and asking them what the items mean in their own words, it was clear that the items were understood by the participants as intended. Participants also demonstrated an understanding of noncompetitive versus competitive physical activities.

Using the information gained from the focus groups, only minor modifications were made to the measurement instruments found in the literature. All of the instrument items were worded to refer back to the noncompetitive outdoor physical activities that respondents reported engaging in at the beginning of the questionnaire and were rescaled on 5-point Likert scales. The exceptions were items related to attitudes that were scaled on a 6-point semantic differential scale to abandon a neutral response. Particular attention was paid to the overall design of the questionnaire using expert opinions in the field.

The next step of development was pilot-testing the questionnaire with a separate small subsample of students from the study population ($N = 32$). These students were recruited from the local YMCA as were the students who participated in the questionnaire development focus groups. Parental permission was sought from at least one parent of each participant. Minor assent was sought prior to participants beginning the questionnaire. The parental permission form is included in Appendix D and the minor assent form is included in Appendix E. The questionnaire took between 20 to 30 minutes for participants to complete and they received a \$10 gift certificate to the local movie theater as an incentive. The PI administered the questionnaire at the

local Boys and Girls Club ($n = 8$) and at the middle school ($n = 24$). The questionnaire was assessed for suitable reading level, comprehension level, and appropriateness for the population. To assess these aspects during pilot-testing, the PI randomly selected participants and asked them to “talk aloud” as they answered items. This method has been shown to be effective at obtaining greater depth of responses to survey development in moving beyond the simple survey administration pilot-testing (Collins, 2003; Foddy, 1998). Probing questions were used by the PI to elicit further detail regarding how the participants understood the items and what conclusions they drew from answering them.

Of the total number of respondents for the pilot-test, one questionnaire was thrown out for item analysis leaving a final sample size of 31 respondents. This questionnaire had a high number of missing responses with more than half of the questionnaire being incomplete. A majority of respondents were female (68%) and in the 6th grade (65%) followed by 7th grade (23%), 8th grade (7%), 5th grade (3%), and 9th grade (3%). Forty-two percent of respondents reported that they participate in the free and reduced lunch program at their school.

Item analysis showed that items were not highly skewed (within the range of $|2|$), but some of the items were slightly kurtotic (outside the range of $|2|$). Cronbach’s alpha, inter-item correlations, mean variance, mean correlations, corrected item-total correlations, and Cronbach’s alpha if-item-deleted were calculated for each measurement scale to determine item performance (Streiner & Norman, 2008). Based on these statistics, three items from the perceived autonomy support scale and one item from the perceived behavioral control scale were thrown out. The items that were thrown out of the perceived autonomy support scale were from the peer autonomy support subscale. Based on expert opinions, it was concluded that for 6th and 7th grade students these items (ie. my peers answer my questions about doing these activities; my peers

care about these activities that I do; I trust my peers' advice about these activities) better reflected parents' autonomy support than peers' providing support for the results of the item analysis. Additionally, two other items from the peer autonomy support subscale were decided to better reflect parents' autonomy support (I feel that my peers provide me with choices, options, and opportunities about whether to do these activities; my peers make sure I understand why I need to do these activities). Based on this and the item analysis these two items were also thrown out. The wording of the item from the perceived behavioral control scale that was thrown out was also found to be problematic with several respondents asking the PI what was meant by "personal control" (ie. I feel that I have personal control over taking part in these activities). The item was thrown out based on this and the item analysis that showed that this item did not correlate with the other items on the scale.

Other minor revisions were also made to the questionnaire based on the results of the pilot-test. These included moving the position on the questionnaire of several items in order to better group items by construct, rescaling the behavioral intention items so that these items were on the same scale, and minor formatting revisions.

Sampling and Recruitment

The study was conducted in a rural county located in southern Georgia. The county is considered rural by definition of the U.S. Census Bureau with less than 1,000 persons per square mile. A majority of youth within the county school district are White (49%), followed by African American (27%), Hispanic (21%), Multi-racial (2%), and Asian (<1%) ethnicity. A majority of students within the county school district are economically disadvantaged with over 70% of students eligible to participate in the free and reduced lunch program. These demographic

characteristics make the county an ideal setting on which to study physical activity among youth since in Georgia, the highest rates of overweight and obesity are among African American youth in rural areas (Lewis et al., 2006).

Recruitment occurred at the county school district. One middle school holds all of the 6th and 7th grade students for the county. All students in 6th and 7th grade enrolled in the middle school were asked to complete the questionnaire. The middle school helped facilitate the recruitment and data collection process.

All students enrolled in the middle school were given a packet of information to take home to their parents that described the study, provided an option for parents to have their child opt-out of the study, and provided a sample questionnaire for parents to review. The informational sheet that was sent home to parents is provided in Appendix F. If parents wanted their child to opt-out of the study, the parent was instructed to sign the information sheet, provide their child's name, and have their child return the sheet to the school. The middle school homeroom teachers collected the information sheets that were returned with parent opt-outs. A total of 20 information sheets were returned with parent opt-outs.

Sample Size

Structural equation modeling techniques require large sample sizes with consideration to the complexity of the model (Kline, 2005). Kline (2005) recommends that the ratio of the number of cases to the number of free parameters be in between 10:1 to 20:1 with the more realistic goal being 10:1. MacCallum, Widaman, Zhang, and Wong (1999) recommend accounting for communality among variables within a model with greater communality requiring smaller sample sizes. The variables of the conceptual model being studied have been shown to be

relatively highly correlated (Hagger & Chatzisarantis, 2009), however few of the scales have been adequately validated for this study population. Therefore, a ratio of cases to free parameters of 15:1 has been chosen. The conceptual model consists of 17 free parameters, therefore requiring a sample size of 255 to obtain the appropriate size to conduct structural equation modeling with the given complexity of the conceptual model. The sample size goal was exceeded as described below.

Data Collection

The questionnaires were conducted during the homeroom period of one school day at the middle school. Prior to the beginning of the homeroom period, all teachers were given a packet of questionnaires, cover letters, and teacher instructions. The written instructions provided to teachers are included in Appendix G. At the beginning of the period, the PI gave an announcement to the entire school over the Public Address system that introduced the study and gave instructions to students concerning their participation in the study. After the announcement, teachers handed out the cover letters and questionnaires to their class. The cover letters provided information about the study, what participation in the study entailed, and instructions on filling out the questionnaire (provided in Appendix H). Teachers did not hand out a cover letter and questionnaire to those students who handed in an opt-out from a parent. When students finished the questionnaire, they were instructed to hand in the questionnaire to their teacher and to put their name and unique questionnaire number on a sheet of paper that the teacher had. This questionnaire key served as the only link to identify students' questionnaire responses for purposes of participant selection for the subsequent qualitative phase. Once all students finished

the questionnaire, teachers handed in all completed questionnaires and the questionnaire key to the PI.

Questionnaires were self-administered and paper-based (provided in Appendix I). The questionnaire consisted of a total of 65 items, 63 that required respondents to fill in a circle for their response using a pen or pencil and 2 that required filling in a blank with responses. The length of the questionnaire was four pages (2 folded pages front-and-back) consisting of seven sections. The first section asked how many times per month participants performed a variety of noncompetitive outdoor physical activities. The second section asked participants about the frequency of their current and past participation in noncompetitive activities. The third section asked the degree to which participants disagreed or agreed with statements relating to autonomy support, self-determined motivation, perceived behavioral control, and intentions to participate in noncompetitive outdoor activities. The fourth section asked participants to indicate their attitudes concerning noncompetitive outdoor activities. The fifth section asked participants to indicate their response to items referring to subjective norms. The sixth section asked for responses to items referring to current and past participation in competitive activities and sports. Finally, the last section asked for responses to demographic items.

Questionnaire Response

A total of about 1350 students are enrolled in the middle school. Of this number, a total of 1131 students filled out a questionnaire. Of the 219 students that did not fill out a questionnaire, 20 handed in parent opt-outs. That left 199 students that either were absent from school on the day of data collection or that decided they did not want to participate in the study. Of the students that filled out a questionnaire, 77 questionnaires had more than 10% missing data

and were thrown out. Another 14 questionnaires were thrown out because of a response pattern of all the same response for each item. Another six were thrown out because of distinct suspicious patterns in the data responses throughout the entire questionnaire such as diagonals and opposing extreme responses for every other item. Two questionnaires were thrown out due to participants' written comments on the questionnaire that indicated misunderstanding of the items. Therefore, the final dataset contained 1032 cases. Figure 4 depicts the derivation of the final dataset.

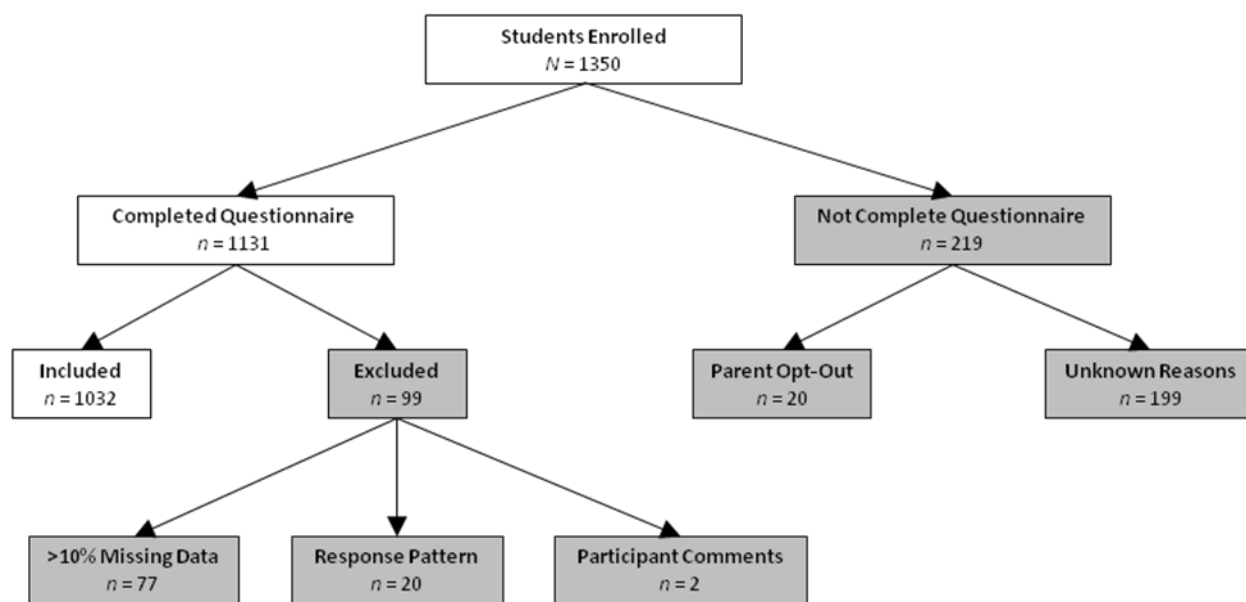


Figure 4. Final Dataset Derivation for Quantitative Phase

Description of Sample

Demographic characteristics of the sample are provided in Table 1. Slightly more than half of the respondents were female (51.3%). As expected, most of the respondents were in between 11-13 years old (98.2%) with only 16 (1.8%) respondents either 10 or 14 years old.

Almost half of the respondents were White (47.5%), slightly over a quarter were Black/African American (26.7%), and almost one fifth were Hispanic/Latino (18.7%). A majority of respondents reported the primary language spoken at home to be English (83.3%) followed by Spanish (14.6%). About half of respondents were in 6th grade (48.5%) and 7th grade (51.5%). A little over half of the respondents reported participating in the free and reduced lunch program at the school (55.8%).

Table 1. Demographic Characteristics of Sample

Demographic Characteristic	n	%
<i>Sex (n = 1024)</i>		
Male	499	48.7
Female	525	51.3
<i>Age (n = 914)</i>		
10	3	0.3
11	315	34.5
12	416	45.5
13	167	18.3
14	13	1.4
<i>Race/Ethnicity (n = 1030)</i>		
White	489	47.5
Black/African American	275	26.7
American Indian/Alaska Native	9	0.9
Asian	7	0.7
Hawaiian Native/Pacific Islander	2	0.2
Hispanic/Latino	193	18.7
Other	55	5.3
<i>Primary Language Spoken at Home (n = 1010)</i>		
English	841	83.3
Spanish	147	14.6
Other	22	2.2
<i>Grade (n = 1028)</i>		
6 th	499	48.5
7 th	529	51.5
<i>Participate in Free and Reduced Lunch Program at School (n = 1012)</i>		
Yes	565	55.8
No	447	44.2

Measures

The questionnaire collected information pertaining to the participants' demographic profile including age, gender, race/ethnicity, primary language spoken at home, grade in school, and participation in the free and reduced lunch program at school. The remaining questionnaire measures are discussed below.

Past Behavior

Past participation in noncompetitive outdoor physical activity was assessed using two items that asked for the frequency of participation in the last 3 months and the last 6 months (Q4-Q5 on the questionnaire). Both items were on a 5-point scale ranging from “never” to “very frequently.”

Autonomy Support

Perceived autonomy support related to noncompetitive outdoor physical activities was measured using an adapted form of the Perceived Autonomy Support Scale for Exercise Settings (PASSES) (Hagger et al., 2007). The original PASSES separates autonomy support into three distinct sources of support: physical education teacher; parents; and peers. Each subscale consists of 12-items on 7-point Likert scales that ask respondents to indicate whether they disagree or agree with statements. PASSES was originally intended to measure perceived autonomy support for exercise during free time outside of school and was validated in youth aged 11-14 years using confirmatory factor analysis techniques (Hagger et al., 2007). PASSES was adapted to noncompetitive outdoor physical activity outside of school by rewording all of the items to reflect this change. All items were rescaled on 5-point Likert scales to match the other measurement scales on the questionnaire. Only the subscales related to parents (Q6-Q17 on the

questionnaire) and peers (Q18-Q24 on the questionnaire) were included since these sources of support were thought to be more influential to noncompetitive activities than physical education teachers. After pilot-testing the questionnaire, five of the items from the peer subscale were removed due to their performance in relation to the other items on the subscale and the parent subscale. After reviewing the wording of these five items, they were also deemed to be more closely related to the support that parents would provide youth at the target age group of the current study than peers.

Self-Determined Motivation

Self-determined motivation to engage in noncompetitive outdoor physical activity was measured using the Behavioral Regulation in Exercise Questionnaire (BREQ) (Mullan, Markland, & Ingledew, 1997). The BREQ consists of 15 items on 5-point Likert scales that are separated into four subscales measuring the different forms of regulation: 4-items for external (alpha = .79); 3-items for introjected (alpha = .78); 4-items for identified (alpha = .79); and 4-items for intrinsic (alpha = .90) (Mullan et al., 1997). The BREQ has been validated using confirmatory factor analysis techniques in an adult population (Mullan et al., 1997). The wording of the BREQ was changed to reflect noncompetitive outdoor physical activities and a relative autonomy index (RAI) was calculated according to the technique described by both Hein & Hagger (2007) and Guay, Mageau, & Vallerand (2003). The RAI was utilized to create a more unidimensional measure of the multidimensional BREQ scale, which also reduced the overall number of variables in the model and maximized parsimony. Calculation of the RAI involved weighting each item from each of the subscales and then summing the weighted items. The items were weighted by multiplying the items from the external regulation subscale by -2, multiplying

the items from the introjected regulation subscale by -1, multiplying the items from the identified regulation subscale by 1, and multiplying the items from the intrinsic regulation subscale by 2. The weighting procedure is based on the continuum of self-determined motivation. The original 15 items measuring self-determined motivation were Q25-Q39 on the questionnaire.

Attitudes

Attitudes related to noncompetitive outdoor physical activity were measured using standard items (Ajzen, 1991) (Q45-Q50 on the questionnaire). Six items on 6-point semantic differential scales were used to assess attitude. These items were changed to reflect noncompetitive outdoor physical activities. Studies have shown these items provide good internal reliability with alpha coefficients between .81 and .90 (Armitage, 2005).

Subjective Norms

Subjective norms related to noncompetitive outdoor physical activity were measured using standard items (Ajzen, 1991) (Q51-Q53 on the questionnaire). Three items on 5-point Likert scales were used to assess subjective norms. These items were reworded to reflect noncompetitive outdoor physical activities. Studies have shown these items provide good internal reliability with alpha coefficients between .85 and .96 (Armitage, 2005).

Perceived Behavioral Control

Perceived behavioral control related to noncompetitive outdoor physical activity were measured using standard items (Ajzen, 1991) (Q40-Q42 on the questionnaire). Three items on 5-point Likert scales were used to assess perceived behavioral control. These items were reworded to reflect noncompetitive outdoor physical activities and to measure on the same scale from

strongly disagree to strongly agree. The original measure of perceived behavioral control consisted of four items. Based on the pilot-test of the questionnaire, one item was removed due to poor performance and participant confusion related to the wording. For the four item measure, studies have shown these items provide good internal reliability with alpha coefficients between .85 and .95 (Armitage, 2005).

Intention

Behavioral intention related to noncompetitive outdoor physical activity were measured using standard items (Ajzen, 1991) (Q43-Q44 on the questionnaire). Two items on 5-point Likert scales were used to assess intention. These items were reworded to reflect noncompetitive outdoor physical activities and to measure on the same scale from strongly disagree to strongly agree. Studies have shown these items provide good internal reliability with alpha coefficients between .72 and .76 (Armitage, 2005).

Current Behavior

Current behavior in noncompetitive outdoor physical activity was measured using an adapted form of the Physical Activity Recall (PAR) that has been validated for use with children (Sallis, Buono, Roby, Micale, & Nelson, 1993; Sallis, Condon, et al., 1993) (Q1-Q3 on the questionnaire). To assess whether activities are noncompetitive or competitive, questions were developed that listed noncompetitive outdoor activities. The recall timeframe of one week on the PAR was modified to one month since some of the noncompetitive outdoor activities might not be engaged in weekly. The second question on the PAR that measures frequency of participation on a 5-point scale was modified for noncompetitive outdoor physical activities and was divided

into two items that asked about frequency of participation during a typical week and a typical month.

Data Analysis

Data collected from the questionnaire was analyzed through structural equation modeling techniques using Mplus 6.11 (Muthen & Muthen). Due to the presence of missing data, parameter estimates were calculated using full-information maximum-likelihood (FIML) estimation. FIML has been shown to be a suitable method for the treatment of missing data through studies with simulated missing data (Arbuckle, 1996; Enders & Bandalos, 2001). Confirmatory factor analysis was used to test the overall measurement model to identify that the variables from the measurement instruments loaded as expected on latent factors. The questionnaire data was then analyzed to assess the fit of the data to the conceptual model using full structural modeling. The analysis and interpretation process followed the six fundamental steps outlined by Kline (2005), requiring 1) model specification, 2) model identification, 3) data collection, preparation, and screening, 4) model estimation, 5) fit assessment, and 6) model respecification.

Model specification refers to the graphic depiction of the hypothesized relationships using standard symbols to reflect a variety of conceptual elements. This depiction illustrates the supposed relationships between observed and latent variables. A requirement for producing this depiction is that it is grounded in explicit theory that has been tested empirically. To do this, a complete literature review is required. Giving this attention to theory ensures that important constructs are not absent and bolsters the credibility of the conclusions drawn from the results

concerning hypothesized relationships in the model. The conceptual model that was tested as a full structural model for this study is presented in the previous chapter.

Model identification refers to whether it is theoretically possible for a unique estimate of each parameter in the model to be obtained. A model that is considered to be identified will have at least as many known pieces of information as unknown. Pieces of information that are known are the covariances whereas the unknown are the parameters to be estimated. A model that is considered to be overidentified has more known pieces of information than unknowns and can produce more than one set of parameter estimates. An overidentified model is most often warranted so that the parameter estimates can be tested against one another to see if they are similar. If they are not similar then this is an indication of a potential problem with the model. Having more than one set of possible parameter estimates helps in identifying problems that may be present with the model specification. The model analyzed in the current study has been determined to be overidentified.

Next, appropriate measures of variables in the model must be selected and the data collected. For the current study this process has been described in the previous sections. Following this, the data must be screened for missing data, outliers, normality, and multicollinearity. As stated previously, for the current study missing data was handled using FIML to calculate parameter estimates. Outliers and multivariate normality was assessed using DeCarlo's Macro (DeCarlo, 1997) to calculate Bonferroni critical values and Mahalanobis distances. Univariate normality was assessed following the identification of any outliers to minimize the effects of the outliers on normality. Univariate normality was assessed using the statistics of skewness and kurtosis where these values should be no greater than an absolute value of two. Lastly, the data must be screened for multicollinearity. Multicollinearity occurs

when correlations between some variables or constructs are so high that they restrict mathematical operations from being calculated (Kline, 2005). To deal with multicollinearity, Kline (2005) recommends that redundant constructs be excluded from the analysis or are combined into one construct.

Model estimation involves the estimation of the parameter values within the model. The best set of parameter estimates are obtained through a least squares criterion where estimates are sequentially calculated until a set of estimates is obtained that results in a reproduced covariance matrix that is as close as possible to the original sample covariance matrix. Numerous estimation methods have been developed for this process such as the generalized least squares, maximum likelihood, and asymptotic distribution free. These methods differ based on the weight matrix that is employed. Though other methods were considered, as mentioned previously, maximum likelihood estimation was used for the current study based on the characteristics of the data and since this is the most common method.

Model fit is assessed mostly through the calculation of fit indices, R-square values, standardized residuals, t-values, and path values. The fit of a model is a representation of how well the model fits the data through explaining the observed covariance. Kline (2005) mentions that it is rare for a model to fit the data perfectly. Therefore, model fit is assessed through a variety of sources of evidence where a judgment call can be made. Many different fit indices are available and consequently many different recommendations exist in regards to their use. For the current study, the recommendations given by Hu and Bentler (1998, 1999) and Kline (2005) were used where a combination of various fit indices such as the chi-square, SRMR, RMSEA, and CFI were calculated along with R-square values, standardized residuals, t-values, and path values to assess model fit. The cut-off criteria for the fit indices were those recommended by Hu

and Bentler (1998, 1999) as shown in Table 2. This method of assessing model fit is considered to be the best current recommendation.

Table 2. Cut-off Criteria for Fit Indices (Hu & Bentler, 1998, 1999)

Fit Index	Cut-Off Value
Chi-square	non-significant
SRMR	<.08
RMSEA	<.06
CFI	>.95
TLI	>.95

The final step in the process is model respecification. Respecification may be performed when the model is thought to not fit the data well based on the assessment of model fit. Many times modifications to the model are warranted such as deleting unnecessary paths and adding paths that are needed (Kline, 2005). It is important that all modifications done to the original model are based on what is shown through theory rather than simply to create a well fitting model. For almost every dataset there is a model that can be created to fit it and subsequently can be modified to fit it, but without a supporting theoretical basis the resulting model reveals nothing of value. It is also important that the researcher discuss all post-hoc modifications done to the original hypothesized model including the rationale for each modification based in theory so that the results can be interpreted within this context.

Phase Two: Qualitative Data Collection and Analysis

Theoretical Framework

Few studies have focused on children as the key informants of determinants of their participation in outdoor play (Darbyshire, MacDougall, & Schiller, 2005). Most research has focused on parents and teachers for information on what engages children in outdoor play. This study gives children a voice as informants of their participation in outdoor play from a social constructivist interpretive perspective. According to social constructivism, children are active participants within the social environment and their experiences are shaped by reciprocal interactions with the social environment (Crotty, 1998; Freeman & Mathison, 2009). Within this perspective, children are considered to be autonomous and cognizant with their own outlook on lived experience rather than passive members of society (Morrow, 2001). This places children as the most important informants of their experiences of participating in outdoor activities as well as the individual and environmental factors that affect their participation. Children's play from this perspective is a rational and intentional act that has meaning for children and not random and inadvertent (Freeman & Mathison, 2009; Graue & Walsh, 1998).

An interpretive symbolic interactionist perspective grounded by phenomenology informed the methodology of this study. As pointed out by Crotty (1998), interpretivism "looks for culturally derived and historically situated interpretations of the social life-world." This means that interpretivism is not concerned with predictability and the finding of universals, but rather places primary importance on the contexts within which interpretation occurs. From the interpretivist perspective, social reality is constructed by individuals in social settings within specific contexts and is not a tangible foreseen phenomenon that can be directly observed.

Following very closely within interpretivism is the symbolic interaction perspective. According to Blumer (1969), the tenets of symbolic interactionism consists of three basic assumptions: 1) the ways that people act towards things are based on the meanings that people have for these things; 2) the social interactions that people have with others is what gives things meaning; 3) an interpretive process is used by people to alter the meanings of things that are encountered. Therefore, symbolic interactionism asserts that society and culture are the driving forces that shape people's understanding of the world around them (Mead, 1934). It is through symbolic interaction that stems from the society and culture in which one resides that people are able to make meaning of the things around them as well as their self-consciousness and personal identity. As a research perspective, symbolic interactionism provides a framework upon which to understand "what is most important to people, what will be most resistant to change, and what will be most necessary to change" in order to reach intended outcomes (Patton, 2002, p. 113). For the current study, symbolic interactionism provided a framework to understand the shared aspects of early adolescents' outdoor activities that are the most important to their motivation to participate in these activities. This also aided in the understanding of how those aspects of the social and physical environment support early adolescents' self-determined motivation and their intentions to engage in outdoor activity in order to modify these environments.

Phenomenology is concerned with understanding phenomena as they are experienced (Crotty, 1998). A phenomenon can be described as anything that is experienced by a person. The phenomenological approach is concerned with understanding how people experience and subsequently interpret the world (Patton, 2002). From the phenomenological perspective, a phenomenon that is experienced by a person is taken by human consciousness and transformed potentially many times over. The goal of phenomenology is to understand the phenomenon in its

original form as it was initially experienced before it has been altered extensively by human consciousness (Husserl, 1931, 1965). Of course, the phenomenological perspective recognizes that this is an ideal that cannot truly be obtained. The researcher instead strives to understand how the phenomenon was directly experienced by a person by first putting aside their own thoughts about the phenomenon and experiences with similar phenomena (Husserl, 1931, 1965; Spiegelberg, 1982). In this way the researcher tries to place themselves “in the shoes” of the research participant so that they may take a fresh look at the experience. This is in alignment with taking on the role and standpoint of others that is crucial to the symbolic interactionism perspective that places primary importance on first understanding how the research participant experienced the phenomenon and their view of it (Crotty, 1998; Mead, 1934). Only after the phenomenon is understood to the best of the researcher’s ability as it was directly experienced is the interpretation of meaning to be sought.

Symbolic interactionism takes a more rationalized view of the individual and assumes that shared meaning exists among people within a given society so that meaning is constructed through shared interpretive processes. Phenomenology provides a means to respect the individual’s subjective reality within symbolic interactionism through the assumption that lived experience is multi-dimensional (Charmaz, 1990). Symbolic interactionism and phenomenology complement one another as both emphasize exploring the construction of action and meaning (Charmaz, 1990, 2006). For the current study, phenomenology facilitated the symbolic interactionist perspective to maintain sight of the individualized subjective nature of early adolescents’ experiences of participating in outdoor activity. This facilitation occurred through use of phenomenological approaches to interviewing that were guided by a symbolic interactionist perspective that will be discussed later on in this chapter.

Sampling and Recruitment

The study sample consisted of 24 youth in 6th and 7th grade (aged 11-13 years). An equal number of physically active and inactive male and female youth were selected. Given the level of depth of the research questions, the sample size was considered to be more than sufficient for this study. A sample size of around 20 is considered “common” in qualitative interview research to reach data saturation (Kvale, 2007). A sample that is too large can lead to less in-depth interviews and analysis of the data. Assessment of data saturation was ongoing and revealed that there was a lull in the amount of new information being provided by participants by around the 18th interview with the amount of new information continuing to decrease through the last 6 interviews.

Recruitment was from the county school district. The middle school helped facilitate the recruitment and data collection process. All interviews were conducted at the middle school during normal school hours. Interviews were scheduled during periods lasting 1 hour and 15 minutes that students either attended computer lab, art, music, or physical education class.

Participants were youth in 6th and 7th grade enrolled at the middle school who completed the phase one questionnaire. The extremes of physically active and inactive groups were determined according to their responses on the questionnaire to questions related to past and current participation in noncompetitive outdoor physical activity. Informational letters were sent home with students to obtain signed parental permission. The informational letter to parents is provided in Appendix J and the parental permission form is provided in Appendix K. Once signed parental permission was obtained, students were asked to sit down with the PI in groups of 4-5 students each for the initial group interview. During the initial group interview, the study was described and minor assent was obtained through a separate form that was age appropriate

and read to participants by the PI. The minor assent form is included in Appendix L. Participants were given a chance to ask questions so that they fully understood the study and what their involvement would entail. Participants were given a \$10 movie theater gift card for participating in the study. Parental information and permission forms, minor assent script, and incentives to participation were approved by the University of Georgia Internal Review Board. Working closely with the middle school aided in the recruitment process and ensured that information was presented in a culturally appropriate manner for this population (Freeman & Mathison, 2009; Graue & Walsh, 1998).

Given the nature of the focus of the study and the plan for data collection, risks to study participants were expected to be low. However, certain potential risks were addressed. Since the participants were early adolescents there was potential for psychological distress. Participants could experience this distress as a result of recollections and discussion of any traumatic childhood experiences associated with outdoor play such as peer bullying or child abuse by an adult. The likelihood and seriousness of these risks were considered to be low for this study.

Procedures for minimizing the potential risks mentioned above were employed. The parental permission form included a statement that informed the parents that the PI will report any information divulged by their child during an interview that places their child or others in immediate danger. In the case of such an incident, the PI would have attempted to talk to the parent prior to reporting the incident. If during the interview a participant talked about any possible experiences that could have been traumatic or if there was any indication that a participant was experiencing any distress, the PI would have stopped the interview and notified the parents. No such incidents occurred during the interviews. To ensure confidentiality, the interview transcripts were de-identified by using pseudonyms in place of real names of

participants and potentially identifying cities and locations. The digital audio recording of each interview and the de-identified interview transcripts were kept on a secure password protected computer. A printed hardcopy of each transcript was secured in a locked file cabinet. Parental permission forms and minor assent forms were secured in a locked file cabinet.

Due to the low risk nature of this study to participants, no ethical dilemmas were expected, however potential ethical issues were constantly monitored throughout the study process. Participants could benefit directly from sharing their experiences in outdoor play and their interactions with peers and adults. Often, qualitative researchers who study children find that children can have feelings that their comments are valued and important and that they are being taken seriously as informants by an adult (Freeman & Mathison, 2009; Graue & Walsh, 1998). Children's thoughts and experiences are often not seen as important and therefore this can act as a benefit to the participants of this study as they were treated as the primary informants of their outdoor play experiences. Participants could also benefit indirectly from their participation in the study. The results from this study will be useful to the county school district and the county YMCA in designing after-school activities and programs that are most in line with what youth find to be the most engaging. Since many of the participants regularly attend these after-school programs, they will benefit from these activities.

Subjectivity Statement

I am a 30 year old white middle class male pursuing a PhD degree in Public Health. The home where I grew up was located in a small neighborhood and had a large backyard with nearby forested land where I would often play. I would not say that my childhood was marked mostly by being in the outdoors as I played my fair share of video games and watched plenty of

television, but outdoor activities did account for a good portion of my experiences and the most memorable experiences as a child. Growing up, activities such as camping, hiking, and fishing were all a part of my childhood outdoor experiences. As an adult, I am an avid outdoor enthusiast and advocate. It is my belief that the outdoor activities of my childhood have played a large part in how active I was as a child and also who I am as an adult in terms of both my level of physical activity and my appreciation for nature.

My background gives me a personal insight into the impact of childhood experiences in the outdoors on physical activity. This has undoubtedly influenced the development of this study both positively and negatively. Although I tried to go into this research project with an open mind for whatever I may find, I know that I brought many assumptions about what children experience in the outdoors. Recognizing my own childhood experiences and how they influenced this study by guiding my interactions with the participants and in the way that I interpreted the data through a slightly biased lens of the benefits of nature on childhood experience was an ongoing challenge. To help deal with this, I kept an interview journal to document the interview process and my personal reactions to each interview. This allowed self-reflection on my position within the interviews and the biases that I brought. This journal became part of my study and the data that was collected. I also regularly discussed aspects of my position within the study with my committee members as well as the analysis of the data in order to obtain other opinions concerning my subjectivity.

Data Collection

The interviews were conducted using a phenomenological approach from within a symbolic interactionist perspective. The use of phenomenological interviewing from the vantage

point of another theoretical framework is useful when the focus of the interviews is to go beyond pure description of individual experience (Patton, 2002). Phenomenology is a focus on people's lived experiences and the meanings that they associate with those experiences (deMarrais, 2004). While phenomenology is primarily concerned with obtaining detailed descriptions of phenomena as experienced by individuals, symbolic interaction as discussed previously offers a perspective from which to examine shared meanings that are created through interactions (Crotty, 1998; Patton, 2002). The phenomenological approach to interviewing that was adopted for the current study aided in obtaining detailed descriptions of early adolescents' experiences of outdoor activity. The symbolic interactionist perspective provided a means to move beyond mere description of the experiences to obtain a more detailed understanding of the factors that influence early adolescents' motivation and participation in outdoor activity.

The phenomenological approach is concerned with understanding how people experience and subsequently interpret the world (Patton, 2002). Interviews conducted from a phenomenological approach require that the interviewer obtain detailed descriptions of the respondents lived everyday world as well as the meaning that this lived world holds for the respondent (Kvale, 2007). These descriptions are focused on specific occurrences rather than general opinions. The interview itself is made up of open-ended questions focused on specific themes and is guided in part by the respondent's movement towards some of these themes. It is important to note that during this type of interview the construction of meaning by the respondents many times occurs for the first time during the interview and therefore respondents may contradict themselves by changing descriptions and meanings about a theme as they explore the interview topic. These contradictions are not necessarily dire as they may reflect inconsistencies within the lived world of the respondent (Kvale, 2007). It is the task of the

interviewer to keep the respondent focused on the research topic while maintaining a “qualified naïveté,” or the interviewer’s acceptance to explore unforeseen phenomena. The phenomenological approach lends itself to this study since early adolescents may not have been cognizant of the social and physical environmental influences of their participation and engagement in outdoor activities. This approach allowed for the identification of the most salient beliefs and influences on youths’ outdoor activity.

From the interpretive symbolic interactionist perspective, it is worth noting that participant observation would have been another method well suited for this study (Patton, 2002). Through participant observation, the outdoor activities of early adolescents’ could have been directly observed along with the social interactions that occur during these activities. The researcher’s role as participant in the activities could allow an inside perspective of what early adolescents’ experience when engaged in outdoor activities. From these observations and informal interviews, the aspects of the activities themselves and the social and physical environment that supported or hindered early adolescents’ motivation to engage in these activities could have been inferred. Some of the complications that arise from interviewing children about their experiences in detail could have been overcome by participant observation. Difficulties can occur during interviews when children do not want to or are not able to reflect on their experiences in the kind of detail that interests the researcher (Freeman & Mathison, 2009). Therefore, the use of participant observation may have been useful in combination with the interviews to supplement the gaps that may have existed in how youth represent their experiences of outdoor play. Participant observation may also have been used for purposes of triangulation in order to aid in determining the accuracy of the interview responses (Maxwell, 2005; Patton, 2002). However, use of this method could also be a study by itself to answer the

research questions and then the results compared to this study's results. Given the slightly older age of the participants, it was possible to obtain rich descriptions of experiences using the interviewing techniques described below; however participant observation was considered for this study.

Once signed parental permission was obtained, participants were contacted during school hours to meet in groups of 4-5 with the PI for a brief group interview. During this initial group interview, a description of the study was given along with what participants' involvement would entail. Minor assent was also obtained during this time. Following this, each participant was given a disposable digital camera to bring home to take pictures of the types of activities that they enjoy doing. Along with receiving the camera, some brief questions were asked. The initial group interview was conducted using an interview guide (included in Appendix M). The questions were open-ended and were focused on getting the participant to begin thinking of the pictures that they might take with the camera. This helped to focus the participant on what the purpose of the task of taking pictures with the camera was about so that more meaningful pictures would be taken. This strategy also provided an opportunity for the participants to meet and spend a short time talking with the PI to help ease some of the possible awkwardness of the interview situation during the longer follow-up one-on-one interview. The initial group interview took a more conversation-style of questioning as the main purpose was to provide an opportunity for an introduction between the PI and the participant and to help guide the one-on-one interview. The group interviews lasted approximately 10 minutes and were audio recorded and transcribed following the same procedures as the one-on-one interview. Participants were asked to return the cameras to the school within one week. Following this, participants were asked to sit down with the PI for a follow-up one-on-one interview.

The one-on-one interview began with a discussion of the pictures that the participant took during the week. The pictures from the digital camera were downloaded to a laptop computer and displayed on the computer during the beginning of the one-on-one interview. This helped to open up dialogue during the interview. Similar methods using disposable cameras have been shown to be useful in getting children to talk and open up during interviews (Darbyshire et al., 2005; Freeman & Mathison, 2009; Morrow, 2001). Commonly referred to as Photovoice, this method can also provide children with a greater sense of autonomy and control over the interview situation (Darbyshire et al., 2005). The use of photography was chosen for the potential value that it can bring to the interview setting and the data collected. It is important to note that this method was chosen to augment the one-on-one interviews to provide an “ice-breaker” and to provide a partial direct visual representation of the participants’ world to supplement the rich contextual description obtained during the interviews. This method was not chosen because it was thought that early adolescents lacked the ability to adequately describe their experiences verbally as is consistent with the critique of research with children presented by Backett-Milburn and McKie (1999). As others have pointed out, a photograph taken for research such as this is meaningless if there is no interpretation or explanation that is provided by the participant to accompany it (Becker, 1995; Morrow, 2001). Since only 9 out of the 24 participants returned the camera, the pictures themselves were not analyzed. However, the process of conducting the initial group interview was considered beneficial to introducing the study and creating rapport with the PI prior to the one-on-one interview. In addition, since the number of participants that took photos but did not return the camera was likely higher than the number of participants that returned cameras, there may have been a benefit to participants having time to think about their activities prior to the one-on-one interview that subsequently

aided the interview process. No fundamental differences in interview responses were observed between participants that returned cameras and participants that did not return cameras.

The one-on-one interviews were semi-structured, consisting of an interview guide with a set number of open-ended questions that were asked during each interview. The interview guide for the one-on-one interview is included in Appendix N. The use of an interview guide aided in maintaining focus during the interview as it was expected that an open conversational interview style would be problematic given the ages of the participants and ensuring that the same basic topics were covered in each interview (Patton, 2002). All interviews were conducted by the PI. Using a phenomenological approach, the interviews of the study participants were primarily aimed at obtaining a detailed description of an experience of an outdoor activity. This description given by each participant was then used to guide the rest of the interview as the participant reflected on the significance and meanings that this experience has for them. The descriptions obtained from the participants were then used to infer aspects of childhood experiences in the outdoors that are salient in terms of participation and engagement in outdoor activities. Appropriate probing questions were used so that the participants would provide detailed information regarding their motivation and intention to engage in the type of activity described, the aspects of the activity that they enjoy most, the interactions with peers and adults while engaging in the activity, their past participation in such activities, and their continued participation in the type of activity. Through the detailed description of an outdoor activity, importance was inferred as those aspects of the description that were given the most weight or prominence by the respondent. As such, a major assumption of this methodological approach is that the aspects of the experience that the respondent portrays are intentional and not coincidental

(Patton, 2002). The interview methods were adapted as the interviews were conducted to further facilitate the data collection process.

As is necessary in qualitative research, the researcher approached each interview with an open mind for how each participant constructed meaning from childhood experiences in the outdoors. Participants were allowed to guide the interview through their descriptions of experiences, but the interviewer maintained focus throughout the interview on the aspects of the participants' involvement in the described activity. The one-on-one interviews each lasted approximately 30 to 50 minutes and were audio recorded.

Data Analysis

Interviews were transcribed immediately following their conclusion and were analyzed on an ongoing basis throughout data collection. The transcripts were read and analyzed according to the critical incident technique (CIT). CIT has been labeled as “a phenomenological data-collection process well designed to capture the dominant signs, symbols, and themes that forge participants' social reality” (Query, Kreps, Arneson, & Caso, 2001, p. 93). A critical incident usually appears as an everyday event or occurrence. An event or occurrence is not always a critical incident, but rather are created as critical incidents by the observer or in this case the interview respondent. In this way, the respondent is inextricably linked to the critical incident since without the respondent there would be no critical incident. Of course, the person analyzing the data is also linked in a way to the identified critical incidents through their subjective gaze.

The PI was the primary instrument of the data analysis. Initially, the transcripts were read individually and open coded for potential incidents or themes that emerged. Potential incidents

and themes were identified according to common attributes such as being frequent, unique, and previously unrecognized (Merriam, 1998). To answer the research questions, these were incidents and themes related to aspects of motivation and intention of being outdoors engaged in activity. After the open coding process, potential themes were compared across the transcripts in order to identify similarities. Focused codes were determined based on the similarities of themes across the transcripts and were then reduced to form overarching categories. In order to increase validity through consistency, when a code was found in only one transcript and not in any of the others, the code was thrown out of the analysis.

Phase Three: Integrating Quantitative and Qualitative Data

As discussed previously, the quantitative phase and the qualitative phase were each conducted separately. Each phase included separate data collection and analysis as is consistent with the sequential explanatory mixed-methods design (Creswell, 2003; Greene, 2007; Morse, 2003). The integration of quantitative and qualitative data was performed in two places during the study; at the beginning of the qualitative phase and during a separate integration phase. Following the completion of the quantitative phase, the results from this phase were used to inform the final design of the qualitative phase. Modifications to the qualitative phase were minor and consisted of adding probing interview questions related to the results of the quantitative phase concerning the conceptual theoretical model. It is important to note that simply because modifications were made to the qualitative phase based on the results of the quantitative phase that both phases were still given equal weight and priority. This means that the qualitative phase was still conducted as it has been explained in the previous section, but that modifications were allowed given the results from the quantitative phase. This is different from

the qualitative phase being developed entirely from the results of the quantitative phase as is more common in the sequential explanatory design (Creswell, 2003; Morse, 2003). In the latter, the qualitative phase only exists to support the quantitative phase and to help explain any confusing results. For the current study, the qualitative phase still provided this same information along with the rich description that is available with qualitative data to provide greater context within which to view the quantitative data.

The third phase of the study was the data integration phase. The integrated data analysis consisted of a discussion of the results of the two research phases while paying particular attention to convergence and dissonance of the quantitative and qualitative data. Greene (2007) has noted that convergence, consistency, and corroboration of data are often paid too much attention in data analysis compared to divergence and dissonance which are just as important and can lend just as much to the results of the analysis. In a review of mixed methods evaluation studies, Greene, Caracelli, and Graham (1989) found that out of 57 studies only 5 integrated the quantitative and qualitative data during the analysis. It is common for data integration to occur only in the discussion and conclusion sections following the separate analysis of different forms of data in the results section.

Another approach that was considered to integrate the data would have involved the transformation of the quantitative data to a form that could be analyzed qualitatively. Data transformation has been described as a procedure to either numerically code qualitative data to transform it into a quantitative form or to transform quantitative data into narrative form to allow for qualitative thematic analysis (Creswell, 2003; Greene, 2007). Data transformation is usually seen as a method of data integration for concurrent mixed-methods designs (Creswell, 2003; Greene, 2007), however it has also been described as a third feature of mixed-methods designs

that is separate from sequential and concurrent (Greene, 2007; Teddlie & Tashakkori, 2006).

Data transformation was determined to be a weaker approach to integrating the data for the current study given the data collected in each phase and the potential loss of information that would have occurred as quantitative data was transformed to qualitative or vice versa.

CHAPTER 4: RESULTS

Given the mixed-methods research design of the study, the results of each individual research phase will be presented here. Results from the quantitative phase will be presented first followed by the qualitative phase. Integration of the data from both of these phases will be discussed in chapter five.

Quantitative Results

Data Screening and Preparation

In structural equation modeling (SEM), it is important to screen data before conducting analyses to check for missing data, multivariate outliers, univariate and multivariate normality, and multicollinearity (Kline, 2005). Since SEM is a correlational research method that relies on correlations among variables to calculate parameter estimates, data screening procedures are important to ensure that computations are successful and logical. The screening and preparation procedures conducted in this study are described below.

Missing Data

As mentioned in the previous chapter, cases with 90% or better completeness on the questionnaire were included in the final dataset. A total of 77 cases had greater than 10% missing data on the questionnaire and were excluded. To handle the missing data, full-information maximum-likelihood estimation (FIML) was utilized as it is the default method of handling missing data in Mplus 6.11 and has been shown to be a suitable method when data are either

missing at random or missing completely at random (Arbuckle, 1996; Enders & Bandalos, 2001). Given that the missing data were widely spread throughout cases and no patterns of missingness could be found, the missingness assumption was considered met.

Listwise deletion was not utilized in this study since it is generally considered a weaker method of handling missing data compared to FIML (Arbuckle, 1996; Enders & Bandalos, 2001). Pairwise deletion is another method of handling missing data, but was not considered given that it is regarded as an unacceptable method for SEM analyses (Kline, 2005).

Outliers

Screening for outliers was conducted using DeCarlo's macro (DeCarlo, 1997). Based on a critical F-value (at the .05 level) of 95.61 for a single multivariate outlier, there was evidence of 71 outlying cases. These cases were examined for any clear explanation for their being outliers, however no data entry errors or illogical response patterns were found. The means of these cases were then compared to the means of the remaining cases. The means of the outlier group were slightly lower for the majority of the items except for two items from the external motivation subscale and all three items from the introjected motivation subscale. The means of the outlier group for these five items were slightly higher than the means of the remaining cases. Since higher scores on the external and introjected motivation subscales indicate more external motivation towards engaging in activities and lower scores on all of the other items from all of the measurement scales are consistent theoretically with more intrinsic motivation, the outlier group was considered to be possibly more externally motivated than the remaining cases. Therefore, given this theoretical justification and the relative lack of validity evidence for many

of the measurement scales for this age group, removal of these outlying cases was deemed unwarranted.

Multivariate Normality

Maximum likelihood estimation procedures (including FIML) assume multivariate normality of the data which is that the joint distribution of all combinations of variables are normal (Kline, 2005). Univariate normality, which is assessed first, is considered to be a necessary but not sufficient condition for multivariate normality. Univariate normality was assessed for each variable by examining the skewness and kurtosis values. Values outside of the absolute value of two were considered to indicate non-normality. The means, standard deviations, skewness, and kurtosis values of each variable included in the SEM analysis are provided in Table 3. Out of 38 variables total, 7 were not normally distributed. Additionally, according to the guidelines by Enders (2001) related to the degree of non-normality, six variables are mildly non-normal and one variable is moderately non-normal. To test for multivariate normality, Mardia's test of multivariate kurtosis ($z\text{-score} = 170.06, p = .00$) and Small's test of multivariate skew ($\chi^2 = 1980.90, df = 38, p = .00$) indicated clear multivariate non-normality. Given the univariate and multivariate statistics, there was enough evidence to suggest that the data violated the assumption of normality.

To conduct SEM analyses with missing data that is also non-normal, the literature recommends using rescaled statistics that extend the well known Satorra-Bentler correction (Satorra & Bentler, 1994) to use with missing data such as the Yuan-Bentler correction (Yuan & Bentler, 2000). Along with FIML estimation, the Yuan-Bentler correction has been shown

Table 3. Univariate Summary Statistics of Variables ($n = 1032$)

Variable	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Past Behavior				
Q4	3.85	1.13	-0.82	-0.31
Q5	3.78	1.19	-0.77	-0.30
Perceived Autonomy Support from Parent				
Q6	4.17	0.96	-1.37	1.92
Q7	4.16	0.94	-1.28	1.58
Q8	4.07	1.12	-1.26	0.86
Q9	4.18	1.03	-1.27	0.99
Q10	4.08	1.01	-1.20	1.12
Q11	4.10	1.01	-1.18	1.04
Q12	4.28	0.82	-1.30	1.96
Q13	4.09	0.91	-1.05	0.96
Q14	4.04	0.98	-1.07	0.89
Q15	4.27	0.92	-1.40	1.87
Q16	4.16	0.99	-1.31	1.43
Q17	4.32	0.90	-1.64	3.02*
Perceived Autonomy Support from Peers				
Q18	3.84	0.95	-0.83	0.63
Q19	3.70	1.06	-0.71	0.00
Q20	3.71	1.09	-0.61	-0.29
Q21	3.73	1.02	-0.68	0.03
Q22	3.72	1.03	-0.63	-0.08
Q23	3.92	1.01	-0.95	0.57
Q24	3.97	1.02	-1.02	0.66
Self-Determined Motivation – Relative Autonomy Index	19.17	12.70	-0.28	-0.15
Perceived Behavioral Control				
Q40	4.29	0.88	-1.44	2.22*
Q41	4.31	0.85	-1.44	2.31*
Q42	4.38	0.82	-1.58	2.95*
Intention				
Q43	4.14	1.01	-1.16	0.91
Q44	4.13	0.96	-1.10	0.88
Attitudes				
Q45	4.86	1.48	-1.36	0.89
Q46	4.89	1.39	-1.34	1.09
Q47	4.73	1.59	-1.21	0.32
Q48	5.37	1.29	-2.27**	4.32**
Q49	5.24	1.31	-1.94	3.09*
Q50	5.14	1.39	-1.78	2.33*
Subjective Norms				
Q51	3.91	1.01	-0.92	0.52
Q52	4.16	0.87	-1.05	1.14
Q53	4.15	0.88	-1.07	1.24
Current Behavior				
Q2	3.73	1.08	-0.56	-0.43
Q3	3.77	1.11	-0.62	-0.46

* = mildly non-normal; ** = moderately non-normal

through simulation analyses to adequately correct for violations of normality in large datasets (Savalei, 2010; Savalei & Bentler, 2005).

Multicollinearity

To check for multicollinearity between any of the variables in the analysis, the correlation matrix of the 38 variables was examined. The correlation matrix consisting of 703 bi-variate correlations showed no correlations above the cut-off of .80 that is generally accepted. The full correlation matrix is available by contacting the researcher.

Descriptives

Scale Distribution

Most youth reported having engaged in noncompetitive outdoor physical activity in the past three months and in the past six months either frequently (33.0%, 31.3%) or very frequently (34.6%, 33.7%). Few youth reported never (4.2%, 5.7%) engaging in noncompetitive outdoor physical activity in the past three months and in the past six months or rarely engaging (9.5%, 10.1%).

Overall, youth reported a relatively high level of perceived autonomy support with a slightly higher degree of perceived autonomy support from parents than from peers. Only two (0.2%) reported that they either disagreed or strongly disagreed with all of the items on the parent autonomy support scale. Almost two-fifths (38.6%) of the youth reported they agreed or strongly agreed with all of the items on the parent autonomy support scale and over two-thirds (67.2%) agreed or strongly agreed with at least 10 out of the 12 items. Only 15 (1.5%) youth reported they disagreed or strongly disagreed with all of the items on the peer autonomy support

scale. About one-third (32.8%) of youth reported they agreed or strongly agreed with all of the items on the peer autonomy support scale and three-fifths (60.0%) reported they agreed or strongly agreed with at least five out of the seven items.

On the whole, youth reported a high level of self-determined motivation to engaging in noncompetitive outdoor physical activity. Responses on the external motivation subscale indicated an overall low level of external motivation with almost one-third (30.3%) of youth reporting they disagreed or strongly disagreed with all items and almost half (48.3%) disagreed or strongly disagreed with three or more items. Responses on the introjected motivation subscale indicated a relatively low level of introjected motivation with almost one-third (32.7%) of youth reporting they disagreed or strongly disagreed with all items and over half (54.7%) disagreed or strongly disagreed with at least two of the three items. Responses on the identified motivation subscale indicated a relatively high degree of identified motivation with over half (58.3%) of youth reporting they agree or strongly agree with all items and an overwhelming majority (84.2%) reporting they did not disagree or strongly disagree with any items. Responses on the intrinsic motivation subscale indicated a high degree of intrinsic motivation with almost two-thirds (64.1%) of youth reporting they agree or strongly agree with all items and an overwhelming majority (85.0%) reporting they did not disagree or strongly disagree with any items.

Youth reported relatively positive attitudes towards engaging in noncompetitive outdoor physical activity. Most youth did not indicate negative attitudes on any of the items (79.5%) and only one-fifth (20.4%) indicated negative attitudes on at least one item. Most youth reported positive attitudes on at least four of the six items (73.5%).

In terms of subjective norms, youth reported a high degree of approval by people close to them related to engaging in noncompetitive outdoor physical activities. Fewer than one in seven youth (13.2%) indicated that people close to them were disapproving of their participation while more than three in five (62.0%) indicated approval by those around them on all items.

Most youth reported they had a high level of perceived behavioral control over engaging in noncompetitive outdoor physical activity on all items (77.6%). Only 1 in 12 youth (8.6%) indicated on at least one item that they did not perceive control over engaging in these activities.

Most youth reported that they intended to participate in noncompetitive outdoor physical activities on the two items measuring intention (68.8%). Few youth indicated that they did not intend to participate in these activities on at least one of the two items (10.6%).

In terms of current behavior, about half of youth (50.3%) reported on the two items that they participate in noncompetitive outdoor physical activities regularly. About one in five youth (21.6%) reported on at least one of the two items that they do not participate in these activities regularly.

Scale Performance

As measured by Cronbach's alpha, the reliability of six of the scales is high, ranging from .82 to .91. The mean, standard deviation, and Cronbach's alpha for each of the scales is provided in Table 4. The reliability of the remaining eight scales is lower, but acceptable, ranging from .73 to .79. The original 15-item scale measuring self-determined motivation had a total reliability of .76, with the reliability of the identified motivation subscale being low at .67. Cronbach's alpha if-item-deleted indicated that the reliability would improve significantly by removing Q35 ("I get restless if I don't take part in these activities regularly"). Based on the improved Cronbach's

alpha for the identified motivation subscale of .73 and the results of the pilot-test showing some problems with the wording of this item, Q35 was removed from further analysis.

Table 4. Descriptive Statistics and Internal Reliability for Total Scale Scores ($N = 1032$)

Scale (# of items)	<i>M</i>	<i>SD</i>	α
Past Behavior (2)	3.82	1.15	.79
Perceived Autonomy Support (19)	4.04	0.98	.91
Autonomy Support from Parent subscale (12)	4.17	0.96	.91
Autonomy Support from Peers subscale (7)	3.80	1.03	.88
Self-Determined Motivation (14)	3.30	1.10	.75
External Motivation subscale (4)	2.38	1.20	.76
Introjected Motivation subscale (3)	2.53	1.35	.78
Identified Motivation subscale (3)	4.03	0.95	.73
Intrinsic Motivation subscale (4)	4.25	0.92	.82
Perceived Behavioral Control (3)	4.33	0.84	.83
Intention (2)	4.14	0.98	.74
Attitudes (6)	5.05	1.41	.91
Subjective Norms (3)	4.08	0.92	.77
Current Behavior (2)	3.75	1.10	.79

Estimation Procedures

The hypothesized relationships of the conceptual model integrating self-determination theory and the theory of planned behavior were tested using structural equation modeling (SEM) techniques for a full structural model. This analysis was conducted using the two-step approach described by Anderson and Gerbing (1988) beginning with estimation and modification of the measurement model using confirmatory factor analysis (CFA) followed by estimation of the

hypothesized structural components of the conceptual model. All of the analyses were conducted using Mplus 6.11 on the full raw dataset. The generated covariance matrix is too large to include here, but is available upon request by contacting the researcher.

Estimation of the Measurement Model through CFA

The full raw dataset in free format was used to analyze the measurement model which consisted of ten latent factors (Figure 5). Two of the latent factors, perceived autonomy support from parents and perceived autonomy support from peers, were represented by their respective observed variables from each subscale and were then designated as latent indicators of a second-order latent factor of perceived autonomy support. This approach was done to account for the expected correlated error variance between these two latent factors caused by the measurement of a third global latent factor. For the self-determined motivation latent factor which was represented by one observed variable, the lambda and theta coefficients needed to be fixed. The lambda coefficient or factor loading was set to one. The theta coefficient or random error variance was set to 40.294, which was calculated by multiplying the sample variance times one minus the reliability of the measure (Kline, 2005). The reliability was set to .75 as was indicated by the reliability of the four-subscale self-determined motivation scale.

All of the measurement items were coded to expect positive factor loadings. The original measurement model (with all factors set to correlate) was estimated and all items loaded onto their respective factor and were all significant (Table 5). The R^2 values indicated that three observed variables did not contribute adequately to uniquely explaining the variance of their respective latent factors. Items Q6, Q8, and Q19 were discarded based on their poor performance ($R^2 = .34; .29; .38$). Nine other observed variables had R^2 values below .50, indicating relatively

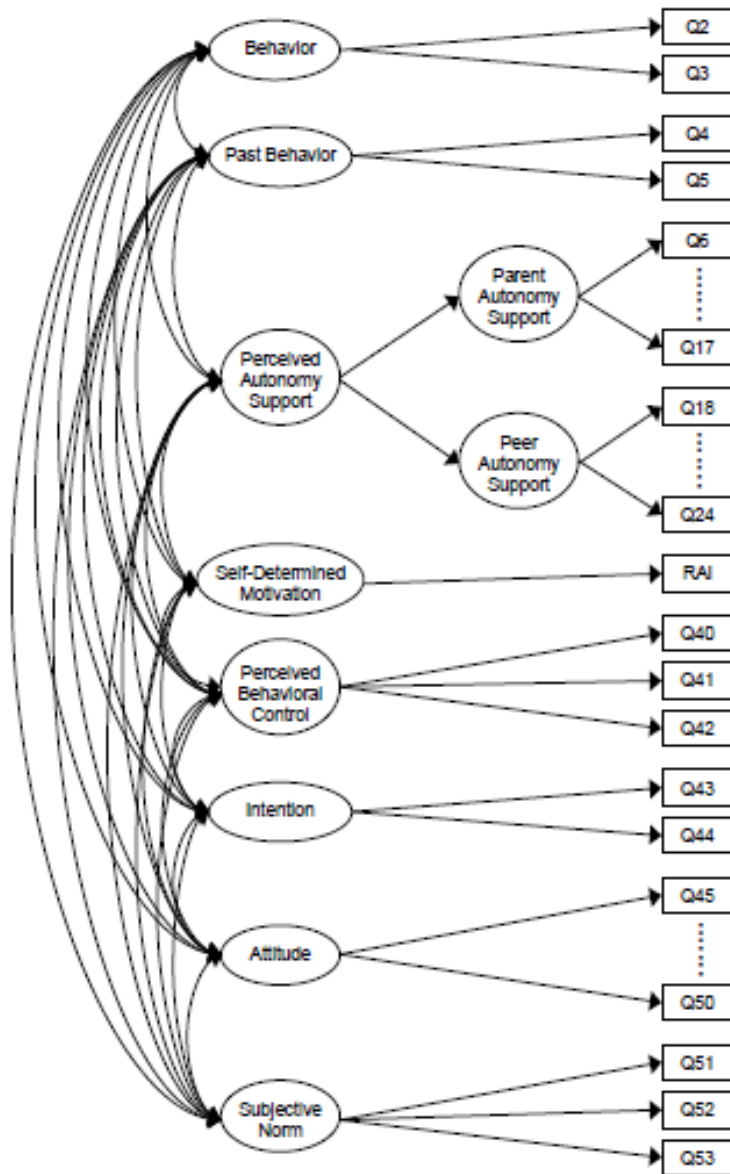


Figure 5. Depiction of Measurement Model

Table 5. Parameter Values for Original Measurement Model

Variables	Standardized Factor Loading	<i>t</i>	<i>SE</i>	<i>R</i> ²
Past Behavior				
Q4	.82	35.85	.02	.68
Q5	.80	38.54	.02	.63
Perceived Autonomy Support from Parent				
Q6*	.59	22.07	.03	.34
Q7	.66	26.22	.03	.43
Q8*	.53	17.83	.03	.29
Q9	.64	24.82	.03	.40
Q10	.76	38.33	.02	.57
Q11	.70	32.12	.02	.49
Q12	.77	42.03	.02	.59
Q13	.66	27.30	.02	.44
Q14	.72	32.34	.02	.51
Q15	.68	28.48	.02	.46
Q16	.71	33.47	.02	.51
Q17	.65	26.06	.03	.43
Perceived Autonomy Support from Peers				
Q18	.66	27.86	.02	.44
Q19*	.62	20.89	.03	.38
Q20	.70	29.89	.02	.48
Q21	.76	40.85	.02	.58
Q22	.74	33.23	.02	.55
Q23	.73	34.98	.02	.54
Q24	.73	36.40	.02	.53
Perceived Autonomy Support				
From Parent	.83	27.49	.03	.68
From Peers	.63	18.19	.03	.39
Self-Determined Motivation – Relative Autonomy Index	.87	142.02	.01	.75
Perceived Behavioral Control				
Q40	.79	34.42	.02	.63
Q41	.81	41.63	.02	.66
Q42	.78	31.07	.03	.61
Intention				
Q43	.76	27.35	.03	.57
Q44	.79	32.26	.02	.62
Attitudes				
Q45	.80	37.64	.02	.63
Q46	.80	36.37	.02	.64
Q47	.76	33.28	.02	.57
Q48	.78	29.90	.03	.60
Q49	.80	33.37	.02	.64
Q50	.79	35.95	.02	.63
Subjective Norms				
Q51	.68	23.12	.03	.46
Q52	.74	28.09	.03	.54
Q53	.77	35.61	.02	.59
Current Behavior				
Q2	.81	35.98	.02	.65
Q3	.80	33.45	.02	.64

* Item dropped in subsequent analyses

poor ability to uniquely explain the variance of their respective latent factors. The first-order perceived autonomy support from peers latent factor had a low R^2 value indicating that this factor was poor in uniquely explaining the variance of the second-order perceived autonomy support latent factor. Given that parents could be more influential to the perceived autonomy support of youth from this age group than peers, this finding was determined to be relatively consistent theoretically. Standardized residuals indicated a poorly fitting model with more than 10% of standardized residuals outside of the absolute value of two. Fit indices indicated relatively moderate fit (Scaled $\chi^2 = 1261.67$, $p = .001$; RMSEA = .031; CFI = .95; TLI = .95; SRMR = .039).

Modification indices were then examined for possible ways to improve the fit of the model. Two items from the perceived autonomy support scale appeared to have error terms that co-varied. The Q8 measuring perceived autonomy support from parents and Q19 measuring perceived autonomy support from peers had similar wording of “my (Q8 parents/Q19 peers) display confidence in my ability to do these activities” and added considerably (82.63) to the high Chi-square value. The Q8 also loaded onto every other latent factor in the model and Q19 loaded onto several of the other latent factors which added a considerable amount to the high Chi-square value. These modification indices provided further evidence for the removal of these two items since these items also had low R^2 values as discussed previously. Two items measuring attitudes appeared to have highly co-varying error terms. The Q48 and Q49 were found to add considerably (80.75) to the high Chi-square and therefore Q48 was discarded since it also loaded onto eight of the nine other latent factors and the wording of the item was shown to be slightly problematic during the pilot-testing of the questionnaire.

The final modified measurement model was analyzed and examination of fit indices revealed a relatively good fitting model (Scaled $\chi^2 = 804.13$, $p = .001$; RMSEA = .024; CFI = .97; TLI = .97; SRMR = .034). The fit indices for the original and final modified measurement models are presented in Table 6. Although the Scaled χ^2 was still significant and indicated an overall lack of fit, this statistic is not considered one of the best indicators of fit since it is extremely stringent and almost always is significant when analyzing observed variables measuring behavioral constructs. Standardized residuals still indicated a poorly fitting model with more than 10% of standardized residuals outside of the absolute value of two, although this percentage was less than the percentage for the original proposed measurement model. With no further modifications to the measurement model being warranted, the structural model was then analyzed.

Table 6. Fit Indices for Measurement Models and Structural Models

Model	<i>df</i>	Scaled χ^2	RMSEA	CFI	TLI	SRMR	X^2_{diff}
1. Original proposed measurement model	636	1261.67*	.031	.95	.95	.039	
2. Final modified measurement model	498	804.13*	.024	.97	.97	.034	
3. Structural model	510	1035.42*	.032	.95	.95	.056	
Difference between model 2 and 3	12						307.30*

* $p < .05$

Estimation of the Structural Model

In SEM, the fit of the structural model is tested similarly to that of the measurement model. Here, testing involves inclusion of the measurement model along with the structural model simultaneously. The structural model consists of paths connecting latent factors according

to the hypothesized relationships. In SEM, structural equations are produced similar to multiple linear regression analysis. The structural equations in SEM are estimated through path coefficient estimation. The results are given in Tables 7 and 8.

Table 7 presents the measurement equations for the structural model. All items loaded onto their respective latent factor with statistical significance including the first order latent factors of perceived autonomy support from parents and peers on the second order perceived autonomy support factor. The factor loadings were all of an appropriate and expected magnitude. One of the R^2 values from the perceived autonomy support from parents was low and seven of the other values from the perceived autonomy support from parents and peers were also rather low ($<.5$). These values were consistent with the results from the testing of the measurement model alone.

Table 8 presents the direct and indirect path coefficients for the model representing the hypothesized relationships for the study. The direct path coefficients are also depicted graphically in Figure 6. All of the direct paths were statistically significant with the exception of the paths from past behavior to self-determined motivation (.11), attitudes to intention (.05), intention to current behavior (.08), and perceived behavioral control to current behavior (.12).

Past behavior was hypothesized to be significantly related to all of the constructs in the model. This hypothesis was not supported since the path from past behavior to self-determined motivation was not significant. The past behavior direct path coefficients with the largest magnitudes were the paths to perceived autonomy support (.55) and current behavior (.66). Direct path coefficients for past behavior to the other factors had the lowest magnitudes ($<.23$) among all significant direct path coefficients in the model.

Table 7. Structural Model Measurement Equations

Variables	lamda	<i>t</i>	<i>SE</i>	<i>R</i> ²
Past Behavior				
Q4	1.00	n/a	n/a	.67
Q5	1.02	22.24	.05	.63
Perceived Autonomy Support from Parent				
Q7	1.00	n/a	n/a	.42
Q9	1.05	16.25	.07	.38
Q10	1.29	17.12	.08	.59
Q11	1.16	16.64	.07	.49
Q12	1.06	14.29	.07	.60
Q13	1.00	13.20	.08	.44
Q14	1.18	14.83	.08	.53
Q15	1.03	14.82	.07	.46
Q16	1.18	14.70	.08	.52
Q17	1.97	13.18	.07	.43
Perceived Autonomy Support from Peers				
Q18	1.00	n/a	n/a	.44
Q20	1.19	17.85	.07	.46
Q21	1.26	19.89	.06	.60
Q22	1.21	18.30	.07	.54
Q23	1.21	18.04	.07	.56
Q24	1.19	19.74	.06	.53
Perceived Autonomy Support				
From Parent	1.00	n/a	n/a	.61
From Peers	0.87	10.11	.09	.43
Self-Determined Motivation – Relative Autonomy Index	1.00	n/a	n/a	.74
Perceived Behavioral Control				
Q40	1.00	n/a	n/a	.64
Q41	0.97	19.41	.05	.66
Q42	0.91	17.82	.05	.61
Intention				
Q43	1.00	n/a	n/a	.57
Q44	0.99	19.00	.05	.61
Attitudes				
Q45	1.00	n/a	n/a	.67
Q46	0.96	28.20	.03	.68
Q47	1.02	26.88	.04	.60
Q49	0.82	18.84	.04	.57
Q50	0.89	20.15	.04	.59
Subjective Norms				
Q51	1.00	n/a	n/a	.44
Q52	0.94	14.64	.06	.53
Q53	1.03	16.32	.06	.62
Current Behavior				
Q2	1.00	n/a	n/a	.65
Q3	1.01	18.93	.05	.64

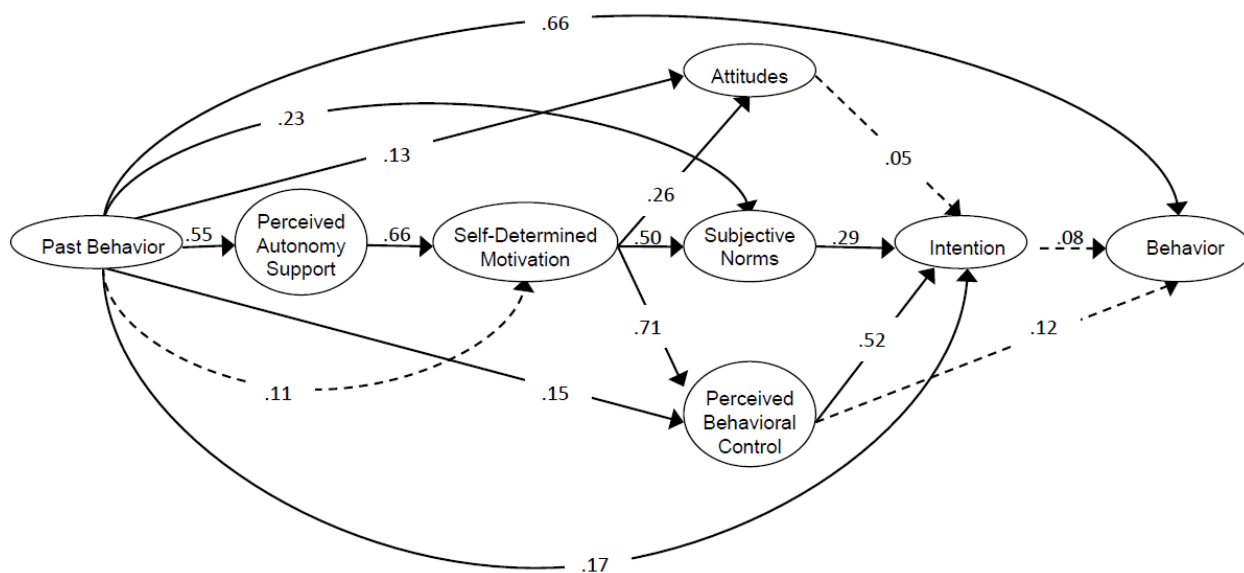
Table 8. Path Coefficients, t -values, and R^2 Values for Hypothesized Structural Model

Path to	Path from	Direct		Indirect		Total Indirect		R^2
		PC	t	PC	t	PC	t	
Perceived Autonomy Support								.30
Self-Determined Motivation	Past Behavior	.55	11.37					.53
	Past Behavior Perceived Autonomy Support	.11	1.67 ^{ns}					
Attitudes	Past Behavior	.13	2.57					.12
	Self-Determined Motivation	.26	5.30					
Subjective Norms	Past Behavior	.23	3.08					.41
	Self-Determined Motivation	.50	7.17					
Perceived Behavioral Control	Past Behavior	.15	2.28					.63
	Self-Determined Motivation	.71	14.12					
Intention	Past Behavior	.17	3.63					.69
	Attitudes	.05	1.63 ^{ns}					
	Subjective Norms	.29	5.02					
	Perceived Behavioral Control	.52	9.16					
	Perceived Autonomy Support through Attitudes			.01	1.49 ^{ns}			
	Perceived Autonomy Support through Subjective Norms			.10	3.55			
	Perceived Autonomy Support through Perceived Behavioral Control			.25	5.82			
	Perceived Autonomy Support					.35	6.42	
	Self-Determined Motivation through Attitudes			.01	1.53 ^{ns}			
	Self-Determined Motivation through Subjective Norms			.14	4.02			
	Self-Determined Motivation through Perceived Behavioral Control			.37	7.58			
	Self-Determined Motivation					.53	9.72	

Table 8 continued. Path Coefficients, t -values, and R^2 Values for Hypothesized Structural Model

Path to	Path from	Direct		Indirect		Total Indirect		R^2
		PC	t	PC	t	PC	t	
Current Behavior								.60
	Past Behavior	.66	14.45					
	Perceived Behavioral Control	.12	1.66 ^{ns}					
	Intention	.08	0.95 ^{ns}					
	Perceived Autonomy Support through Attitudes			.00	0.74 ^{ns}			
	Perceived Autonomy Support through Subjective Norms			.01	0.88 ^{ns}			
	Perceived Autonomy Support through Perceived Behavioral Control and Intention			.02	0.91 ^{ns}			
	Perceived Autonomy Support through Perceived Behavioral Control			.05	1.61 ^{ns}			
	Perceived Autonomy Support					.08	3.06	
	Self-Determined Motivation through Attitudes			.00	0.75 ^{ns}			
	Self-Determined Motivation through Subjective Norms			.01	0.89 ^{ns}			
	Self-Determined Motivation through Perceived Behavioral Control and Intention			.03	0.92 ^{ns}			
	Self-Determined Motivation through Perceived Behavioral Control			.08	1.63 ^{ns}			
	Self-Determined Motivation					.12	3.35	
	Attitudes			.00	0.76 ^{ns}			
	Subjective Norms			.02	0.93 ^{ns}			
	Perceived Behavioral Control through Intention			.04	0.93 ^{ns}			

ns = not statistically significant at .05 level



solid lines = significant path values; dotted lines = path values not significantly different than zero

Figure 6. Graphical Depiction of Structural Model

Greater perceived autonomy support was hypothesized to heighten the sense of self-determined motivation to engage in noncompetitive outdoor physical activity. This was supported by the significant direct path coefficient for this relationship (.66).

The hypothesized direct relationships between self-determined motivation and the constructs of the TPB were supported. Significant path coefficients were estimated for the direct paths from self-determined motivation to attitudes (.26), subjective norms (.50), and perceived behavioral control (.71). The hypothesized indirect relationship between self-determined motivation on intention was supported by the total indirect effect of self-determined motivation on intention through attitudes, subjective norms, and perceived behavioral control. However, the specific indirect effect of self-determined motivation on intention through attitudes was not significant and did not support the hypothesis. Evidence did not support the hypothesized indirect relationship between self-determined motivation on current behavior as each specific

indirect effect through attitudes and intention ($<.01$), subjective norms and intention (.01), perceived behavioral control and intention (.03), and perceived behavioral control (.08) were not significant. However, the total indirect effect of self-determined motivation on current behavior was significant (.12), although with very low magnitude.

The path coefficients for the hypothesized relationships between the constructs of the TPB had mixed results. While subjective norms and perceived behavioral control each had significant path coefficients to intention (.29; .52 respectively), as stated previously the paths from attitudes to intention (.05), intention to current behavior (.08), and perceived behavioral control to current behavior (.12) were not significant. Therefore, the results do not support the hypothesized relationships from the TPB.

As shown in Model 3 of Table 6, model fit indices suggest a relatively fair representation of the data at best (Scaled $\chi^2 = 1035.42$, $p = .001$; RMSEA = .032; CFI = .95; TLI = .95; SRMR = .056). The percentage of standardized residuals greater than the absolute value of two (36%) is evidence of a poorly fitting model. The robust Chi-square difference test (307.30, $df = 12$) reveals that there is a significant difference in fit between the structural and measurement models, indicating that the structural model does not offer additional informational value beyond the measurement model (depicted in Table 6).

Modification of the Proposed Model

Since the structural model provides no better fit to the data than the measurement model, the modification indices were examined for possible modifications that could improve fit. The modification indices showed that adding several paths to the model would improve the overall fit, however most of these paths were not theoretically justifiable. One of the paths proposed by

the indices, a direct path from self-determined motivation to intention, was warranted based on theory. Studies have found that self-determined motivation has both a significant direct and indirect relationship on intention (Hagger & Chatzisarantis, 2009). However, adding this direct path to the proposed structural model produced a negative path coefficient for self-determined motivation to intention and thus an illogical solution.

Analytic Summary of Proposed Model

Though the fit indices suggest a relatively adequate fitting model, several of the direct paths were not significant. The non-significant paths between past behavior and self-determined motivation, attitudes and intention, perceived behavioral control and current behavior, and intention and current behavior are highly supported theoretically through the research literature. Problems with measurement are present in the model that has been proposed. While R^2 values indicated that the factors of the structural model explain a relatively substantial proportion of variance (Table 8), the high proportion of standardized residuals suggests misspecification with the measurement model. The modification indices revealed that the one observed variable for self-determined motivation was loading highly onto several of the other latent factors and therefore substantially increasing the chi-square value. Measurement of self-determined motivation using the original 15-item scale was problematic given the lack of validity evidence in such a young group of participants and the complicated nature of the theoretical construct. Additionally, reducing the 15-item scale to the relative autonomy index has complications due to the loss of information that results from combining the 4-subcales into one number and the high variance of the relative autonomy index compared to all of the other measurement items.

Measurement issues are also present in regard to restriction of range. Overall, most of the responses for all of the questionnaire items were on the higher end of the measurement scales indicating mostly positive responses. This result indicates a lack of the measurement items to differentiate the full spectrum of each of the theoretical constructs among the study population.

Measurement problems are common in structural equation modeling and the complexity of the proposed eight-factor structural model increases the potential for these problems. The measurement of the model is also complicated by the theoretical complexity of several of the factors and the lack of validity evidence that exists in youth of this age group for most of the measurement scales. Given this, alternative parsimonious models were analyzed post-hoc and are discussed below.

Testing Alternate Models

Model Excluding Past Behavior

Given that past behavior was included in the model as a control variable that is directly related to every other factor, the two-step approach was again used with past behavior removed post-hoc in order to test the effect on the proposed structural model. The results from testing the measurement model (Table 9) were similar to that of the original proposed model with modification indices and R^2 values indicating removal of Q6, Q8, Q19, and Q48. Fit indices for the original and modified measurement models are presented in Table 10. With a good fitting measurement model, the structural model was then tested.

The structural model measurement equations are presented in Table 11. The fit indices of the resulting structural model excluding past behavior, represented as Model 3 in Table 10, indicated no better overall fit than the original proposed model (Scaled $\chi^2 = 1000.25$, $p = .001$;

Table 9. Parameter Values for Original Measurement Model Excluding Past Behavior

Variables	Standardized Factor Loading	<i>t</i>	<i>SE</i>	<i>R</i> ²
Perceived Autonomy Support from Parent				
Q6*	.59	22.06	.03	.34
Q7	.66	26.20	.03	.43
Q8*	.53	17.80	.03	.28
Q9	.64	24.82	.03	.40
Q10	.76	38.37	.02	.57
Q11	.70	32.12	.02	.49
Q12	.77	42.08	.02	.59
Q13	.66	27.32	.02	.44
Q14	.72	32.39	.02	.51
Q15	.68	28.52	.02	.46
Q16	.71	33.51	.02	.51
Q17	.65	26.09	.03	.43
Perceived Autonomy Support from Peers				
Q18	.66	27.88	.02	.44
Q19*	.62	20.85	.03	.38
Q20	.70	29.87	.02	.48
Q21	.77	40.92	.02	.59
Q22	.74	33.18	.02	.55
Q23	.73	34.97	.02	.54
Q24	.73	36.39	.02	.53
Perceived Autonomy Support				
From Parent	.83	27.50	.03	.69
From Peers	.63	18.08	.04	.39
Self-Determined Motivation – Relative Autonomy Index	.87	142.02	.01	.75
Perceived Behavioral Control				
Q40	.80	34.44	.02	.63
Q41	.81	41.68	.02	.66
Q42	.78	31.15	.03	.61
Intention				
Q43	.75	27.04	.03	.57
Q44	.79	32.40	.02	.62
Attitudes				
Q45	.80	37.62	.02	.63
Q46	.80	36.38	.02	.64
Q47	.76	33.27	.02	.57
Q48	.78	29.93	.03	.60
Q49	.80	33.40	.02	.64
Q50	.79	35.95	.02	.63
Subjective Norms				
Q51	.68	29.13	.03	.46
Q52	.73	29.45	.03	.54
Q53	.77	35.61	.02	.59
Current Behavior				
Q2	.82	35.98	.03	.67
Q3	.79	33.45	.03	.62

* Item dropped in subsequent analyses

Table 10. Fit Indices for Measurement Models and Structural Models Excluding Past Behavior

Model	<i>df</i>	Scaled χ^2	RMSEA	CFI	TLI	SRMR	X^2_{diff}
1. Original measurement model	572	1178.81*	.032	.95	.95	.039	
2. Final modified measurement model	442	741.43*	.026	.97	.97	.034	
3. Structural model	454	1000.25*	.034	.95	.94	.060	
Difference between model 2 and 3	12						311.05*

* $p < .05$

RMSEA = .034; CFI = .95; TLI = .94; SRMR = .060) and the standardized residuals exceeded the threshold considered acceptable. The robust Chi-square difference test (311.05, $df = 12$) reveals that there is a significant difference in fit between the structural and measurement models, indicating that the structural model does not offer additional informational value beyond the measurement model.

Even though the fit indices do not show a better fitting model, all of the estimated direct paths in the model were significant when excluding past behavior (Table 12). The direct path estimates are depicted in Figure 7. Additionally, all indirect paths in the model were significant with the exception of all indirect paths involving the path from attitudes to intention to current behavior. The direct paths from attitudes to intention (.08) and intention to behavior (.40) were statistically significant, although the path value from attitudes to intention had a low magnitude suggesting that it may not be meaningful. Consequently, the indirect paths from perceived autonomy support to current behavior through attitudes, self-determined motivation to current behavior through attitudes, and attitudes to current behavior were not significant.

Table 11. Structural Model Excluding Past Behavior Measurement Equations

Variables	lamda	<i>t</i>	<i>SE</i>	<i>R</i> ²
Perceived Autonomy Support from Parent				
Q7	1.00	n/a	n/a	.42
Q9	1.05	16.22	.07	.38
Q10	1.30	17.04	.08	.59
Q11	1.17	16.63	.07	.49
Q12	1.06	14.30	.07	.60
Q13	1.01	13.19	.08	.44
Q14	1.19	14.81	.08	.53
Q15	1.03	14.83	.07	.46
Q16	1.19	14.69	.08	.52
Q17	1.98	13.19	.07	.43
Perceived Autonomy Support from Peers				
Q18	1.00	n/a	n/a	.43
Q20	1.19	17.80	.07	.46
Q21	1.27	19.85	.06	.60
Q22	1.21	18.24	.07	.54
Q23	1.21	17.96	.07	.56
Q24	1.20	19.70	.06	.53
Perceived Autonomy Support				
From Parent	1.00	n/a	n/a	.61
From Peers	0.87	10.05	.09	.43
Self-Determined Motivation – Relative Autonomy Index	1.00	n/a	n/a	.73
Perceived Behavioral Control				
Q40	1.00	n/a	n/a	.63
Q41	0.97	19.76	.05	.65
Q42	0.91	18.10	.05	.60
Intention				
Q43	1.00	n/a	n/a	.56
Q44	0.99	19.46	.05	.61
Attitudes				
Q45	1.00	n/a	n/a	.67
Q46	0.96	28.14	.03	.68
Q47	1.02	26.85	.04	.60
Q49	0.82	18.89	.04	.58
Q50	0.89	20.13	.04	.59
Subjective Norms				
Q51	1.00	n/a	n/a	.44
Q52	0.94	14.83	.06	.52
Q53	1.04	16.29	.06	.63
Current Behavior				
Q2	1.00	n/a	n/a	.69
Q3	0.96	14.48	.07	.61

Table 12. Path Coefficients, t -values, and R^2 Values for Structural Model Excluding Past

Behavior

Path to	Path from	Direct		Indirect		Total Indirect		R^2
		PC	t	PC	t	PC	t	
Self-Determined Motivation								.59
	Perceived Autonomy Support	.77	20.61					
Attitudes								.11
	Self-Determined Motivation	.34	8.34					
Subjective Norms								.42
	Self-Determined Motivation	.65	16.79					
Perceived Behavioral Control								.67
	Self-Determined Motivation	.82	34.15					
Intention								.68
	Attitudes	.08	2.40					
	Subjective Norms	.33	6.03					
	Perceived Behavioral Control	.82	34.15					
	Perceived Autonomy Support through Attitudes			.02	2.21			
	Perceived Autonomy Support through Subjective Norms			.17	5.18			
	Perceived Autonomy Support through Perceived Behavioral Control			.36	9.09			
	Perceived Autonomy Support					.54	14.16	
	Self-Determined Motivation through Attitudes			.03	2.24			
	Self-Determined Motivation through Subjective Norms			.22	5.54			
	Self-Determined Motivation through Perceived Behavioral Control			.46	10.26			
	Self-Determined Motivation					.71	24.61	
Current Behavior								.32
	Perceived Behavioral Control	.20	2.10					
	Intention	.40	4.20					
	Perceived Autonomy Support through Attitudes			.01	1.84 ^{ns}			

Table 12 continued. Path Coefficients, t -values, and R^2 Values for Structural Model Excluding Past Behavior

Path to	Path from	Direct		Indirect		Total Indirect		R^2
		PC	t	PC	t	PC	t	
Current Behavior (continued)								
	Perceived Autonomy Support through Subjective Norms			.07	3.14			
	Perceived Autonomy Support through Perceived Behavioral Control and Intention			.14	3.69			
	Perceived Autonomy Support through Perceived Behavioral Control			.12	2.04			
	Perceived Autonomy Support					.34	10.83	
	Self-Determined Motivation through Attitudes			.01	1.86 ^{ns}			
	Self-Determined Motivation through Subjective Norms			.09	3.21			
	Self-Determined Motivation through Perceived Behavioral Control and Intention			.19	3.74			
	Self-Determined Motivation through Perceived Behavioral Control			.16	2.07			
	Self-Determined Motivation					.44	14.77	
	Attitudes			.03	1.95 ^{ns}			
	Subjective Norms			.13	3.37			
	Perceived Behavioral Control through Intention			.23	3.70			

ns = not statistically significant at .05 level

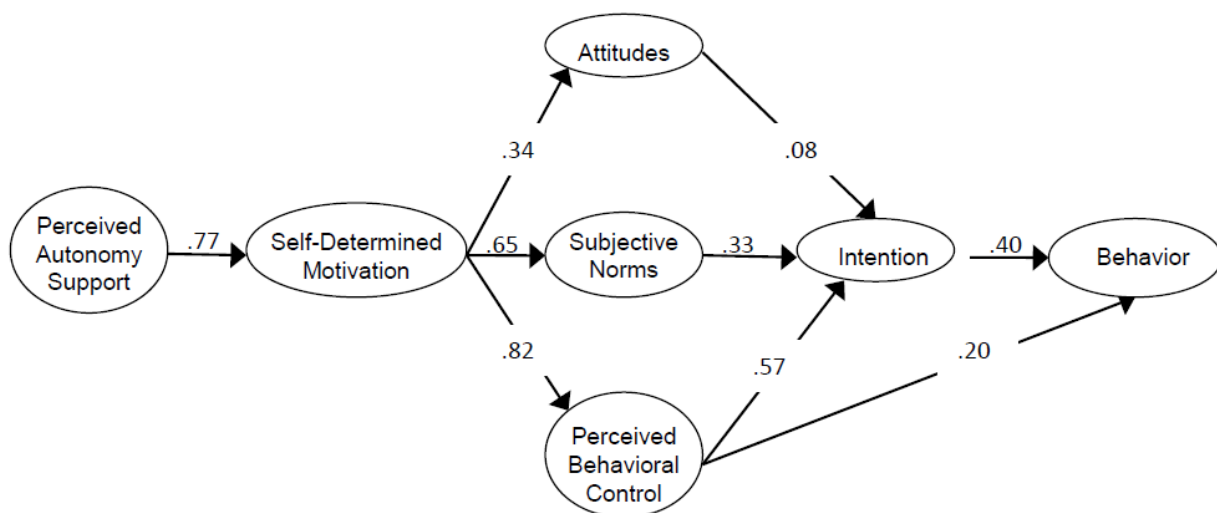


Figure 7. Graphical Depiction of Structural Model Excluding Past Behavior

Model Including Only TPB Constructs

Due to the findings of the testing of the integrated conceptual model indicating that the structural model does not add any additional information to the measurement model, the items from the TPB were analyzed separately. The TPB model is a far more parsimonious model that includes attitudes, subjective norms, and perceived behavioral control being related to intention that is then related to current behavior.

The measurement model was analyzed first and while it was overall a fairly good fitting model (Table 14), the modification indices revealed a similar issue with the error terms co-varying highly between Q48 and Q49. Since the modification indices also showed that the error terms of Q48 co-varied with several other items, Q48 was removed. The parameter values for the initial measurement model of TPB are presented in Table 13. The fit indices of the final modified measurement model are given in Table 14.

Table 13. Parameter Values for Original Measurement Model of TPB

Variables	Standardized Factor Loading	<i>t</i>	<i>SE</i>	<i>R</i> ²
Perceived Behavioral Control				
Q40	.79	33.03	.02	.63
Q41	.81	40.02	.02	.66
Q42	.78	29.55	.03	.61
Intention				
Q43	.75	27.03	.03	.57
Q44	.79	32.15	.03	.62
Attitudes				
Q45	.80	37.61	.02	.63
Q46	.80	36.42	.02	.64
Q47	.76	33.14	.02	.57
Q48	.78	29.83	.03	.60
Q49	.80	33.19	.02	.64
Q50	.79	36.17	.02	.63
Subjective Norms				
Q51	.67	21.67	.03	.44
Q52	.71	26.09	.03	.51
Q53	.80	35.92	.02	.63
Current Behavior				
Q2	.83	28.46	.03	.69
Q3	.78	26.66	.03	.60

* Item dropped in subsequent analyses

Table 14. Fit Indices for Measurement Models and Structural Models of TPB

Model	<i>df</i>	Scaled χ^2	RMSEA	CFI	TLI	SRMR	χ^2_{diff}
1. Original measurement model	94	230.43*	.038	.97	.96	.034	
2. Final modified measurement model	80	127.24*	.024	.99	.99	.024	
3. Structural model	82	131.99*	.024	.99	.98	.027	
Difference between model 2 and 3	2						5.35

* $p < .05$

The structural model measurement equations are presented in Table 15. The fit indices of the resulting structural model of TPB, represented as Model 3 in Table 14, indicated good overall fit (Scaled $\chi^2 = 131.99$, $p = .001$; RMSEA = .024; CFI = .99; TLI = .98; SRMR = .027). The percentage of standardized residuals outside of the absolute value of two (16%) was still above the 10% considered to be indicative of good overall fit, but was within a range not to be considered an indicator of very poor fit. The robust Chi-square difference test (5.35, $df = 2$) shows that there is not a significant difference in fit between the structural and measurement models, indicating that the structural model does offer additional informational value beyond the measurement model. As shown in Table 16, all of the direct and indirect paths in the model were significant, were in the appropriate direction, and were of the anticipated magnitude with the exception of the direct path from attitudes to intention (.08) which was statistically significant but had a low magnitude. The graphical depiction of the TPB model is presented in Figure 8.

Table 15. Structural Model of TPB Measurement Equations

Variables	lamda	<i>t</i>	<i>SE</i>	<i>R</i> ²
Perceived Behavioral Control				
Q40	1.00	n/a	n/a	.63
Q41	0.98	19.99	.05	.66
Q42	0.91	18.00	.05	.61
Intention				
Q43	1.00	n/a	n/a	.56
Q44	1.00	18.89	.05	.62
Attitudes				
Q45	1.00	n/a	n/a	.67
Q46	0.96	28.01	.03	.68
Q47	1.02	26.86	.04	.60
Q49	0.82	18.80	.04	.57
Q50	0.89	20.20	.04	.59
Subjective Norms				
Q51	1.00	n/a	n/a	.45
Q52	0.92	14.88	.06	.51
Q53	1.04	15.54	.07	.63
Current Behavior				
Q2	1.00	n/a	n/a	.70
Q3	0.95	14.11	.07	.60

Table 16. Path Coefficients, t -values, and R^2 Values for Structural Model of TPB

Path to	Path from	Direct		Indirect		R^2
		PC	t	PC	t	
Intention	Attitudes	.08	2.50			.69
	Subjective Norms	.30	4.85			
	Perceived Behavioral Control	.58	9.49			
Current Behavior	Perceived Behavioral Control	.15	1.52			.31
	Intention	.43	4.26			
	Attitudes			.03	1.99	
	Subjective Norms			.13	3.17	
	Perceived Behavioral Control through Intention			.25	3.70	

all t -values are significant

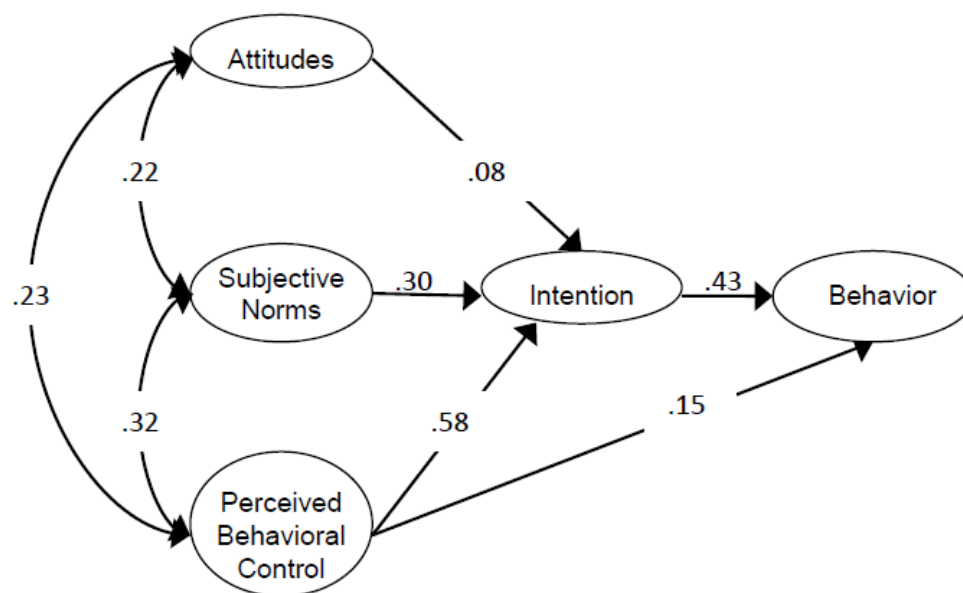


Figure 8. Graphical Depiction of TPB Model

Model Including Only SDT Constructs

Due to the findings of the testing of the integrated conceptual model indicating that the structural model does not add any additional information to the measurement model, the items from the SDT were also analyzed separately. The SDT model is a far more parsimonious model that includes perceived autonomy support from parents and peers being related to self-determined motivation which is then related to current behavior.

The measurement model was analyzed first and fit indices indicated a moderately well fitting model (Table 17). The percentage of standardized residuals outside of the absolute value of two (26%) was greater than the threshold considered to be acceptable. The R^2 values and modification indices revealed similar issues with Q6, Q8, and Q19 as in the original proposed study model and were therefore removed. One other item, Q9, was removed due to a low R^2 value (.39). The parameter values for the initial measurement model of SDT are presented in Table 17. The fit indices of the final modified measurement model are given in Table 18.

The structural model measurement equations are presented in Table 19. The fit indices of the resulting structural model of SDT, represented as Model 3 in Table 18, indicated good overall fit (Scaled $\chi^2 = 257.18$, $p = .001$; RMSEA = .030; CFI = .98; TLI = .97; SRMR = .044). The percentage of standardized residuals outside of the absolute value of two (38%) was well above the 10% considered to be indicative of good overall fit and was also outside of 30%, which is considered an indicator of poor fit. The robust Chi-square difference test (32.65, $df = 1$) shows that there is a significant difference in fit between the structural and measurement models, indicating that the structural model does not offer additional informational value beyond the measurement model. As shown in Table 20, all of the direct and indirect paths in the model were

significant, were in the appropriate direction, and were of the anticipated magnitude. The graphical depiction of the SDT model is presented in Figure 9.

Table 17. Parameter Values for Original Measurement Model of SDT

Variables	Standardized Factor Loading	<i>t</i>	<i>SE</i>	<i>R</i> ²
Perceived Autonomy Support from Parents				
Q6*	.58	21.54	.03	.34
Q7	.66	25.87	.03	.43
Q8*	.53	17.60	.03	.28
Q9*	.63	24.21	.03	.39
Q10	.76	38.90	.02	.58
Q11	.70	31.33	.02	.49
Q12	.77	42.65	.02	.59
Q13	.66	27.19	.02	.44
Q14	.72	33.10	.02	.52
Q15	.67	28.28	.02	.45
Q16	.72	33.34	.02	.51
Q17	.65	25.97	.03	.43
Perceived Autonomy Support from Peers				
Q18	.66	27.69	.02	.44
Q19*	.62	20.72	.03	.38
Q20	.70	29.86	.02	.48
Q21	.77	41.63	.02	.59
Q22	.74	33.40	.02	.55
Q23	.73	35.24	.02	.54
Q24	.72	36.17	.02	.52
Perceived Autonomy Support				
From Parents	.80	19.15	.04	.64
From Peers	.65	17.50	.04	.42
Self-Determined Motivation – Relative Autonomy Index	.87	143.42	.01	.75
Current Behavior				
Q2	.80	25.08	.03	.64
Q3	.81	28.16	.03	.65

* Item dropped in subsequent analyses

Table 18. Fit Indices for Measurement Models and Structural Models of SDT

Model	<i>df</i>	Scaled χ^2	RMSEA	CFI	TLI	SRMR	χ^2_{diff}
1. Original measurement model	205	545.75*	.040	.95	.94	.038	
2. Final modified measurement model	131	232.72*	.027	.98	.98	.029	
3. Structural model	132	257.18*	.030	.98	.97	.044	
Difference between model 2 and 3	1						32.65*

* $p < .05$

Table 19. Structural Model of SDT Measurement Equations

Variables	lamda	<i>t</i>	<i>SE</i>	<i>R</i> ²
Perceived Autonomy Support from Parents				
Q7	1.00	n/a	n/a	.40
Q10	1.33	16.86	.08	.60
Q11	1.17	16.15	.07	.47
Q12	1.08	14.04	.08	.61
Q13	1.02	12.87	.08	.44
Q14	1.21	14.57	.08	.54
Q15	1.04	14.44	.07	.45
Q16	1.21	14.28	.09	.52
Q17	0.99	12.97	.08	.43
Perceived Autonomy Support from Peers				
Q18	1.00	n/a	n/a	.43
Q20	1.19	17.78	.07	.46
Q21	1.27	19.89	.06	.61
Q22	1.22	18.36	.07	.54
Q23	1.21	17.91	.07	.56
Q24	1.19	19.65	.06	.53
Perceived Autonomy Support				
From Parents	1.00	n/a	n/a	.60
From Peers	0.91	8.52	.11	.45
Self-Determined Motivation – Relative Autonomy Index				
	1.00	n/a	n/a	.75
Current Behavior				
Q2	1.00	n/a	n/a	.61
Q3	1.09	12.76	.09	.69

Table 20. Path Coefficients, *t*-values, and *R*² Values for Structural Model of SDT

Path to	Path from	Direct		Indirect		<i>R</i> ²
		PC	<i>t</i>	PC	<i>t</i>	
Self-Determined Motivation						.37
	Perceived Autonomy Support	.61	15.02			
Current Behavior	Self-Determined Motivation	.51	14.46			.26
	Perceived Autonomy Support			.31	9.22	

all *t*-values are significant

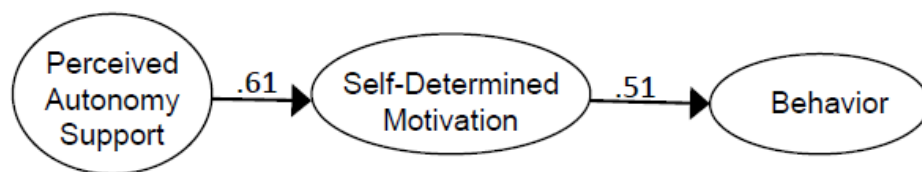


Figure 9. Graphical Depiction of SDT Model

Qualitative Results

Description of Respondents

Brief descriptions of the 24 participants identified by pseudonyms are presented in Table 21 using data collected from the quantitative phase questionnaire. As indicated by the selection criteria for the qualitative phase, there were an equal number of noncompetitively physically active and inactive males and females with 6 respondents in each group. Physically active and inactive respondents were selected based on the extremes of responses collected on the questionnaire. Nine of the respondents identified their race as “Black/African American” on the questionnaire and eight identified their race as “White.” Three respondents identified their race as “Hispanic/Latino,” one as “American Indian/Alaska Native,” and three as “Other.” There was almost an even split in the grade level of the respondents with 13 in the 6th grade and 11 in the 7th grade. Eight of the respondents participate in the free or reduced lunch program at the school.

Half of the respondents reported that they frequently participate in competitive sports and activities, 4 reported occasionally participating, and 8 reported rarely participating. This breakdown followed similarly to the selection criteria grouping of the extremes of noncompetitively physically active and inactive respondents. All of the respondents that identified themselves as being physically active in terms of noncompetitive activities on the

Table 21. Description of Respondents that Participated in the Qualitative Phase

Pseudonym	Gender	Race/ Ethnicity*	Age	Grade	Participate in Free or Reduced Lunch Program at School?	PA or PIA**	Participate in Competitive Sports and/or Activities?
Anthony	M	H	12	7 th	No	PIA	Rarely
Bobby	M	W	unk	6 th	No	PA	Frequently
Cassandra	F	W	11	6 th	No	PA	Frequently
Corey	M	AA	12	6 th	No	PIA	Occasionally
David	M	W	12	6 th	No	PA	Frequently
Denise	F	AA	12	7 th	No	PA	Frequently
Drake	M	AA	12	7 th	Yes	PIA	Frequently
Elaine	F	AA	13	7 th	No	PIA	Rarely
Erin	F	O	12	6 th	No	PA	Frequently
Ian	M	W	12	7 th	No	PA	Occasionally
James	M	AA	11	6 th	No	PA	Frequently
Jen	F	W	12	7 th	No	PA	Frequently
Kate	F	AA	13	7 th	Yes	PIA	Rarely
Kenny	M	AA	12	7 th	Yes	PA	Frequently
Laura	F	W	11	6 th	Yes	PA	Frequently
Megan	F	H	11	6 th	No	PIA	Occasionally
Michael	M	H	unk	6 th	Yes	PIA	Rarely
Michelle	F	AA	12	7 th	Yes	PIA	Rarely
Monica	F	AA	13	7 th	No	PIA	Rarely
Nick	M	O	unk	6 th	Yes	PIA	Occasionally
Peter	M	AI	12	6 th	Yes	PIA	Rarely
Roger	M	O	11	6 th	No	PA	Frequently
Sarah	F	W	13	7 th	No	PIA	Rarely
Tina	F	W	unk	6 th	No	PA	Frequently

* W = White; AA = Black/African American; H = Hispanic/Latino; AI = American Indian/Alaska Native; O = Other

** PA = Physically Active; PIA = Physically Inactive

questionnaire also reported that they either frequently or occasionally participate in competitive sports and activities. Likewise, all of the respondents that identified themselves as being physically inactive in terms of noncompetitive activities on the questionnaire reported that they either occasionally or rarely participate in competitive sports and activities. Participation in competitive sports and activities was determined by adding the values of the questionnaire items related to current and past participation in competitive sports and activities and then equally grouping the summed values across the three categories of “frequently,” “occasionally,” and “rarely.”

Thematic Analysis

Analysis of the qualitative data revealed that emerging themes fell into three broad categories relating to respondents’ relationship with the outdoors, characteristics of activities that respondents like and dislike, and external conditions that determine participation in activities. The results of the qualitative analysis will be discussed in terms of these three categories.

Relationship with the Outdoors

Whether respondents spent more time outside or inside after school and on the weekends had a connection with their relationship with the outdoors. The relationship that respondents had with the outdoors was communicated in various ways, but the positive or negative direction that the relationship took was different among the respondents and was dependent upon the time spent indoors and outdoors.

The outdoors person sees the value in what the outdoors provides. Most of the respondents mentioned that they spend more time outside than inside when not in school. Ten of the respondents said that they spend a large majority of their time outside after school and that

the decision to be outside is largely their choice. When asked what it was about the outdoors that they liked, these ten respondents described an appreciation for the outdoors and what the outdoors provides them that was not provided by other respondents.

Michael was one of the few respondents that spends a majority of his time outside but reported not participating in noncompetitive outdoor physical activities on the questionnaire. Interestingly, he talked a lot about the outdoor activities that he liked to do during the qualitative interview. Michael was also the only respondent to identify himself as an “outdoor person.”

Interviewer: What do you like about being outside more than being inside?

Michael: Um, sometimes I like being outside cause the birds and everything, I see em.

Interviewer: Hm, hmm. So what about the birds, the flowers, what other flowers do you like? You like roses, what else do you like?

Michael: I like roses, um, taking pictures of birds.

Interviewer: Okay, so you take pictures of birds as well? What birds are usually around the area?

Michael: Um, calling birds and, I have no idea.

Interviewer: What about the last time you went out...and were just looking at birds, looking at flowers, just anything outside, what were you doing?

Michael: I'll say, this morning.

Interviewer: This morning?

Michael: Mm, hmm.

Interviewer: Okay, what did you do this morning?

Michael: I just looked at the flowers and listened to the birds singing.

Interviewer: Yeah. What do you think, why do you think you like that so much?

Michael: I don't know. Cause I'm an outdoor person and I don't like being inside so much.

When asked for further detail about what it was about these activities that he liked, Michael made a clear reference to his appreciation for nature and the need to protect it. Michael's concern for protecting nature takes on a more universal tone with how people in general can be affected.

Michael: I just like nature. Sometimes I take a bag with me and pick up trash around the roads and everything.

Interviewer: Sometimes you just do that? Nobody prompts you to do that?

Michael: Nuh uh.

Interviewer: Okay. What do you think when you see the trash, like why do you pick it up?

Michael: Um, cause I think people should take care of nature cause we need it to live.

Interviewer: Okay. What do you think gave you your, like you like nature, why do you think you like nature?

Michael: Um, I don't know, cause animals need it to live. And without it there'll be no more animals. That's why.

Laura also talked about her appreciation for outdoor natural resources and the impact that losing those resources would have for her. However, Laura's description differed slightly from Michael's in that she saw the loss of natural resources as being very personal and having an influence on the time that she spends with her father and sister. Here Laura talks about the recent lack of rain and the resulting lack of fish in the ponds near her home.

Laura: No, they've gone away now because our pond has gotten really low cause we haven't had any rain lately.

Interviewer: Okay. Do you see that that um, so is the fishing there also kind of, with the water going down is the fishing kind of becoming worse?

Laura: Yes sir.

Interviewer: It is? Yeah? What do you think about that?

Laura: I'm just hoping that there'll still be fish in there so that when my dad and I go, my dad me and my sister go fishing, we'll all like, we'll all be able to catch some fish and stuff.

Kenny's value of the outdoors was expressed in terms of what it provides him in the specific activities that he likes to do. Dancing is one of Kenny's favorite activities. He sees the outdoors as a place that provides him with the things that are needed to dance and this shapes his view of the outdoors.

Interviewer: What do you like, dancing inside or outside more?

Kenny: Hmm, I would probably say outside.

Interviewer: And why is that?

Kenny: Like when you dance some people like what you do and might start doing it cause they like what they see. And um, it's just, I'd rather dance outside because it's like nature and you can just hear different sounds and dance to like simple beats and stuff.

Interviewer: What do you mean by that, dancing to like simple beats?

Kenny: Like you might hear somebody like beating or whatever like [Kenny makes beat sounds with his mouth] or like [Kenny starts to hit the table to make a beat] on the table or something.

Interviewer: You said something about being outside in nature, what were you thinking about that?

Kenny: Like um, I like to hear noises outside. I might hear birds singing or tweeting and then like a hawk or eagle [Kenny makes a “KAWWW” sound like an eagle] and like there’s like dogs and cats come around and bark and meow and stuff. And I just love like being outside and hearing how nature sounds.

In addition to his appreciation for the sounds of the outdoors and the provision of “simple beats” for dancing, Kenny also talked about how the outdoors provides the space needed to dance. During the following exchange, Kenny wants to demonstrate a dance step but has difficulty given the space limitations of the interview room. This reinforced what Kenny said during the interview about the availability of space for movement in the outdoors.

Kenny: Well like, outdoors you have more space and like you might not be able to dance inside cause like you can’t find nowhere, you just like do simple stuff like move your arms and feet and stuff. And outside you can do like flips while you’re dancing and six-steps like fooling around and stuff.

Interviewer: What’s a six-step?

Kenny: It’s like, want me to show you?

Interviewer: Yeah, sure.

Kenny: [Kenny moves back from table and performs a six-step] It’s like.

Interviewer: Do you have enough room? Probably not right, cause you said you need space to do it [Interviewer laughs]

Kenny: Yeah.

The space provided by the outdoors was also mentioned by several other respondents. Usually space was talked about in terms of how much more space is available in the outdoors compared to the indoors and how more space allowed for increased movement to do activities. Megan provided a clear summary of the general consensus among these respondents regarding outdoor space by saying that “because there’s like more room outside to play and not much room inside the house.” Both Bobby and Tina described the space available in the outdoors in terms of being able to build and construct different things. Bobby built a dirt jump for riding bikes with his brother and Tina built a fort with her brother and a neighbor. While neither Bobby nor Tina mentioned specifically that the outdoors provided them with the space and materials needed to build, they both clearly saw the outdoors as the only place they could have done this activity.

Nine respondents made references to the outdoors as a place that they could spend time alone. This alone time was valued by the respondents in different ways, but each saw the outdoors as providing a space that was fundamentally different than the indoors in terms of spending time alone. While some mentioned spending time alone in their bedrooms, there was an identification that the indoors did not provide space that was closed off from the interruptions of others. Instead, true alone time could only be spent in the outdoors. Tina interpreted spending time alone as being less troublesome than time with others when doing certain activities.

Tina: Well, normally I’m by myself like golf cart and stuff but if my brother is home he’ll be on the gator sometimes. Like he’ll ride with me but normally I’m by myself and I like to be by myself sometimes.

Interviewer: What do you like about being by yourself?

Tina: Cause it’s just, you don’t have to worry about somebody falling off or them running into you or stuff like that. Or bothering you or whatever.

Drake was one that mentioned a variety of different noncompetitive activities that he likes to do outdoors. When asked what his favorite activity was, Drake said that he liked to “just sit down and look at the sky and just think about stuff.” When asked what things he liked to think about during this time, Drake replied “what I’m doing the next day and stuff.” At several other times during the interview, Drake referenced this time that he spends by himself outdoors and the way he is able to contemplate the things going on in his life. For Drake, the outdoors provides him with the appropriate place for contemplation. While talking about going out and fishing by himself, David talked about this time as providing a similar opportunity for contemplation as Drake. In response to a question asking him what it was like when he was out fishing and did not catch any fish, David said that it “gives you time to think about stuff when you’re just sitting there.” In similar fashion to Drake and David, Laura mentioned her time spent outdoors walking alone as time to reflect on things important to her. While talking about why she likes to go for walks by herself outdoors, Laura said “sometimes when I go by myself I just like, I have some time to myself and be able to like talk to myself and I talk to God sometimes when doing that.”

Besides for alone time outside being time spent without the hassle of involving others and time spent in contemplation and reflection, Michelle viewed the outdoors as a place where she could escape from her family and be alone to “just have my me time.” For Michelle, the “me time” that she spends alone is very important to her and something that she values about the outdoor space and taking walks.

Michelle: Well, if I’m walking. Really whatever made me do it is because I like to get fresh air. I like to, you know, just uh, not be around, sometimes not be around my brother because he kind of aggravates me. So, um, yeah that’s really all.

Interviewer: Is it mostly alone time?

Michelle: Yeah.

Interviewer: Or is it with friends?

Michelle: Alone, whenever I'm walking.

Interviewer: And where do you go when you're just walking?

Michelle: Like, usually to the park and sit down or just talk on the phone. That's all I'll do when I get to the park.

Another aspect of the relationship with the outdoors that was brought up in several interviews was youths' love of their pets and other animals. Animals played a central role in many respondents' reasons to participate in outdoor activities, which will be discussed later. However, animals also were mentioned more broadly in terms of a general love of animals that formed a connection with nature and the outdoor environment. Jen was one that turned immediately to animals when talking about why she liked being outdoors. She described her relationship with animals as an almost sibling sort of relationship.

I just, I love animals. I've always treated them like my brother or sister or something like that. I guess just playing with them, holding them, everything. I love puppies and kittens and stuff like that...that's really fun. (Jen)

Besides for his love of his pet dogs, Michael also talked about his appreciation for exotic animals, some of which he had never even seen before up close. Michael also took several pictures of his pet dogs and an eagle or hawk that was nesting in a tall tree near his house. It was clear throughout the interview that Michael's relationship with the outdoors was in part formed through his appreciation for animals.

Michael: Yeah, when I was little I used to like, I still like them, I like cheetahs.

Interviewer: Cheetahs, yeah. What others? Have you ever seen a cheetah up close?

Michael: No.

Interviewer: No? On TV?

Michael: Yeah.

Interviewer: What other animals?

Michael: I'll say the eagle. And hawks.

Interviewer: You probably have a lot of them around here right? Or eagles, you said you think that might have been an eagle in one of the pictures right? Or a hawk? What did you think it was?

Michael: I have no idea. It might have been an eagle or hawk. One of them two.

The indoor person views the outdoors as boring unless with others. Fewer respondents said that they spend more time inside than outside and prefer to spend their time indoors versus outdoors. Among these respondents there was consensus that the outdoors was boring and uninteresting. Furthermore, the preference of these respondents to remain indoors rather than go outside was due more to the boring characteristic of the outdoors rather than any exciting or interesting characteristic of the indoors. In fact, none of the respondents mentioned anything exciting about spending time indoors. The time these respondents spent indoors was merely a consequence of the view that the outdoors provided nothing for them.

Sarah was one of the respondents that saw the indoors as providing her with more opportunities for activities than the outdoors. She identified herself as an "inside person" due to the connection that she saw between outdoor activities and her dislike for running due to her having asthma. Therefore, Sarah's view that the outdoors provides fewer opportunities for

activities may have more to do with her perception that outdoor activities involve running than an actual dislike for the outdoors.

Interviewer: So as far as getting out and doing things like running and things that involve running, what would you say that the number one reason is why you don't do that type of thing?

Sarah: Cause I'm not a outside person. I'm just not. I'm an inside person.

Interviewer: Can you tell me a little bit more about what you don't like about being outside or why you say you're an inside, not an outside person?

Sarah: Because there's more things to do inside than out. The only time I really go outside is to bathe my dog, to go next door to the store or something.

Monica was one of the few that preferred to be outdoors. However, she spends more time inside due to the lack of things to do outdoors. She mentions that if there were things to do outside that she would like the outdoors more than she currently does.

Monica: I like to be outside more, it's just nothing to do so I just stay in cause there's nothing to do outside, so.

Interviewer: Okay, more to do inside?

Monica: If there were opportunities to do outside, I would love outside. There's nothing to do.

Cassandra pointed to the boring characteristic of the outdoors as having more to do with being alone in the outdoors participating in activities than the outdoors itself being boring. When asked why she only does outdoor activities with friends rather than alone, Cassandra said "cause you know like, you just go outside it's kind of boring just by yourself." Cassandra also

mentioned that the time she spends indoors is mostly when she is alone and that the only time spent outdoors is with friends.

Interviewer: So what do you generally like to do more, stuff inside or stuff outside when you're not in school?

Cassandra: Mostly inside because I only go outside if my friends come over or if I go somewhere. Like I don't stay outside all the time, but mostly I'm like inside playing like video games, you know, like Xbox or whatever like that, watch TV. Just kind of do stuff you know, not really nothing, you know what I mean like just stuff to do inside.

Similarly to Cassandra, Elaine mentioned that the time she spent indoors was alone and the time outdoors was with friends. Elaine saw the outdoors as providing little for her to do when alone compared to the indoors.

Interviewer: So why would you say that you don't get outside very much?

Elaine: Cause like, like it's not really younger kids where I live, it's really older ones. And like they don't really like to go outside and stuff. Everybody like stay in the house and there's really like nothing for me to do.

Interviewer: Okay. So, would you say that's kind of the number one, the biggest reason why you do most things inside, because there's really no one around to do things with?

Elaine: Uh, huh.

Interviewer: How would you say that would be different if ah, let's say you had friends that were right in your neighborhood that you could walk to?

Elaine: Yes sir

For Cassandra, Elaine, and Sarah, the connection that they have with the outdoors is purely a function of the availability of others and other's desire to be outdoors. Sarah made this

clear during her interview when asked what it was about the outdoors and outdoor activities that she did not like.

Interviewer: So is there anything about outdoor activities that you don't really like?

Sarah: No. I hate everything about outside activities. It's just today, I went outside to meet with my friend, she's like my best friend at school. That's the only reason I went outside today.

Characteristics of Activities that Respondents Like and Dislike

Respondents discussed their participation in activities in terms of the aspects of the activities that they liked and disliked. The preference for specific characteristics of activities was important for respondents in forming part of their reason for participating in certain activities and not others.

Outdoor activities as active and indoor activities as inactive. Thirteen respondents preferred to participate in outdoor activities, six preferred indoor activities, and five did not prefer one over the other. When respondents discussed their favorite activities, differences in physical activity level existed according to whether the activities were outdoors or indoors. Indoor activities that were mentioned by respondents as being a favorite were all sedentary in nature and included watching TV, playing video games, going online on the computer and cell phone, and texting. Peter summed up the sedentary nature of playing video games when asked how long he usually plays for at a time, "if I have a lot of free time I'd probably sit there all day." Peter also alluded to the potential for losing track of time while playing video games. The high level of engagement while playing video games was discussed by other respondents as a tuning out of everything else that is going on around them.

Compared to indoor activities, the outdoor activities discussed by respondents were more physically active. The outdoor activities that were mentioned by respondents as a favorite the most were playing sports both competitively and noncompetitively, hunting and fishing, and riding bikes and 4-wheelers. Many respondents had trouble identifying the activities they like to do normally because of the lack of a specific name for the activity. These activities were often described as favorites by respondents and included walking and jogging around the neighborhood and just generally playing outside. Playing outside was often referred to by respondents when they had trouble describing the activities that they liked to do, such as Laura who said “I like to just play outside really.” Kate turned to a description of the activity that she could not easily name.

I like to go out, put on my gym shorts and go out outside and I, there’s like these things, around the trailer park and it’s like a track and I like to run around it. (Kate)

When Bobby was asked what his favorite activities were outside of school, he was readily able to identify those that had a known name such as football and riding bikes. However, Bobby had more trouble identifying another outdoor activity that did not have a name associated with it. Upon further probing, this activity was one that stood out to him as a favorite. Like Kate, in order to communicate what this activity was Bobby had to describe it.

Bobby: But outside of school I like to go over to my friend’s house. We play football, uh, ride bikes, go out in the woods, just walking in the woods and hunt squirrels and birds and stuff like that. And just anything that’s outside and we can do, that’s what we do.

Interviewer: What other outdoor things, anything else that you do outside?

Bobby: Football, basketball, ride the bike. We, a lot of times, me and my brother we’ll go outside to our back lot. We dug a ditch and made a little dirt jump for our bikes. And like,

we kept on working on that and my dad got us the dirt and we started making hills and stuff.

Intrinsic properties. Personal enjoyment of participating in noncompetitive outdoor activities was alluded to by respondents. One of Kenny's favorite activities was dancing outside. Kenny says that he likes to dance regardless of any music playing and his enjoyment of dancing showed in his discussion of what he likes about dancing.

Interviewer: What do you like about dancing? Why do you do it?

Kenny: Like I have a passion for it and I, I like doing it and it's just like things you can do when you dance and...my sister got me into it and I've been like doing it since she got me into it.

Interviewer: What do you like about dancing, or what gets you to dance when there's no music playing?

Kenny: There might not be nothing to do. People just standing around, we'll just like get up and dance. And like I just feel it in me, in my feet and stuff. And I just go at it.

David saw that his enjoyment of noncompetitive outdoor activities came from the ability to challenge himself physically. He compared this with playing video games inside that lacked the physical challenge and where the only outcome was to beat the game or other opponents.

Interviewer: What do you like about outside stuff compared to inside stuff?

David: Challenging yourself more.

Interviewer: Challenging. And what, what ways are you challenging?

David: Physically, like you're getting better and inside you're not really doing nothing but trying to beat something and, but when you're outside you're having to work to do it.

Having a choice in whether to participate in activities was an important aspect in determining enjoyment of noncompetitive outdoor activities that respondents mentioned. When Jen discussed the times when she goes horseback riding, she said “I would go outside and I would just decide I’m going to ride her that day.” Michelle also alluded to the choice she has in participating in activities.

I can go out whenever...if I’m not doing anything with my brother then I can, I will go outside and walk or do whatever. (Michelle)

Unlike noncompetitive outdoor activities, participation in organized sports was viewed by several respondents as lacking any choice. Elaine mentioned her lack of choice at several points during the interview as one of the aspects of participating on the school track team that she disliked. She discussed her frustration with not having any choice in the track events she was told to do by her coaches.

Interviewer: The main event that you do is long distance running, um, is that your favorite thing to do or what are some of the favorite things you like?

Elaine: I was on like relay, where you pass the batons. But I don’t know why the coach changed me to um, long distance. Cause I had a hard, I have a hard time doing long distance than relay running.

Interviewer: Okay. Um, so you’d rather do relay than the long distance running?

Elaine: Hm, hmm.

Interviewer: Any other events that you like more than the long distance? Okay, so that would be kind of two. If you were picking several activities, what would be, out of all the events in track, what would be the top three?

Elaine: Okay, relay um, the 100 meter, and hurdles.

Interviewer: Okay. So long distance isn't even on that list?

Elaine: Nah, uh.

Interviewer: Okay. So you don't know why you got placed, it wasn't really your choice, you were just placed on long distance. How did that happen when you were, what were you doing before you were put on the long distance?

Elaine: I was on relay racing. Like now, when we practice the coach he really didn't let me practice, he mostly let the other ones practice. And I guess maybe that's why he put me on the long distance. Which I don't really understand why because he should know that every time we go out there and practice I have a hard time running around the whole parking lot cause I have asthma and it's like really hard for me to breathe sometimes. But they still make me run.

In addition to the restriction of choice Elaine received from coaches during her participation on the track team, she also discussed how her mother did not allow her the choice of whether to participate on the track team at all.

Interviewer: What does that mean for next year?

Elaine: I don't know. Like I don't want to try out but my mom, she said she gonna make me try out anyways, so.

Interviewer: Okay. Um, okay so your mom is going to kind of push you to try out next year. But if it was all your choice, what would you choose?

Elaine: Nah uh.

Interviewer: Not to do it?

Elaine: I don't want to do it.

Interviewer: What if you were on the relay, what if you got picked for relay would you want to be doing it next year? Or hurdles?

Elaine: Hm, hmm.

Elaine's ability to choose her participation on the track team was hindered by the adults in her life that had the ultimate control. Elaine viewed this lack of control in making choices concerning her participation very negatively. It is important to mention that Elaine wanted to participate on the track team, but she also wanted to feel that she could voice her concerns to coaches and her mother about her participation. Elaine alluded further to her lack of voice when she discussed her dealings with a track coach.

Well I feel like I'm really good at running, but he didn't put me in a position where I can show him that I'm good at it and like...that's why I talked to him about putting me back on relay but he still doesn't listen to me. But I really like to run and it's, I feel it's something that I'm really good at. And I could show him if he just listen to me sometimes. (Elaine)

Along with having a choice in her participation, Tina also discussed her enjoyment of building forts in her backyard in terms of the personal creativity that was afforded to her. During the building process, Tina was free to make choices concerning the design and layout of the forts. Despite having to tear the forts down, the building was a noncompetitive activity that Tina viewed very positively.

Interviewer: Did you like building it, the actual building it more or did you like using it after it was done more?

Tina: Probably building it because it was easier, if I wanted to like add something to it. Like building like, seeing what I liked about it. I like doing that more probably. And adding stuff to it.

Interviewer: So as you were building it you were probably, probably didn't plan everything out ahead of time, you were

Tina: No I just kind of, we had a lot of bricks left over from my house, like stacked up and we just kind of made like a little area, like a, yeah, I liked building it better probably.

Interviewer: How did you get the idea to do that?

Tina: Um, well I had seen it on the internet and stuff. And um, well cause we had had a lot of those little forts but we had torn them down because they were made of like wood and stuff so um, we decided to build another one made out of bricks so it'd be better. And um, it lasted until this year. It's been there for a long time.

Bobby also talked about his enjoyment of building and constructing in the outdoors. Like Tina, Bobby discussed his enjoyment of the actual building process when he designed and built a ramp to jump with his dirt bike. Bobby also went on to discuss how building the ramp was personally an accomplishment and was going to benefit him later.

And it was fun to me cause I like being out there and I like, I like to work towards something that in the future is gonna benefit me or like give me something to do. And I like doing that. (Bobby)

Extrinsic properties. Competition and competing against others was mentioned as a favorite aspect of playing sports. Tina and Cassandra were two of the respondents who mentioned that competing was one of the aspects of sports they liked the most.

I like the competition in it. I like, I like to play tennis and like the, well I play doubles so I have a partner, but um, I like to play with other people. Then see their skills I guess.

(Tina)

Well, kind of not, kind of both, like I like playing it and just in general and I do like competing but if I had to pick one of my favorite probably would be competing, doing that, just playing against other people. (Cassandra)

The drive to succeed and win in competitive sports was highlighted by respondents in various ways. When asked what about competition in sports he liked the most, James replied that it was “running the football, scoring touchdowns.” For David, winning was a direct goal that drove his desire to improve his skills in sports.

Interviewer: What do you like the most about competition?

David: I like winning.

Interviewer: Like winning? Okay. Do you find that you win a lot?

David: It makes, it makes you wanna do it more because you wanna get better so you can win.

When asked about competition and what she liked about competing against others, Cassandra also referred to winning. However, Cassandra also mentioned the disappointment she feels when she makes a mistake and her team loses. Not making mistakes that cause her team to lose was more salient than winning to Cassandra in terms of her view of competition.

Mostly winning cause I don't like losing. I'm not, I don't get mad when I lose, I'm just kind of disappointed in myself. (Cassandra)

I don't care if we lose, but like if it's because of me making us lose that's when I'm disappointed. If we lose I mean you know, you know it doesn't really upset, it upsets me

a little bit but not much. Like if I caused the team to lose it makes me upset. Not mad or anything, just you know. (Cassandra)

The division between competitive and noncompetitive activities was blurry for respondents. Cassandra talked about how participating in organized sports was sometimes competitive and other times noncompetitive when practicing with her team. The division between competitive and noncompetitive for respondents was more fluid and determined not necessarily by the activity, but rather was determined by the participants and the way that they participated in the activity.

Sometimes it can be competitive. Sometimes like if we're like practicing, cause I practice with my teammates and like sometimes we'll play like a real match, not like, just like a real one. Get in there and practice and that's competitive like what we do, but if we're just like just, sometimes in practice we'll just play around and hit the ball around and stuff like that. (Cassandra)

Bobby also explained that practicing was noncompetitive when everybody involved is trying to help each other to improve. Bobby saw competition as involving direct opposition between participants.

Cause we're not really, we're not really seeing who can do the best, we're seeing how we can do it the best. Like how we can make each other, building each other up and how we can be better at the sport. (Bobby)

Many times respondents referred to playing sports as noncompetitive, such as James who said "I don't really play games, I just shoot around." Activities such as shooting the basketball, throwing the football, or playing catch with the baseball were seen as noncompetitive by respondents. Bobby also viewed sports as sometimes noncompetitive when he played games

with his friends. For Bobby, competition was only salient when playing in organized sports and did not extend to playing games with his friends.

Bobby: Like when we hit the baseball, we don't really play baseball, we just hit it and throw it, the baseball. I do that with my brother and much of my friends...

Interviewer: So you kind of think of those things as being pretty noncompetitive? Um, you don't usually play games, um, you usually are just throwing or hitting the baseball, throwing the football?

Bobby: Football a bunch we'll play games. But ah, I don't really consider that competitive. But ah, what I consider competitive is like when I play for like maybe if I play for the school or if I play for the rec, that's what I'll consider.

Activities that are generally considered to be noncompetitive by nature were also sometimes seen as competitive by respondents or turned into a competition between participants in the activity. David saw hunting and fishing as sometimes competitive when he would go out with his father.

Hunting and fishing is my favorite cause that's all we do during hunting season, cause I like it...and that's another competitive sport cause my daddy comes and I can always brag how I get more birds then him. (David)

Drake viewed riding 4-wheelers with his friends as being mostly competitive. He also explained the difference between when riding 4-wheelers with his friends was competitive and when it was noncompetitive.

Interviewer: When you're normally out with your friends with 4-wheelers, um, is it usually competitive or noncompetitive?

Drake: Noncompetitive is half.

Interviewer: About half and half?

Drake: Yes sir.

Interviewer: What types of competitive things do you do?

Drake: Like we'll get on em, like, who can get the catwalk the most, the longest. And like we hit donuts, like the 4-wheeler, the back of it like goes around like that, who can get it the most times.

Interviewer: Okay. In like the mud?

Drake: Yes sir.

Interviewer: What's like the noncompetitive aspect, like what do you do when it's pretty much noncompetitive?

Drake: You just like sit down and talk and stuff on the 4-wheelers. And I mean you get ready to go home.

Social time with others. The social aspect of participating in activities was important to respondents and influential in their participation. Cassandra referred to participating in noncompetitive activities such as 4-wheeling being more fun with cousins than when by herself.

If you do it by yourself it's like, it's fun but it's not as fun as you would doing it with your cousins or whatever. (Cassandra)

Well I like doing it because like I like just kind of like I said it's kind of something fun to do with your cousins and stuff. Just to go out there and have fun you know, sling mud and stuff like that. Just something fun to do, you know, with your cousins or whatever.

(Cassandra)

Cassandra also mentioned that 4-wheeling (referred to as mud bogging during the interview) with friends was more fun than participating in organized sports because of the quality of time spent with friends. Cassandra pointed out that a difference between participating in organized sports and riding 4-wheelers was where her focus needed to be placed during her participation. During organized sports, Cassandra needed to be centrally focused on playing the sport whereas with riding 4-wheelers her focus could be more spread out to other areas such as her friends as well as the activity itself.

Like if I was just picking what would be funner it would be, sometimes they're both kind of fun just playing around but ah, I kind of like mud bogging better because you're kind of like, you know, you're with your friends just kind of playing around you know. Just like, it's kind of funner than tennis cause tennis you have to focus on what you're doing. You know, like you know, whether I should hit this or where I stand or stuff like that. But when you're doing, when you're just kind of mud bogging you're just kind of like this, hanging out with your friends, stuff like that. You have to focus on what you're doing when you're doing that, but not as much as you would playing like competitive things like tennis or softball. (Cassandra)

Unlike Cassandra, David and Drake thought that spending time with friends was one of the benefits of participating in organized sports and a reason why they liked to participate.

Interviewer: What do you think motivates you the most about getting involved in sports, baseball, football? What's kind of your number one reason?

David: Well, you get to be with your friends. And, yeah.

Interviewer: What do you like about participating in those things, like you know, in those sports compared to doing other things outside?

Drake: Cause sometimes we meet new friends and stuff and we have fun.

Spending time with animals and pets. Noncompetitive activities involving animals and pets were mentioned by a majority of respondents. The activities ranged from riding horses to walking and playing with their dogs. Nick mentioned his dogs throughout the interview and the activities that he liked to do with them.

Cause they are fun to play with. If you just lay down they come over there and start attacking you. That's the most fun part about it. (Nick)

Nick's dogs were central to his time spent outdoors and a key reason why he preferred to spend his time after school outdoors instead of indoors.

Interviewer: So do you play a lot with both of them? With both of the dogs?

Nick: Yeah, I like to play with them.

Interviewer: Is the neighbor's dog there a lot?

Nick: Yeah, them two are friends.

Interviewer: Oh okay. What do you do when you're playing soccer with them?

Nick: I like to, they'll usually hit the, kick into the goal.

Interviewer: They'll use their heads? Really? So what do you do, you kick it to them or throw it to them?

Nick: Yeah, I kick it to them.

Interviewer: You kick it to them and they head butt it into the goal?

Nick: Mm, hmm. That one right there he...at it and he comes around and hits it with his head.

Interviewer: When you're just kicking the ball around do they get in there and follow it around?

Nick: Yeah. That one right there, he's curious about the ball. So he, he just stares at it like this [Nick makes a facial expression]. He's curious about what it is. That one right there, he...he goes around and kick it, hits it with his head. One thing they know how to do is wrestle, that's something we know how to play. When he plays with them. It's fun to watch them wrestle till they start growling at each other.

For some respondents, spending time with their pets was one of the only reasons why they would go outside. Peter and Sarah both spend a majority of their time inside and only go outside when they either walk or play with their dogs.

Interviewer: What's your favorite thing to do once you get out of school? Like when you're out of school?

Peter: Probably watch TV or lay down and just walk out back with the dog. That's pretty much, yeah.

Interviewer: What did you say with the dog?

Peter: Play with him. Play.

Interviewer: What ah, what outdoor, do you do anything outdoors?

Sarah: Play with my dog. That's it.

External Conditions that Determine Participation in Activities

Family members and friends played important roles as motivators, role-models, and barriers to respondents' participation in outdoor physical activity. Availability of resources and equipment related to outdoor activity near respondents' homes as well as previous experiences of participation in outdoor activities were also influential.

Motivators. Respondents referred to several different people in their lives that motivated them to be outside and to participate in outdoor activities. Parents were mentioned by respondents most often as motivators. Respondents referred to how parents encouraged and participated in outdoor activities with them on a regular basis. Roger said that his mother encourages him to be outside with statements such as "you need to go outside and have a little fun." Denise said about her mother that "she'll ask us, do we wanna play and we'll go play." Both Roger's and Denise's references to what their mothers often tell them exemplified the comments made by other respondents. Kenny discussed how his parents support and encourage him to participate in dancing outdoors as well as singing and sports.

Interviewer: So what are your uh, parents, what's your parents involvement in any of this?

Kenny: Well they like, if I dance or something, they'll like watch and cheer me on. We have like little singing competitions at the house and it's fun to see like if we all can sing and stuff. And like when I have a game or something they'll cheer me on and stuff.

David hunts and fishes regularly with his father and has been participating in these activities with his father since he was young. David discussed his time spent hunting and fishing with his father as memories that he has retained. These memories were positive for David and were easier for him to recall than the last time he was out hunting or fishing.

David: I can't remember the last time, it's just, we were, I can tell you one time we went, about one time we went hunting. Cause we have a lot of funny stuff we do when we go hunting.

Interviewer: Sure, go ahead.

David: Okay, one time we put this decoy out. And it was getting dark so we climbed out of the stand and we, we, dad thought he saw a deer down there, it was farther than the decoy, but we climbed out of the stand cause we were see if we could get it before it got dark. And, and when I, it was already gettin dark do so when I saw that thang, I had done cocked, I had pulled my gun up and cocked it. I was about to shoot the decoy. I was like HUUUHHH. It was funny.

Interviewer: Just cause it was getting dark and you just couldn't see?

David: Yeah, I couldn't, well I didn't, I forgot the decoy was there and I was like, man I'm about to get a deer. And I had, that was before I even shot one before, so.

Interviewer: So you have shot deer before? Yeah, okay.

David: I shot one last year.

Interviewer: Got one last year? Alright. You were able to bring that home too and eat that too right?

David: Well, I know we gave some to um my grandparents. It was a small deer.

Interviewer: Small one? Yeah. What, do you have any other stories about hunting?

David: Yeah, the same day, the same day I almost shot the decoy it was cold and my daddy was sitting in the stand with me cause I was young, so there was this pad and there was water in the seat so he was going to pick the pad up and dump the water out and then he, when he lifted it up there was about fifty wasps in it. But since it was so cold they

wouldn't sting you, but instead of doing the smart thing he just dumped them all on the, all on the stand instead of dumping it out.

In contrast, most of the respondents who spend a majority of their time inside described their parents as less encouraging or not encouraging at all to outdoor activities. Anthony mentioned several noncompetitive outdoor activities that he liked to do, but said that his parents are not involved very much with these activities with the exception of his father that used to play soccer with him before being more involved with his work.

Interviewer: What do your, do your parents do any of this with you?

Anthony: Uh, my dad he plays soccer with me, but most of the time he's inside working cause we barely moved to that one house and we're still going to make another part to it. But like since he's been working on some of the parts of the house, he hasn't really had much time to make the other part. But we're going to make our house a lot bigger.

Interviewer: Okay. What about your mom?

Anthony: My mom, she rather be inside cookin. She's like, more like a housewife. She likes to be cleaning and stuff. She cleans a lot.

Michelle lives with her mother and described her as not encouraging Michelle to spend time outside. Michelle said that when she gets home from school her mother normally heads out of the house and leaves Michelle to babysit a younger sibling.

Interviewer: So are they um, when you get home from school what are they usually doing?

Michelle: Well, um, my momma, she'll be home, but when I get home she'll leave, so. That's all.

Interviewer: And where does she usually go?

Michelle: Like she'll go either to my aunt, my cousin, and to her baby daddy house.

Interviewer: Okay. Alright. What other um, actually what I wanted to ask was, does your mom or your aunt ever do anything outdoors with you at all?

Michelle: Well, no, no.

Respondents also discussed siblings as motivators. Bobby rides BMX bikes with his older brother on a regular basis and described how they encourage each other in BMX to improve and stay motivated to ride. Bobby also described riding BMX bikes as something that he and his brother have the most in common.

Ah, getting out there when my brother, like we'll sit out there and we'll jump it and we'll talk about what we can do to the ramp, cause we make it bigger. We fix it when it gets messed up and ah, when we jump it my brother will say like "do this next time" and I'll tell him to "do that next time" cause it helps you and we just usually talk about that.

(Bobby)

One of Laura's favorite activities is fishing and when asked for the reason why this is a favorite she said it was "because it's what we do most with my family." Laura spends most of her time outside after school and described how her and her sister would encourage each other to get outside to do outdoor activities.

Laura: Sometimes I'll get her to like, when she's in her room I'll say "come on let's go outside and do this."

Interviewer: Does your sister like being outside doing things like you do?

Laura: Yes sir. Sometimes, when we're really tired we'll go inside and lay down in our rooms and just take a little nap. And then once we're awake we'll go back outside and play.

Apart from family, friends were also mentioned by respondents as key motivators to their participation in outdoor activities. Cassandra discussed how she would regularly ask her friends if they wanted to go outside and play. Drake mentioned that his friends would ask him if he wanted to go ride 4-wheelers. Having friends nearby that also enjoyed outdoor activity was a resource to both Cassandra and Drake.

Sometimes I go over to their house and sometimes we'll play at my house. But mostly they usually come over to my house cause I'm the one that says "hey, you all want to play," you know, whatever and then they'll come over to my house. But if they want to play something we usually do it at their house. (Cassandra)

Ah, uh, most of the time like my friends come and knock on the door and they want me to come like they do different stuff on it and they ask me if I can do it and I say yeah.

And that motivates me. (Drake)

Despite friends living in close proximity being a resource for Cassandra and Drake as well as several other respondents to playing outdoors, other respondents did not spend much time playing outside in spite of friends living nearby. There was a mix in the availability of friends living nearby and further away among respondents who spent most of their time outside participating in activities and those that spent most of their time indoors. Therefore, having friends in close proximity to respondents' homes was important only when those friends acted as motivators and directly encouraged participation in outdoor activity.

Family as role-models. The presence of role-models was important for respondents in their participation in outdoor activity. Role-models mentioned by respondents were all family

members and acted as role-models both through past and current active involvement in activities themselves. Corey mentioned that he likes to walk around the neighborhood and that his mother's habit of walking regularly was a reason why he likes to walk.

She walk like, she walks like every day when she can. When she's not busy she walks like 5 miles per day. And she kind of progresses, like she's patient and stuff. (Corey)

Drake also discussed how his mother was influential in the development of his enjoyment of riding 4-wheelers. Drake's mother also likes to ride 4-wheelers and was something she did as a child. Drake's mother's enjoyment of riding 4-wheelers has impacted Drake and his own participation in riding 4-wheelers.

Interviewer: Any problems when you come home and you're covered in mud with your mom or step-dad?

Drake: Sometimes like she comes and she says "why are you all muddy?" Like just been mud bogging and she like sometimes will play in the mud.

Interviewer: Okay. But nothing like too major, doesn't stop you from doing it?

Drake: No sir.

Interviewer: Okay. I mean it's not like a thing, or do you think they're telling, they would want you to not do that?

Drake: Sometimes my mommas do it and like that's who made me do it like made, not made me but like just like gave me a part to do it, my momma.

Interviewer: Your mom did?

Drake: Yes sir.

Interviewer: Okay. So how often does she get out there with you?

Drake: Like sometimes when like if she's not working and when I get home from school like she'll already have the 4-wheelers ready for us.

Interviewer: Okay. So is she then one of the main, or the main reason why you're into 4-wheelers now?

Drake: Yes sir.

Jen identified both of her parents as being influential to her appreciation of animals and her participation in activities such as horseback riding and playing with her dogs. Jen's recognition and description of her parent's love of animals is evidence of the important role they have played in Jen's own love of animals.

Interviewer: Where do you think you got your love of animals or your love of doing all these things that you do?

Jen: I guess from being around it. And my daddy, he loves animals too. He's a little bit stricter on animals than I am. See, I'll let them do anything. But, Jessie, the beagle, she loves to tear up stuff and my daddy would be "I'm gonna kill that dog." And he never does anything to them, he's just like that. And my momma is very tender hearted about animals. Um, when things happen to them or something, we'll try to take care of them ourself.

Kenny discussed the important role his older sister has had on his participation in dancing and basketball. Kenny saw his sister participating in these activities and she was willing to teach him what she knew. Kenny's sister acted as a role-model and greatly influenced Kenny's enjoyment of these activities.

Me and my sister, like my sister can roll with the dance team. She decided to teach me how to dance and stuff. She put me in it. So I was dancing around like, let's see, probably six or, six to eight years old. And like ever since I just like to dance. (Kenny)

Kenny: She's the one like, she gets me into stuff. I started playing basketball cause she played in high school and she taught me how to play. And she got me into dancing. And she sings in church so I started doing that too. Kind of like follow after her.

Interviewer: Okay. Does she just do these things and then you get into them because of that or does she encourage you to get into those things?

Kenny: She like, like I don't know, I can't really remember but like I kind of follow her sometimes and I just, when I'm on my own I ask her "could you teach me to do this stuff." And I would say um, probably kind of follow her a little.

Laura saw that her involvement in gymnastics was influential to her younger sister's desire to get involved with gymnastics. Laura mentioned that, "well since she's, since I've been doing it she's wanted to do it because she thinks it's gonna be really fun." Laura and her sister regularly practice gymnastics outdoors in the front yard of their home.

Parent concern for safety as barrier. Several respondents discussed their parent's concern for safety as a reason that they do not participate in certain outdoor activities. Anthony talked about his mother's concern for safety being much different than his father's at several times during the interview. At one point Anthony talked about how his mother was very concerned for his safety with getting back into playing soccer after a minor injury. His father on

the other hand wanted Anthony to begin playing again. In this situation, Anthony sided with his mother and decided to not play soccer anymore.

Interviewer: And what about when you got injured in soccer, you know, what was your mom's reaction to that?

Anthony: She was like "you ain't playing soccer again unless you want to go again like that" and I was like "I learned my lesson mom, I won't do it again."

Interviewer: And what did your dad say, how did he react to the accident?

Anthony: "Don't listen to your mom, you gotta keep playing."

Interviewer: So what made you, what do you think made you kind of go with your mom on that one?

Anthony: Um. It pretty, it pretty hurt and I was like if I play soccer I might have another consequence, probably worse than what I have right now, so I was like sorry dad, I'm going with my mom right now.

Though Sarah had a friend that was located within walking distance to her house, she was not allowed to walk down the street and either was her friend. The concerns for safety of both Sarah's mother and her friend's mother hindered Sarah's and her friend's ability to spend time together and to participate in activities outdoors.

Interviewer: So within walking distance you have friends?

Sarah: It's just my mom won't let me walk.

Interviewer: So how often would you, do you say you can't really walk over to your friend's house, can she walk over to your house?

Sarah: My mom, yeah, but my mom won't let me walk. Her mom really don't really want her to walk.

Availability of resources and equipment for activity. All 24 respondents identified that they had outdoor space for activities available near home and that the amount of space was equal to at least half of a football field. The outdoor space ranged from front yard and backyard space to nearby open fields, woods, lakes, and ponds. While free access to the outdoor space was not mentioned by all 24 respondents, over three quarters of the respondents identified that they could use the outdoor space whenever they wanted provided that parents gave permission. Comments made by Corey, Kenny, Tina, and Drake were common among the respondents.

It has a, like a playground. It's fenced in and it's a playground. And it has areas like fields where you can play football. (Corey)

Well we have like lawn, like a yard, sidewalk, and then I usually go like, go play out in the field. (Kenny)

We have a house and then like we have a little like a area, like a square almost area. And then we have like a big field, I mean it's...probably longer than a football field. (Tina)

We have woods, the high school, and big fields. (Drake)

The availability of churches and school clubs that provided opportunities and encouraged participation in outdoor activity was mentioned by respondents. Kenny, who was very involved with his local church, talked about the opportunities that his church presents him with to participate in noncompetitive outdoor activities.

Kenny: No, just go to church and we have like an hour of playtime then. Go in and learn about god and stuff. I went to this retreat this past Sunday at church and um, it was called Man Up. And like learn how to do manly stuff like we fished and other things.

Interviewer: And was that like a one day thing?

Kenny: It was on Friday and Saturday, till Sunday.

Interviewer: So it was a whole weekend type of thing.

Kenny: Yeah, it was a weekend.

Interviewer: And uh, have you ever done fishing before?

Kenny: Nuh uh, it was my first time. I liked it a little, but I didn't catch any fish.

Peter and Roger both talked about the clubs they were involved with at school and how the clubs provided them with opportunities for outdoor activity. For Peter, the club provided him with his first fishing experience. For Roger, the club provided an extension of the activities that he already liked to do outdoors and a social setting to interact with other students that had similar interests.

Peter: Pretty much go get to different places, like um, like Saturday we had a trip on ah, the science club to the, a trip to the place called Go Fish. That place was pretty cool.

Interviewer: What is that?

Peter: It's like some um, fish gallery or something like that...where you can do some simulation with two, a calm kind of fish and then a rough kind of fishing. And then when done doing that you can go outside and do some real fishing in a little pond for catfish.

Interviewer: What's that, hunting and fishing club?

Roger: It just teaches us about hunting and fishing and like we're going to have, I think we're going to have a field trip and go fishing.

Interviewer: And who um, who does that club, you know, who runs that club?

Roger: Coach [Coach's Name].

Interviewer: So is that a school club? Oh, alright, so school club. After school you do some of these things or do you meet during school hours?

Roger: We meet during school hours then I do, I do those things after school most of the times.

Interviewer: Oh okay. Do you like the hunting and fishing club? Yeah? What do you like, what do you like about it?

Roger: Like I like to, I like to talk about hunting and just in doing a good time being outside.

Having access to equipment that is needed for outdoor activity was mentioned by respondents as influential to their participation. Tina liked to swim and goes swimming frequently at her pool and at her neighbor's pool. The access that Tina has to a pool at her own house and at her neighbor's house for swimming is important to her being able to participate in swimming on a regular basis.

In the summer, um, well we stay with a babysitter so, we swim sometimes at my house or we'll go like to somebody else's pool and swim. We swim a lot. (Tina)

Ian described the availability of having a 4-wheeler to ride. Ian had previously had a 4-wheeler, but sold it in exchange for a golf cart. He described how the golf cart was not as much fun to ride as the 4-wheeler and that he does not ride the golf cart as much as he used to ride the

4-wheeler. Ian's access to a 4-wheeler therefore had an impact on his participation in riding outdoors.

Ian: I used to have a 4-wheeler. I wish I could still do that.

Interviewer: Ok. So 4-wheeling is one thing you used to do. Um, would you be doing 4-wheeling, would you be riding the 4-wheeler a lot more and not so much of the golf cart if you had the 4-wheeler?

Ian: Yeah

Interviewer: Why do you have the golf cart still and not the 4-wheeler?

Ian: The golf cart was cheaper and the 4-wheeler I had got about wore out so we sold it. Fella gave me a good deal on the golf cart so I bought that.

Interviewer: Okay. What did uh, what did you used to do with the, how long ago did you have the 4-wheeler?

Ian: Hmm

Interviewer: Or did you sell the 4-wheeler?

Ian: We sold it about middle of last year.

Interviewer: Ok and what did uh, how often did you go out with that?

Ian: Oh I'd go out about every day on that.

Previous experiences in outdoor activity. Respondents that had positive past experience participating in outdoor activities referred to these as reasons for their interest and continued participation. Ian's favorite activities to do after school were hunting and fishing. He referred to having participated in these activities since he was younger as an important reason why he likes to still go hunting and fishing.

Interviewer: What do you think is the number one reason you go hunting?

Ian: Uh I just like to do it. I've done it for years and I've always loved doing it.

Interviewer: What about fishing?

Ian: Same thing.

Peter used to participate in the Boy Scouts, but does not anymore due to his negative experience of being forced to stop due to his family moving. Peter did not want to get involved with Boy Scouts anymore because he felt that he would have to stop participating in it again. Peter's reasoning was in large part due to his previous experience.

Interviewer: Why haven't you gotten involved, is there a Boy Scouts here right, or no?

Peter: Hm, hmm. All I saw was Girl Scouts.

Interviewer: Oh really, so there may not be.

Peter: There may not be here.

Interviewer: So you don't really know that there, doesn't sound like there is.

Peter: I don't really know. But all I know is I'm not doing it again.

Interviewer: Why's that?

Peter: Because every time when I go to one I at least get cut off in the middle. Like um, we stay there for a couple days and...we just get off for awhile.

Interviewer: So you mean um, because like it was interrupted, like you were in Boy Scouts and it was interrupted because your move to here, so that kind of is a reason why you don't want to get involved with it again?

Peter: Yeah, it happened about like um, every time I went into one that happened.

Injury experiences while participating in outdoor activities was a reason for some respondents to stop participating in certain activities. One of Anthony's favorite activities was to

play soccer both on teams and with friends in his neighborhood. However, since having had an injury while playing soccer, Anthony has decided to not participate in soccer anymore even though the injury itself has long since healed and he is now physically able to play. In addition, Anthony currently likes to skateboard and was aware of the risk of injury of skateboarding. He identified that he would stop skateboarding or skateboard less frequently if he has a significant injury experience.

Anthony: Pretty much my sport is soccer.

Interviewer: Soccer, okay. Do you uh, play on any teams?

Anthony: I used to but like ever since I had an injury on my leg I never got back and start playing on teams.

Interview: What was the injury?

Anthony: Um, they had whistled, the referee had whistled and I was going towards the ball and they were coming at me and somebody from behind like kicked me in the leg and then when I landed on it I landed on it kind of crooked and it cracked. It wasn't nothing bad, it was just twisted ankle what happened.

Interview: So once it healed, when you were able to get back out, why, what was the reason that you didn't get back out and play soccer?

Anthony: The reason was I was scared of going back again and then having the same experience I already had. I didn't want to do that again, that's why.

Interview: Okay. So the uh, so kind of, do you think that it was more um, having the exact same experience with soccer, because I think of skateboarding as being pretty injury prone?

Anthony: Yeah, pretty, yeah. [Laughter]

Interview: [Laughter] Right? So what do you think is the reason that you didn't get back into soccer but you continue with skateboarding after the injury?

Anthony: Skateboarding, they can like give a low kick or a high kick and like they could either take out your breathe or fracture leg and skateboarding you just scrape your knee, your arm, your elbow and you just get back up and you go again. Unless it's like really bad you actually break an arm that's. I haven't broken a bone yet. But if I did on skateboard then I will stop that too. I mean I will skateboard, but not like frequently like I do right now.

Injury experiences were not seen by all respondents as a deterrent to participating in outdoor activities. Unlike Anthony, Roger's injury experience while fishing did not prevent him from going right back out again once he was able.

Roger: And one time when I was eight, my lure got caught in the bushes and I yanked it up and it hit me in the face and the big, the hook was like that thick and it caught me right there and it was pullin that out. So I had to go to the hospital and get it clipped and push it all the way through. I couldn't really feel anything right there till my mom would try to take it out.

Interviewer: Wow. Who did that?

Roger: I did it, cause I snatched it out of the bushes and it hit me right there.

Interviewer: Oh, okay, it came right back at you. Okay. Alright. Wow. That must have hurt. So how long ago did that happen?

Roger: Three years ago.

Interviewer: Three years ago? So even with that, you still, that didn't deter you at from getting out and going fishing at all huh?

Roger: I wanted to go right back after I got out of the hospital. And I did get to go.

Some of the respondents discussed their injury experiences as a learning moment. Bobby had injured himself twice fairly badly while riding BMX bikes and viewed his injuries as experiences that made him better and tested his resolve to keep participating in BMX.

Interviewer: So with any of the injuries, did that, I mean that obviously you couldn't get right back on the bike and go, but um, did that stop you from, make you think at all when you're doing it again or like

Bobby: It's like, you know the guy [Name]?

Interviewer: No.

Bobby: He uh, he jumped a Red Bull car for ah, the New Year, I think it was last year or the year before that. He had broke everything in his body and he still does it. And it's just the drive to something, makes you wanna do it and when you get hurt it's just, it teaches you and you do it again.

CHAPTER 5: DISCUSSION

Summary of Findings

The results of the quantitative phase showed that the original proposed conceptual model was a fair representation of the data. Four direct paths were not significant from past behavior to self-determined motivation, attitudes to intention, perceived behavioral control to current behavior, and intention to current behavior. Three other direct paths from past behavior were statistically significant but of low magnitude to attitudes, perceived behavioral control, and intention. All indirect paths to current behavior were not significant as well as all indirect paths passing through attitudes to intention. An alternate model excluding past behavior was analyzed and found to be no better of a representation of the data than the original proposed model. However, all estimated direct paths were significant and all indirect paths were significant with the exception of indirect paths involving attitudes to intention to current behavior. Alternate models including only those constructs from the theory of planned behavior (TPB) and the self-determination theory (SDT) were analyzed separately. Both the TPB and SDT models were found to be a good fit to the data and all estimated direct and indirect paths were significant.

The results of the qualitative phase indicated 10 emerging themes that were categorized as either respondents' relationship with the outdoors, characteristics of activities that respondents like and dislike, and external conditions that determine participation. An appreciation for nature and the spatial features that the outdoors provides for activities was found among respondents that spend most of their time after school outside. In contrast, respondents who spend most of

their time indoors viewed the outdoors as boring with nothing to do and only spend time outdoors when with friends.

Characteristics of noncompetitive outdoor activities that respondents like are the personal enjoyment they get, being able to challenge oneself physically, having a choice in whether to participate and the level of engagement, spending quality time with friends and siblings, and spending time with animals and pets. Aspects of competitive sports and activities that respondents like are winning, succeeding, and spending time with friends. An aspect of competitive sports and activities that respondents do not like is the lack of choice they have in participating due to coaches and parents.

Significant others in respondents' lives were found to play important roles as motivators, role-models, and barriers to participation in noncompetitive outdoor activity. The people that motivated and encouraged respondents to participate were parents, siblings, and friends. Parents encourage through verbally communicating that they want their children to participate and by actively participating in activities with their children. Both siblings and friends encourage participation through actively participating in activities. Parents and older siblings act as role-models through participating in outdoor activities themselves for their own personal enjoyment. Parents also act as role-models through past enjoyment of engaging in activities as children and then passing those experiences onto their own children. Parents' act as a barrier to outdoor activity though their concern for their children's safety in terms of avoiding injury and the concern for "stranger danger."

The availability of churches and school clubs that provide opportunities for outdoor activity are influential in getting youth to participate in new activities and to provide a place for socializing with others that have the same interests. Positive past experiences in outdoor activity

are important for continued participation and negative past experiences influence decisions to stop participating. Experiences of injury are determined by respondents to be either positive or negative based on the feedback they receive from parents and the presence of role-models that have had injuries and have continued to participate in outdoor activities.

Integration of Quantitative and Qualitative Results

The results from the quantitative and qualitative data collection and analysis phases provided information concerning the constructs in the theoretical model. The integration of the quantitative and qualitative results will be discussed here in terms of the constructs and relationships of the theoretical model analyzed in the quantitative phase and the convergence and dissonance of the qualitative data.

Past Behavior and Current Behavior

Past behavior in the original proposed theoretical model was problematic with path values of low magnitude with most constructs and three of the direct paths in the model being non-significant. The alternate model that excluded past behavior produced a more logical result with all direct paths being significant including a large difference in magnitude of the path value from intention to current behavior (from 0.08 in the original proposed model to 0.40 in the alternate model). The issues related to past behavior in the original proposed theoretical model were most likely due to problems of measurement rather than the influence of past behavior on all of the constructs in the model. The relationship of past behavior on the constructs of the theoretical model is well established in the literature as has been discussed in Chapter 2. The role of past behavior is supported by the qualitative data, but may be more complicated in nature than was measured in the current study.

Past behavior was measured as the frequency that participants had engaged in noncompetitive outdoor activity in the past three and six months. The qualitative data showed that past experience was an important factor in youths' participation in outdoor activities and that a respondent's view of these experiences as positive or negative had an impact on current participation. Past injury experiences were even more complicated given that injury was viewed both positively and negatively by respondents. An injury is generally considered a negative experience of outdoor activity due to the immediate consequences such as pain and immobility. However, it was the way in which respondents later viewed their injury experiences that determined the influence on current participation. While some respondents viewed their injury as a reason for not continuing participation, others viewed it as either a teaching moment or a test of their courage and determination to continue participation. The view of an injury experience as either positive or negative among respondents was dependent upon the reaction received from parents and the presence and identification of role-models that have had injuries and have continued to participate. Anthony received a negative reaction from his mother who did not want him to participate in soccer after he healed from his soccer-related injury and thus viewed his injury experience as negative. Bobby viewed his injury experience as positive due to his identification of a professional BMX rider who battled back from injury to continue to ride.

Therefore, past behavior may have a stronger relationship with the constructs of the SDT and TPB when a determination can be made between whether the experiences of past behavior are viewed positively or negatively. Measuring this aspect of past behavior along with frequency of participation may provide a more salient construct than frequency alone.

The complex way that respondents' viewed their participation in activities as either competitive or noncompetitive is of importance to quantitative measurement of behavior.

Respondents identified the activities that they participate in as competitive or noncompetitive through a more situational means rather than a definitive attribute. While sports-related activities such as “throwing the ball around,” “playing catch,” and “shooting hoops” were viewed as noncompetitive as was expected, aspects of participation in organized sports were also viewed as noncompetitive. Practicing with teams for competition in sports was often viewed as noncompetitive by respondents due to the lack of competition with other teams. Several respondents viewed practicing with their teams as noncompetitive when participating in conditioning exercises and drills and as competitive when practicing in game-like scenarios against team members. Several respondents also discussed how their participation in activities that are typically noncompetitive in nature turned into competitive when playing with friends and siblings.

While competitive activities were easily identified by respondents as football, baseball, soccer, and other sports, the identification of noncompetitive activities was found to be problematic for some respondents. Activities that lack a definitive name such as those involving playing with pets, going for a walk, and hanging out with friends were harder for respondents to identify and were not commonly viewed as involving physical activity. These activities were also commonly thought of as being unimportant to the study by respondents until the interviewer affirmed the importance of the activities. The complexity and difficulty with which respondents identified noncompetitive activities may partially explain why many of the respondents that were identified as physically inactive on the questionnaire discussed regularly participating in noncompetitive physical activities. Many of the noncompetitive activities that these respondents mentioned were those without an easily recognized name and were discussed as a description of participation in the activity. During the interview, these respondents may have had more

opportunity to recognize their activities as important and worth talking about than when filling out the questionnaire.

Perceived Autonomy Support from Parents and Peers

The importance of youths' perception of autonomy support from parents and peers was found in the qualitative data in terms of the choice that youth feel they have in making decisions about participating in outdoor activities and their level of engagement. During the qualitative interviews, respondents discussed the degree of choice they have in their participation in noncompetitive outdoor activity as an important aspect they prefer over organized sports. Decisions regarding whether to participate in noncompetitive outdoor activities and the level of engagement were described as being up to the participants involved. When in groups, participation and level of engagement is determined by group decisions by participants. Several respondents discussed how decisions were made during noncompetitive outdoor games as a group. These decisions involved the type of game that the group wanted to play, the rules for the game, the roles that each participant would take during the game, and when to stop playing or switch to a new game. The current study indicates that the ability to voice opinions and make decisions about participating in noncompetitive outdoor activities provides youth with a sense of control and autonomy that is important to them.

The qualitative data support the quantitative results in terms of the important role that parents have on the autonomy of early adolescents. Respondents described parents support for their autonomy through the encouragement that parents gave to participate in outdoor activities. The encouragement came from parents verbally communicating their desire for their children to get outside to do something active and from parents participating in outdoor activities with their

children. The current study indicates that parental support for autonomy can be considered the most important source of support for this age group. The choices that early adolescents are allowed to make are highly influenced by their parents. Youths' perceptions about parental control over choice have not been extensively researched in terms of physical activity. However, Kakihara, Tilton-Weaver, Kerr, and Stattin (2010) concluded that youths' feelings of being controlled by parents were highly influential to youths' social, emotional, and psychological development.

In contrast to noncompetitive activities, competitive organized sports and activities were described by respondents as having less choice, freedom, and control. Even among those respondents that preferred competitive sports to noncompetitive activities, control in decision making was viewed as lacking in sports. Parents were often mentioned as being in control of whether respondents participated in sports. During participation in sports, coaches were described as the primary controlling agent. Respondents acted negatively toward the lack of choice they had when confronted with it directly. Elaine's description of voicing her opinion to coaches and her feeling that her voice was not heard was a negative experience for her and one that continued to shape her view of participation on the school track team. Elaine also described her parents control over her level of choice in participating in track as a negative aspect. While Elaine did mention she liked to participate in track because of her enjoyment of some of the events such as relay and hurdles, the lack of choice that Elaine felt she had in the events she participated in was impacting her attitudes about track negatively and her motivation to participate as more extrinsic. Unlike most noncompetitive activities, competitive sports tend to have an increased level of adult involvement and control. Coaches control most aspects of what occurs and when things occur during participation and parents control whether youth participate

at all. Parents may want and force their children to participate in organized sports for a variety of reasons that they feel benefit children, but may not place as much emphasis on the benefits of noncompetitive activities or play. In addition, organized sports can carry a heavy level of commitment in participation where youth either participate or not participate with little variation in level of engagement in between. Due to the controlling aspects of increased adult involvement, organized sports may not have the potential for complete autonomy as noncompetitive activities. Lack of autonomy caused by adult involvement in physical activity can influence youths' participation to be more extrinsically motivated (Ryan, Williams, Patrick, & Deci, 2009). For instance, the lack of choice and control that Elaine described in her involvement in track had an influence on the extrinsic motivation of her participation.

What is unclear is whether the perception of control and choice in participation directly influences attitudes concerning activities or indirectly influences attitudes by impacting self-determined motivation. The weak indirect relationship involving attitudes found in the quantitative results may be partially explained through the potential direct relationship that perceived autonomy and support may have on shaping attitudes.

Self-Determined Motivation

Respondents described their motivation to participate in outdoor physical activity as both intrinsically and extrinsically motivated. The personal enjoyment that certain respondents discussed was important to their reasons for participating in noncompetitive outdoor activities. Kenny's description of his enjoyment of dancing outdoors as "I have a passion for it" and "I just feel it in me" indicated the intrinsic nature of his motivation to dance. David also described his enjoyment of participating in outdoor activities as an intrinsic property that involved the

opportunity to physically challenge himself. As indicated by Ryan et al. (2009), both Kenny's and David's motivation could be characterized as more internalized with little outside influence in why they participate in their respective activities.

The appreciation for the outdoors and for nature that was described by respondents was also related to more intrinsically motivated participation in noncompetitive outdoor activities. Michael's appreciation for nature was shown in his acknowledgement for the need to preserve and protect nature. Michael's appreciation for nature intrinsically motivated him to engage in outdoor activities such as bird watching and walking while photographing flowers. Furthermore, Michael's mother was an important role-model that influenced his love of nature. Michael identified observing his mother's appreciation of plants and flowers as important to how he felt about nature. The influence of positive parental role-models on intrinsic motivation of youth may be a transfer of values related to activities through the observation of parent values and enjoyment of activity.

Competition was an aspect of organized sports that many respondents liked. Overall, sports were regarded highly among the respondents and this was expected given the prominence of sports within the rural community studied. Competition itself can be thought of as highly extrinsically motivated. There are no known studies that have specifically investigated the potential for intrinsic and extrinsic motivation to engage in competitive and noncompetitive activities. However, while investigating the life aspirations and psychological well-being of university students Chatzisarantis and Hagger (2007) concluded that competitive athletes tended to be more extrinsically motivated than recreational athletes. Competition as motivation is directly related to the involvement of other participants. Aspects of competitive sports that were important to respondents in the current study were winning and success, both of which are

normally driven by the surpassing or surmounting of others involved. Many times the direct rewards of winning in competition are approval and acceptance of others as well as personal accomplishment, all of which are highly extrinsic.

The importance of family and friends to support autonomy and self-determined motivation was indicated by both the quantitative and qualitative data. The qualitative results indicate that of particular importance were the roles of parents as motivators, role-models, and barriers. The availability of friends who live in close proximity to where respondents live produced mixed results concerning the impact of friends on participation in outdoor activities. Friends were found to be important in terms of motivating each other to get outside to participate in activities, but this was dependent upon the availability of friends living in close proximity. Parents were mentioned by almost every respondent as either positive motivators or role-models or as negative barriers to participating in outdoor activity.

The qualitative results also indicated that the role of parents in early adolescents' outdoor activity could overshadow almost every other influential factor either positively or negatively. Positive parental support, encouragement, and role-modeling have consistently been shown to be associated with increased physical activity among youth (Bauer, Nelson, Boutelle, & Neumark-Sztainer, 2008; Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2005; Bradley, McRitchie, Houts, Nader, & O'Brien, 2011; Wilson, Lawman, Segal, & Chappell, 2011). Longitudinally, parental encouragement to be active has been shown to decline concurrently with physical activity during the adolescent years (Bauer, Laska, Fulkerson, & Neumark-Sztainer, 2011). A systematic review by Beets, Cardinal, and Alderman (2010) highlighted the importance of parents concluding that all forms of social support received by parents is associated with physical activity among youth. Beets et al. (2010) identified the mechanisms of support that youth receive from parents as either

tangible or intangible. Tangible social support includes parents participating in activities with children and providing transportation. Intangible social support includes parental encouragement and provision of information through discussing the benefits of physical activity with children. While other studies have found parental role-modeling to be associated with youth physical activity, Wright, Wilson, Griffin, and Evans (2010) concluded that direct involvement of parents in the activities of youth may be more important than indirect role-modeling behavior of parents. Jago, Fox, Page, Brockman, and Thompson (2010) concluded that parental role-modeling of physical activity behavior was not associated with physical activity of youth but parental role-modeling of sedentary behavior was associated with increased sedentary behavior of youth.

Through the presence or absence of these forms of support, parents may have ultimate control over early adolescents' participation through limiting time spent outdoors despite the availability of outdoor space in rural areas due to concerns over safety, limiting time spent with friends despite the availability of friends in close proximity, providing transportation to friends and places for activity, and by providing opportunities for outdoor activity despite the presence of external barriers.

Perceived Behavioral Control and Subjective Norms

The strong direct relationship found between self-determined motivation and perceived behavioral control in the quantitative phase was supported by the qualitative data. Positive verbal cues from parents were important to respondents and may have positively influenced their perceptions of ability to participate in activities. Kenny had a high level of confidence in his dancing ability and described how important it is that his parents “watch and cheer me on” while dancing. Kenny's confidence in ability may be influenced by his intrinsic motivation to

participate in dancing stemming from his parents' support for his activity. Peers encouragement was also found to be influential to perceptions of ability, although the influence of parents was mentioned more frequently by respondents.

The direct encouragement received from parents could also be influential to respondents' view of what significant others think about their participating in outdoor activities. Many of the respondents that regularly participated in noncompetitive outdoor activities discussed the encouragement they received from parents to spend time outdoors in play. These respondents also thought that their parents wanted them to spend more time outside than inside. The reverse was true for respondents that did not participate regularly in outdoor activities. These respondents thought that their parents either did not care or wanted them to spend more time inside.

Attitudes

The influence of attitudes concerning noncompetitive outdoor physical activity was found in the quantitative phase to be low in both the original proposed theoretical model and the model excluding past behavior. This was determined to be more indicative of problems with measurement of the attitudes construct than of the unimportance of attitudes on participation due to the strong evidence of the influence of the construct in the research literature presented in chapter two.

During the qualitative phase, respondents' attitudes toward noncompetitive outdoor activities were important to regular participation. Respondents who spent most of their time outside after school and participated regularly in outdoor activities talked about the attributes of outdoor activities more positively than those who spent most of their time indoors and did not

participate regularly in outdoor activities. Respondents mentioned outdoor activities as healthy in terms of getting exercise outdoors to lower blood sugar to aid in controlling type I diabetes, because a parent said they should get at least 60 minutes of play time outside, and because it was good for them. Most respondents talked about outdoor activities as fun and as something they liked to do regardless of whether they participated regularly in outdoor activities with the exception of only a few respondents that viewed outdoor activities as a whole as boring. Respondents also viewed noncompetitive outdoor activities as a good way to improve their strength and endurance for participation in competitive sports.

The results of the qualitative phase indicate that attitudes may not be best measured using single words with dichotomous positive-negative relationships. Respondents viewed noncompetitive outdoor activities in similar ways to the descriptors used in the quantitative measurement of attitudes. However, early adolescents may not immediately connect their view of outdoor activities as a way to increase fitness to improve in sports as “useful” or their view of outdoor activities as a way to help control their diabetes as “healthy.” Early adolescents may view their attitudes concerning outdoor activities in the more specific ways they describe their interest in activity.

Model of Youths' Participation in Noncompetitive Outdoor Activity

Figure 10 depicts a plausible model integrating the quantitative and qualitative data for youths' participation in noncompetitive outdoor activity. The model includes the original theoretical model integrating the SDT and the TPB. The top shaded box depicts the interplay of factors influencing all of the constructs and relationships of constructs in the original theoretical model. The availability of friends with similar interests and resources influences whether past

experiences of participation in noncompetitive outdoor activity are positive or negative. Positive and negative past experiences in outdoor activity influence youths' relationship with the outdoors. Parental roles as motivator, role-model, and barrier in concern for safety influences the impact of all aspects of the model. The reciprocal relationship between parental attributes and the availability of resources indicates that while the roles of parents are influenced by the availability of resources such as those related to safe neighborhoods, parents also influence resources due to their control of resources.

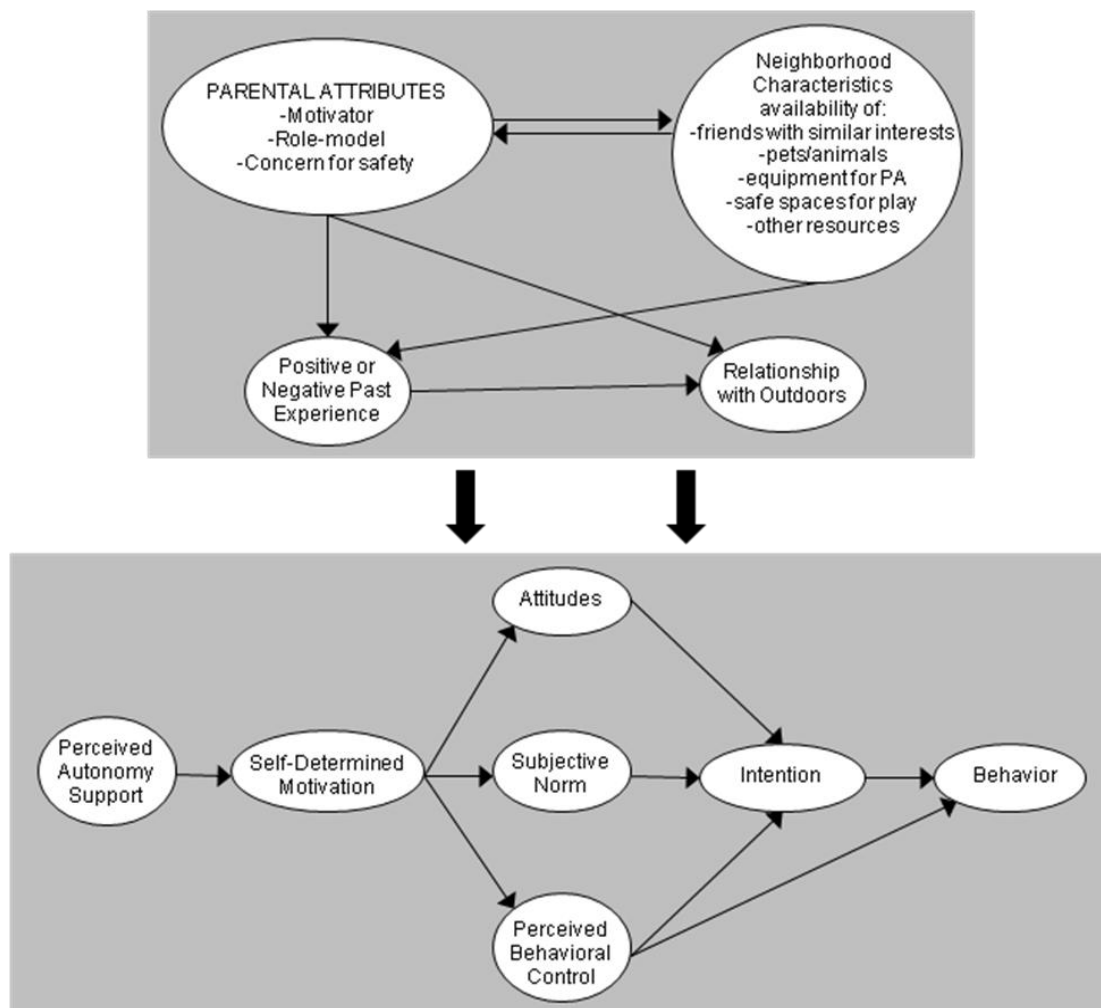


Figure 10. Model of Youths' Participation in Noncompetitive Outdoor Physical Activity

Limitations

The limitations of this study lie partially in the use of the cross-sectional methods. The exact relationships of constructs in the hypothesized theoretical model cannot be adequately assessed using a cross-sectional research design. The use of SEM analysis techniques in the current study does not by itself provide justification for the relationships of the theoretical model, but rather is evidence to support the relationships justified through the research literature for these theoretical constructs. The fluid and changing nature of the constructs studied adds to the issue. It is important to note that other structural models could have also explained the observed covariance in these youths' participation in noncompetitive outdoor activity just as well if not better than the model analyzed in the current study. In addition, the relationships among some or most of the constructs in the theoretical model may in reality be non-recursive. This is to say that early adolescents' participation in noncompetitive outdoor activities may not be linear but rather may contain feedback loops.

The study was conducted in one rural county in Georgia and therefore the generalizability of the results should be viewed with a degree of skepticism. The results of the study may not be applicable to early adolescents who live in urban and suburban settings. The results may also not be salient to early adolescents who live in rural areas that significantly differ in community structure and geography. For instance, youth that do not live in largely agricultural communities with a high collective level of value placed on organized sports may differ in their participation in activities and motivations. In addition, youth living in mountainous areas may have less availability of flat open space for playing sports and therefore participate in activities that are suited to hilly terrain.

As indicated by the results of the qualitative phase, there was some measurement issues with the questionnaire conducted during the quantitative phase. Complications with measurement were expected given the young ages of the participants and the lack of research that has measured the theoretical constructs in early adolescents. The complexity that which respondents identified competitive and noncompetitive outdoor activities indicates that there may have been a problem with distinguishing between outdoor activities on the questionnaire. Since there are no known studies that have distinguished between youths' participation in competitive and noncompetitive activities the issue will need to be addressed by any future studies.

As discussed previously in this chapter, the measurement of past behavior and attitudes were problematic. The measurement of past behavior as a simple frequency may not have adequate specificity to represent the influence that past behavior has on other constructs. It is possible that youth with a high frequency of participating in noncompetitive outdoor activities do not have high intentions of participating in the future due to presence of negative past experiences of participation. Furthermore, the presence of a few very negative experiences could offset any positive experiences. Similarly, the direct measurement of attitudes may have been too simplistic. Youth in this age group may not readily identify single word labels to their view of outdoor physical activities. To increase the validity of the attitudes scale it may be beneficial to make statements that are specific to the activity the participant engages in regularly. As pointed to by Ajzen and Driver (1992), this can be done by wording statements so that study participants imagine themselves engaging in the activity and then having them rate how they feel about the activity. Another alternative to the direct measurement technique used in the current study is the indirect measurement of attitudes through the measurement of behavioral beliefs and outcome expectations (Ajzen, 1985; Hagger et al., 2002a). Indirect measurement may increase the validity

of the attitudes scale in early adolescent populations by identifying the underlying mechanisms that influence attitudes.

Several aspects of the qualitative phase methods also need to be addressed. Conducting a second one-on-one interview with each respondent may have been beneficial to add to the degree of confidence in the results. Comparing two interviews for each respondent can be useful to check the data for consistency as can the use of other methods such as participant observation (Patton, 2002). Also, respondents' thoughts and feelings about activities and the people that they participate in these activities with may be influenced highly by external factors. For instance, a respondent who recently had an altercation with a parent or friend may represent this person negatively during an interview even if it was an isolated incident. A second interview conducted later could alleviate this issue and allow for an opportunity to ask follow up questions related to inconsistencies that were found in the first interview.

Implications for Future Research

This section will discuss the methods and results of the study in terms of how they relate to future research directions. First, a discussion on the use of the mixed-methods research design will be given followed by the implications of the results of the study.

Reflections on the Mixed-Methods Design

The use of the sequential explanatory mixed-methods research design of the current study provided several important issues for future mixed-methods research. The equal priority and weight that was given to both the quantitative and qualitative data collection and analysis phases required that each phase be individually methodologically rigorous. Each phase was therefore equivalent to a single study. It should be noted that the current mixed-methods study could have

been conducted as two separate studies within a single program of research with a similar outcome (Greene, 2007). While this could be argued as a matter of semantics, the benefit of a mixed-methods program of research versus a single mixed-methods study is that the program of research could potentially be more easily justifiable for cost effectiveness given that the product is two studies versus one and potentially three journal manuscripts versus one (one manuscript for the quantitative study, one for the qualitative study, and one for the integration of the data of the two studies). The expertise of a research team incorporating both quantitative and qualitative methods could also prove beneficial methodologically. However, it is important to mention that no supportive claim is being made here concerning the issue proposed by Morse (2003) around problems with mixing the “theoretical drive” of the methods. It is evident from conducting the current study that mixing methods that are by their nature either deductive or inductive do not necessarily pose a serious risk to the integrity of methodology. Rather, the claim here is in support of the statement made by Greene (2007, p. 118) and others that “some of the greatest potential of mixed methods inquiry is the generative possibilities that accompany the mixing of different ways of knowing, perceiving, and understanding” (Tashakkori & Teddlie, 1998, 2003). The only word of caution is that the feasibility of obtaining the level of expertise to conduct quantitative and qualitative methods rigorously simultaneously cannot be overlooked for the solo researcher. For the current study, the researcher had the support and advice of a dissertation committee that comprised of experts in both quantitative and qualitative methods. This “research team” was found to be vital despite the current study being conducted by a solo researcher.

Mixed-methods approaches to research are important for the field of public health and specifically health promotion in areas related to behavioral inquiry. By making decisions concerning methods based on the research questions that need answering and not formulating

research questions based on the methods that are most comfortable, researchers are able to conduct investigations that are the most appropriate to understanding complex behavioral issues. The process of conducting the quantitative and qualitative phases separately and then integrating the data resulted in two phases that were methodologically rigorous and data integration that provided significant additional information through a discussion of the findings from the two phases. The process allowed for the answering of research questions beyond the limits of either phase alone and therefore provided a more complete and detailed insight to early adolescents' participation in noncompetitive outdoor physical activity.

As discussed previously in the chapter, the qualitative data was important to identifying possible sources of measurement error within the quantitative data. It also provided important descriptive information concerning the theoretical model guiding the study and the larger framework of early adolescents' participation in noncompetitive outdoor physical activity. Through the qualitative data, factors that influence early adolescents' participation were found beyond the individual and social elements to include the physical environment.

Future Research Directions

The current study raised several questions that deserve attention by future research. Among these are questions related to the role that noncompetitive outdoor activities play in early adolescents' lives and the influence on their level of physical activity now and in the future as adults. Noncompetitive outdoor activities have the potential to attract early adolescents' that are not interested in being regularly involved with organized sports. These early adolescents should be viewed as more at risk of sedentary behavior than those who participate in organized sports. Organized sports also encompass a level of exclusion that is not present in noncompetitive

outdoor activities. An aspect of noncompetitive outdoor activities that was not assessed in the current study is the contribution that these activities can make to early adolescents' total daily physical activity. Even if the contribution of noncompetitive outdoor activities to total daily physical activity is found to be relatively low, the small increase in physical activity over indoor sedentary activities may be significant when considering youth most at risk of physical inactivity.

Although the results of the current study indicate that competitive sports and activities are highly extrinsically motivated by nature, it will be important for research to further investigate the self-determined motivation of participation in both competitive and noncompetitive activities. A higher potential for self-determined motivation to participate in noncompetitive outdoor activities could be important for both current and future physical activity of youth. Research will need to determine if the activities that early adolescents tend to carry into adulthood are those that are competitive or noncompetitive. The potential role of the intrinsic nature of noncompetitive outdoor activities may be more likely to impact physical activity as adults than the extrinsic properties of competitive sports.

Research will need to investigate approaches to providing early adolescents with supportive social and physical environments to participate in noncompetitive outdoor activities. Providing parents with the resources needed for supporting youths' autonomy of participating in physical activity is especially important given the level of control that parents were found to possess in the current study. The interaction of the social and physical environments also deserves attention. The differences that exist within the physical environments of rural and urban settings likely have an impact on the supports available in the social environment for self-determined motivation and vice versa.

The influence of early adolescents' view of the outdoors on their participation in noncompetitive outdoor activities was indicated by the current study but not fully explored. Youth who develop a positive personal outlook on the importance of nature through positive outdoor experiences may tend to have these perspectives as adults. Positive attitudes towards nature and the environment may influence intrinsic motivation to engage in outdoor activities. In addition, personal enjoyment of being outdoors in nature may motivate youth and adults to spend more time outdoors which tends to increase physical activity levels. Therefore, participation in outdoor physical activities may be influenced both directly and indirectly by the intrinsic motivation to spend time outdoors in nature stemming from positive environmental attitudes.

Implications for Practitioners

The results of the study have several implications for health promotion practitioners in terms of aspects to consider when developing programs to promote physical activity among rural youth. Noncompetitive outdoor activities should be included in intervention programming to target youth who do not have an interest in competitive sports and activities. Noncompetitive outdoor activities can provide a means to get youth away from sedentary indoor activities to be outside to play and be physically active. The possible potential of noncompetitive outdoor activities to be more intrinsically motivated than competitive activities may lead to increased long-term participation in physical activity. A comprehensive intervention program targeting early adolescents should include physical activities that are competitive and noncompetitive to provide the benefits of both.

The important role that parents play in early adolescents' noncompetitive activities should be accounted for in intervention programming. Interventions targeted towards parents

should inform parents of the important role they have on their children's physical activity and the ways they can encourage and role-model behavior as well as support their children's autonomy. Including both parents and their children creates an opportunity for cooperative participation in noncompetitive outdoor activities that may not exist in the home environment. Providing these opportunities may show parents that their early adolescents do want to participate in activities with them and this can then carry into the home environment. It is also important to provide support and resources for parents to be able to play positive roles as motivators and role-models to their children. Providing community and neighborhood resources for families is important to support parents in encouraging their children to participate in outdoor physical activity. Such resources include physical activity equipment and transportation. While the availability of outdoor space may not be as much of an issue in rural areas, the availability of transportation to outdoor spaces where youth can meet with friends to engage in outdoor physical activity can be more problematic.

Physical activity intervention programming should also account for the important role that early adolescents' relationship with the outdoors can have on their time spent outdoors. Providing fun and interactive outdoor education and adventure programming can build positive attitudes towards the natural environment through positive outdoor experiences. A strategy may be to work with local organizations such as the Boy Scouts, Girl Scouts, YMCA, and 4H to incorporate physical activity components to existing outdoor education and adventure programming in a variety of outdoor settings. Positive attitudes and outdoor experiences may also be promoted in youth through programming involving pets and animals. The current study found that outdoor activities involving animals had an influence on early adolescents' time spent

outdoors versus indoors. The presence of animals may be an important motivator to early adolescents' outdoor physical activity.

Conclusions

This study is among the first to examine early adolescents' participation in noncompetitive outdoor physical activity from the perspective of early adolescents rather than adults. The results of the study indicate the complex nature of the relationships among factors influencing participation in noncompetitive outdoor activity. The constructs of self-determination theory were found to be important predictors of the constructs of the theory of planned behavior in relation to early adolescents' participation in noncompetitive outdoor activities. The complexity of social and physical environmental factors related to early adolescents' decisions regarding participation in outdoor activities that was found through the qualitative data was discussed. The implications of the study results were discussed in terms of future research and practice.

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APPENDICES

Appendix A: Parental Permission Form for Questionnaire Development Focus Groups

I agree to allow my child, _____, to take part in a research study titled, "The Natural Environment as a Place for Play," which is being conducted by Mr. Richard Christiana, from the Health Promotion and Behavior Department at the University of Georgia under the direction of Dr. Marsha Davis. My child's participation is voluntary which means I do not have to allow my child to be in this study if I do not want to. My child can refuse to participate or stop taking part at any time without giving any reason, and without penalty or loss of benefits to which she/he is otherwise entitled. I can ask to have the information that can be identified as my child's returned to me, removed from the research records, or destroyed.

- The reason for the study is to find out what motivates early adolescents to play in the outdoors.
- The researcher hopes to learn something that may help schools and organizations in the community provide support for early adolescents' play in the outdoors.
- If I allow my child to take part, my child will be asked to participate in a focus group interview with other students to discuss the content of a questionnaire that will be used for the study. The focus group should take about 40 minutes. The purpose of the focus group is to make sure that the questionnaire is well designed for this study. The focus group will take place during the normal hours that my child attends the YMCA. If I do not want my child to take part then she/he will be allowed to continue with the regular YMCA activities as usual.
- My child will be given a small gift for their participation in the focus group.
- The research is not expected to cause any harm or discomfort. My child can quit at any time with no penalty or repercussions.
- The focus group interview will be audio taped. Audio recordings will be kept until they have been analyzed and then will be destroyed. Any individually-identifiable information collected about my child will be kept confidential unless otherwise required by law. My child's identity will be coded and all data will be kept in a secured location and will only be accessible to the researcher conducting the study.
- The researcher will answer any questions about the research now, or during the course of the project, and can be reached by telephone at 706.542. 3313 or email at rchristi@uga.edu. I may also contact the professor supervising the research, Dr. Marsha Davis, at 706.542. 3313 or davism@uga.edu.
- I understand the study procedures described above. My questions have been answered to my satisfaction, and I agree to allow my child to take part in this study. I have been given a copy of this form to keep.

Name of Researcher	Signature	Date
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Name of Parent	Signature	Date
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Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your child's rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail irb@uga.edu.

Appendix B: Minor Assent Form for Questionnaire Development Focus Groups

Dear Participant,

You are invited to participate in my research project titled, “The Natural Environment as a Place for Play.” Through this project I am learning about what motivates early adolescents to play in the outdoors.

If you decide to be part of this, you will be asked to sit down with me and some other people your age in a group to discuss your opinion about questions related to outdoor play activities. The questions that will be discussed will be part of a questionnaire that is being created. I will not use your name on any papers that I write about this project. Through the questionnaire that you would be helping me create, I hope to learn something about outdoor play that may help schools and organizations in the community better provide opportunities for activities in the outdoors.

If you want to stop participating in this project, you are free to do so at any time. You can also choose not to answer questions that you don't want to answer. You will be given a small gift for your participation in the project.

If you have any questions or concerns you can always ask me or call my teacher, Dr. Marsha Davis at the following number 706.542.3313.

Sincerely,

Richard Christiana
Health Promotion and Behavior Department
College of Public Health
University of Georgia
rchristi@uga.edu
706.542.3313

I understand the project described above. My questions have been answered and I agree to participate in this project. I have received a copy of this form.

Signature of the Participant/Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix C: Focus Group Interview Guide

What types of activities do you think of when you hear the term “noncompetitive outdoor physical activity?”

- What about when you hear the term “noncompetitive outdoor play?”
- Is there any other term you can think of for these types of activities?
- **(SHOW LIST OF ACTIVITIES)** What would you add to this list?
- Would you be able to tell me how many times you have done these activities in a typical month? How about a typical 2 week period? How about the past 2 months?
- What does “in my free time” mean? What about “in my free time outside of school”?

Who do you think are the people that have the most influence on (or are the people that encourage/discourage) your noncompetitive outdoor physical activity and/or play?

- In what ways do they influence (or encourage/discourage) you?
 - Do they provide you with opportunities?
 - Do they seem interested when you talk about these activities?
 - Do they participate in these activities with you?

Why do you participate in these types of activities?

- Friends? Parents?
- Enjoyment?
- It is fun?

Would you complete this sentence in the following ways?, “For me, regular participation in noncompetitive outdoor physical activity and/or play would be...”

- Dull or Interesting?
- Unpleasant or Pleasant?
- Boring or Stimulating?
- Unhealthy or Healthy?
- Good or Bad?
- Useless or Useful?

BEGIN LOOKING OVER QUESTIONNAIRE

For each measurement item, first read the item and then ask:

- What does this sentence mean?
- How would you respond to this sentence?
 - Strongly disagree, disagree, neither disagree or agree, agree, strongly agree?

Appendix D: Parent Permission Form for Questionnaire Pilot-Testing

I agree to allow my child, _____, to take part in a research study titled, "A Mixed-Methods Study Investigating Factors Influencing Rural Youths' Engagement and Experiences in Noncompetitive Physical Activity in the Outdoors," which is being conducted by Mr. Richard Christiana, from the Health Promotion and Behavior Department at the University of Georgia under the direction of Dr. Marsha Davis. My child's participation is voluntary which means I do not have to allow my child to be in this study if I do not want to. My child can refuse to participate or stop taking part at any time without giving any reason, and without penalty or loss of benefits to which she/he is otherwise entitled. I can ask to have the information that can be identified as my child's returned to me, removed from the research records, or destroyed.

- The reason for the study is to find out what motivates youth to play in the outdoors.
- The researcher hopes to learn something that may help schools and organizations in the community provide support for youths' play in the outdoors. The results of the study will be shared with the YMCA in order to develop programming and activities for my child's age group.
- If I allow my child to take part, my child will be asked to complete a questionnaire that will ask questions related to their outdoor play. While completing the questionnaire, the researcher may ask my child questions about the questionnaire. The questionnaire should take about 40 minutes to complete. The questionnaire will take place at the YMCA.
- My child will be given a \$10 movie theater gift certificate as an incentive for completing the questionnaire. In order to process the incentive, the researcher will record the incentive amount and my child's name on a separate sheet of paper that may be shared with the researcher's department business office.
- The research is not expected to cause any harm or discomfort. My child can quit at any time or decide to not answer any of the questions with no penalty or repercussions. If I do not want my child to take part then she/he will be allowed to continue with regular YMCA activities as usual and this will have no effect on access to services and programs at the YMCA.
- Any individually-identifiable information collected about my child will be kept confidential unless otherwise required by law. My child's identity will be coded, and all data will be kept in a secured location.
- The researcher will answer any questions about the research now, or during the course of the project, and can be reached by telephone at 706.542.3313 or email at rchristi@uga.edu. I may also contact the professor supervising the research, Dr. Marsha Davis, at 706.542.3313 or davism@uga.edu.
- I understand the study procedures described above. My questions have been answered to my satisfaction, and I agree to allow my child to take part in this study. I have been given a copy of this form to keep.

Name of Researcher

Signature

Date

Name of Parent

Signature

Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your child's rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail irb@uga.edu.

Appendix E: Minor Assent for Questionnaire Pilot-Testing

Dear Participant,

You are invited to participate in my research project titled, “A Mixed-Methods Study Investigating Factors Influencing Rural Youths' Engagement and Experiences in Noncompetitive Physical Activity in the Outdoors.” Through this project I am learning about what motivates youth to play in the outdoors.

If you decide to be part of this, you will be asked to complete a questionnaire that will ask you questions about your outdoor play activities. You may also be asked by the researcher to describe what you are thinking while you are completing the questionnaire. I will not use your name on any papers that I write about this project. I hope to learn something about outdoor activities that may help schools and organizations in the community better provide opportunities for activities in the outdoors.

If you want to stop participating in this project, you are free to do so at any time. You can also choose not to answer questions that you don't want to answer. You will be given a \$10 movie theater gift certificate for your participation in the project.

If you have any questions or concerns you can always ask me or call my teacher, Dr. Marsha Davis at the following number 706.542.3313.

Sincerely,

Richard Christiana
Health Promotion and Behavior Department
College of Public Health
University of Georgia
rchristi@uga.edu
706.542.3313

I understand the project described above. My questions have been answered and I agree to participate in this project. I have received a copy of this form.

Signature of the Participant/Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix F: Parent Informational Letter for Questionnaire

Dear Parent:

I am a graduate student under the direction of professor Marsha Davis in the Department of Health Promotion and Behavior at The University of Georgia. I invite your child to participate in a research study entitled "A Mixed-Methods Study Investigating Factors Influencing Rural Youths' Engagement and Experiences in Noncompetitive Physical Activity in the Outdoors" that is being conducted with the permission of the [REDACTED] Middle School. The purpose of this study is to find out what motivates youth to play in the outdoors.

Your child's participation will involve completing a questionnaire that will ask questions related to the outdoor activities that your child likes to do. The questionnaire should take about 30 minutes to complete and will be done during normal school hours. If you do not want your child to participate in the study, please simply fill out the section below. If your child participates in the questionnaire, they may also be asked to sit down for an interview with the researcher to discuss their outdoor activities in more detail. If you do not want your child to be considered for an interview, please instruct your child to not place their name on the sheet of paper that their teacher will have when they fill out the questionnaire. If your child is selected for this interview, your signed permission will be sought prior to the interview. Your child's involvement in the study is voluntary, and he/she may choose not to participate or to stop at any time without penalty or loss of benefits to which he/she is otherwise entitled. Any individually-identifiable information collected about your child will be kept confidential unless otherwise required by law. Your child's identity will be coded, and all data will be kept in a secured location. The results of the research study may be published, but your child's name will not be used. In fact, the published results will be presented in summary form only. Your child's identity will not be associated with her/his responses in any published format.

The findings from this project may provide information that may help schools and organizations in the community provide support for youths' play in the outdoors. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to call me at (706) 542-3313 or send an e-mail to rchristi@uga.edu. Questions or concerns about your child's rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 629 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199; email address irb@uga.edu.

If you do not want your child to participate in the study described above, please mark the box below, print your child's name, sign your name, and have your child return this sheet to the school. Do not sign this sheet or return it if you are willing to have your child participate. The included copy of the questionnaire is for your information only and does not need to be returned to the school. You may change your mind at any time and decide later that you do not want to have your child participate in the study.

Thank you for your consideration!

Sincerely,

Richard Christiana

I DO NOT WANT MY CHILD TO PARTICIPATE IN THIS RESEARCH STUDY.

CHILD'S NAME

SIGNATURE OF PARENT

DATE

Appendix G: Teacher Instructions for Adminstrating Questionnaire

TEACHER INSTRUCTIONS - QUESTIONNAIRE

AFTER the PA announcement has been made by the researcher, Richard Christiana, please hand out a questionnaire and cover letter to each student in your class.

Once students have completed the questionnaire, please instruct them to hand in their questionnaire to you at the front of the room and to print their name and questionnaire number on the separate sheet of paper you have been given. Students should keep the cover letter.

Please remember that students are not required to complete the questionnaire or any items that they do not want to answer.

If any student has a question or is confused about any items on the questionnaire, please instruct them to simply complete the questionnaire as best they can. If any student has a question concerning the study or their participation in the study, please notify Richard Christiana by calling the principal's office.

THANK YOU VERY MUCH FOR YOUR HELP!

Appendix H: Questionnaire Cover Letter

Dear Participant,

You are invited to participate in a research project titled, “A Mixed-Methods Study Investigating Factors Influencing Rural Youths' Engagement and Experiences in Noncompetitive Physical Activity in the Outdoors.” Through this project I am learning about what motivates students your age to play in the outdoors.

If you decide to be part of this, please complete the questionnaire that will ask you questions about your outdoor play activities. You do not have to complete this questionnaire if you do not want to. This questionnaire is NOT a test. There are NO right or wrong answers. Just give the most accurate answer you can and try to work quickly but carefully. The questions will often give you different options for answering. Remember, you can fill in any response for a question, whichever one most accurately describes you. Be sure to either write in the appropriate response or fill in the circle for your response completely and carefully, depending on the question asked. Also, please read each question carefully. After you have finished one page, you may turn and go to the next page. There are a total of four pages.

Your name does not appear anywhere on the questionnaire, so your answers are confidential. No one will ever know how you answered these questions. When you are finished, please hand in your questionnaire to your teacher and print your name and questionnaire number on the sheet of paper that your teacher has. The questionnaire number is located in the top left corner of the first page of your questionnaire. If you have any questions raise your hand and your teacher will come over to help.

After completing the questionnaire, you also may be asked to sit down with me and further discuss your outdoor play activities, but if you are not asked it does not mean anything was wrong with your answers on the questionnaire. **IF YOU DO NOT WANT TO BE CONSIDERED FOR THIS FURTHER DISCUSSION, PLEASE DO NOT FILL OUT THE SHEET OF PAPER THAT YOUR TEACHER HAS WHEN YOU TURN IN YOUR QUESTIONNAIRE.** Your participation in this project will not affect your grades in school. I will not use your name on any papers that I write about this project. I hope to learn something about outdoor play that may help schools and organizations in the community better provide opportunities for activities in the outdoors. If you want to stop participating in this project, you are free to do so at any time.

If you have any questions or concerns you can always ask me or call my teacher, Dr. Marsha Davis at the following number 706.542.3313.

By completing the questionnaire you are indicating that you agree to participate in the research project described above.

PLEASE KEEP THIS PAGE AND BEGIN THE QUESTIONNAIRE

Sincerely,

Richard Christiana

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix I: Paper-Based Questionnaire

Questionnaire No. 1001

A Mixed-methods Study Investigating Factors Influencing Rural Youths' Engagement and Experiences in Noncompetitive Physical Activity in the Outdoors

1. During a typical month (4 weeks), how many times on average do you participate in noncompetitive outdoor physical activities for more than 15 minutes during your free time outside of school (**WRITE THE APPROPRIATE NUMBER ON EACH LINE**)?

	Times Per Month
Bicycling long distances; Backpacking, hiking, etc.; Climbing trees; Jumping rope; Mountain biking; Rock climbing; Rollerblading, roller skating; Jogging, running; trail running; Swimming; Water skiing	a _____
Bicycling short distances; Building forts, shelters, treehouses; Canoeing, kayaking, rafting, sailing; Fast walking, walking a dog; Fishing, hunting; Gardening; Horseback riding; Juggling; Outdoor dancing; Outdoor games such as 4-square, badminton, hacky sack, hopscotch, marbles, t-ball, tetherball, etc.; Playing at a playground; Playing catch, throwing a football, frisbee, etc.; Skateboarding; Snorkeling; Surfing, windsurfing; Trampolining	b _____
Archery, target shooting with gun, slingshot, etc.; Bird watching; Camping; Easy walking; Golf; Lawn games such as horseshoes, lawn darts, etc.; Photographing outdoor scenery, animals, plants; Picking flowers/plants	c _____
Other (please specify the activity: _____)	d _____

Please Fill in the CIRCLE Next to your Response for Each of the Following Items REFERRING TO THE ACTIVITIES LISTED ABOVE IN QUESTION 1:

	never	rarely	occasionally	frequently	very frequently
2. During a typical <u>week (7 days)</u> , in your free time outside of school, how often do you participate in at least one of these activities <u>long enough to work up a sweat</u> (heart beats rapidly)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. During a typical <u>month (4 weeks)</u> , in your free time outside of school, how often do you participate in at least one of these activities <u>long enough to work up a sweat</u> (heart beats rapidly)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How often have you participated in one or more of these activities in the <u>last 3 months</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. How often have you participated in one or more of these activities in the <u>last 6 months</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please Indicate How Much you Disagree or Agree with the Following Statements REFERRING TO THE ACTIVITIES LISTED ABOVE IN QUESTION 1 by Filling in the CIRCLE Next to your Response:

The Following Statements are Related to your Parents:

	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree
6. I feel that <u>my parents</u> provide me with choices, options, and opportunities about whether to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I think that <u>my parents</u> understand why I choose to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. <u>My parents</u> display confidence in my ability to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. <u>My parents</u> encourage me to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. <u>My parents</u> listen to me about my activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. <u>My parents</u> provide me with positive feedback when I do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Questionnaire No. 1001

	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree
12. I am able to talk to <u>my parents</u> about these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. <u>My parents</u> make sure I understand why I need to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. <u>My parents</u> answer my questions about doing these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. <u>My parents</u> care about these activities that I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I feel I am able to share my experiences of doing these activities with <u>my parents</u> .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I trust <u>my parent's</u> advice about these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Following Statements are Related to People that are your Age (your peers):

	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree
18. I think that <u>my peers</u> understand why I choose to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. <u>My peers</u> display confidence in my ability to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. <u>My peers</u> encourage me to do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. <u>My peers</u> listen to me about my activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. <u>My peers</u> provide me with positive feedback when I do these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I am able to talk to <u>my peers</u> about these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I feel I am able to share my experiences of doing these activities with <u>my peers</u> .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Following Statements are Related to your Reasons for Taking Part in these Activities:

	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree
25. I take part in these activities because other people say I should.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. I take part in these activities because my friends/family say I should.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. I take part in these activities because others will not be pleased with me if I don't.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. I feel under pressure from my friends/family to take part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. I feel guilty when I don't take part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I feel ashamed when I miss taking part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree
31. I feel like a failure when I haven't taken part in these activities in a while.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. I value the benefits of taking part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. It's important to me to take part in these activities regularly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. I think it is important to make the effort to take part in these activities regularly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. I get restless if I don't take part in these activities regularly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. I take part in these activities because it's fun.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. I enjoy taking part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. I find taking part in these activities pleasurable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. I get pleasure and satisfaction from taking part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. I see myself as being capable of taking part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. I am confident that I will be able to take part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42. I believe I have the ability to take part in these activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43. I intend to participate in these activities in the next 3 months?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44. I intend to take part in these activities regularly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

45-50. For Each of the Following Items, Please Fill in the CIRCLE that Best Describes Your Opinion (the closer the circle is to each word, the stronger you feel). Please Use the Following Statement for Each Item:

"For me, participating in noncompetitive outdoor physical activities regularly is..."

		<	<	<	<	<	<	<		>	>	>	>	>	>	>	>	
45.	<u>dull</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<u>interesting</u>
46.	<u>unpleasant</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<u>pleasant</u>
47.	<u>boring</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<u>stimulating</u>
48.	<u>unhealthy</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<u>healthy</u>
49.	<u>bad</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<u>good</u>
50.	<u>useless</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<u>useful</u>

THERE IS ONLY 1 PAGE REMAINING!! YOU ARE ALMOST DONE!!

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Please Fill in the CIRCLE Next to your Response to Each of the Following Items REFERRING TO THE ACTIVITIES LISTED IN QUESTION 1:

51. People close to me think I should take part in these activities.	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52. People who are important to me would.....of my taking part in these activities.	strongly disapprove	disapprove	neither disapprove nor approve	approve	strongly approve
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53. People close to me think I.....take part in these activities regularly.	definitely should not	should not	neither should nor should not	should	definitely should
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Now Think about your Participation in COMPETITIVE ACTIVITIES and SPORTS such as football, baseball, basketball, soccer, golf, swim team, etc.:

54. During a typical <u>week</u> (7 days), in your free time outside of school, how often do you participate in <u>competitive activities and sports</u> long enough to work up a sweat (heart beats rapidly)?	never	rarely	occasionally	frequently	very frequently
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55. During a typical <u>month</u> (4 weeks), in your free time outside of school, how often do you participate in <u>competitive activities and sports</u> long enough to work up a sweat (heart beats rapidly)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56. How often have you participated in <u>competitive activities and sports</u> in the <u>last 3 months</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57. How often have you participated in <u>competitive activities and sports</u> in the <u>last 6 months</u> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
58. I intend to participate in <u>competitive activities and sports</u> in the next 3 months?	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59. I intend to participate in <u>competitive activities and sports</u> regularly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Lastly, Please Answer the Following Questions about Yourself:

60. What is your gender?	<input type="radio"/> Male	<input type="radio"/> Female
61. What is your age?	_____ years old	
62. What is your race/ethnicity?	<input type="radio"/> White	<input type="radio"/> Black/African American
	<input type="radio"/> Hawaiian Native/Pacific Islander	<input type="radio"/> Hispanic/Latino
	<input type="radio"/> American Indian/Alaska Native	<input type="radio"/> Other
63. What language is primarily spoken in your home?	<input type="radio"/> English	<input type="radio"/> Spanish
	<input type="radio"/> Other	
64. What grade in school are you currently in?	<input type="radio"/> 6 th grade	<input type="radio"/> 7 th grade
65. Do you participate in the free and reduced lunch program at your school?	<input type="radio"/> Yes	<input type="radio"/> No

YOU ARE FINISHED! THANK YOU VERY MUCH FOR YOUR HELP!

Appendix J: Parent Informational Letter for Qualitative Interviews

Dear Parent:

I am a graduate student under the direction of professor Marsha Davis in the Department of Health Promotion and Behavior at The University of Georgia. I invite your child to participate in a research study entitled "A Mixed-Methods Study Investigating Factors Influencing Rural Youths' Engagement And Experiences In Noncompetitive Physical Activity In The Outdoors" that is being conducted with the permission of the [REDACTED] Middle School. The purpose of this study is to find out what motivates youth to play in the outdoors.

Based on the responses that your child provided on a questionnaire, he/she has been selected to participate in two interviews with the researcher to discuss their outdoor activities. The first of these interviews will be a short 10 minute group interview with other students to discuss the types of activities that your child likes to do in the outdoors. During this interview your child will be given a disposable camera and asked to take pictures related to these activities and then return the camera to the researcher the following week. Once the photos have been developed, the second interview will be scheduled. This interview will be one-on-one with the researcher and will last no longer than 40 minutes. Your child will be asked questions related to their activities in the outdoors. The two interviews will take place at the [REDACTED] Middle School and will not interfere with the school day. If you do not want your child to take part then she/he will be allowed to go about his/her usual activities. Your child's involvement in the study is voluntary and the researcher will ask your child for their assent prior to beginning the interviews. Your child may choose not to participate or to stop at any time without penalty. The results of the research study may be published, but your child's name will not be used. Your child's identity will not be associated with her/his responses in any published format.

The findings from this project may provide information that may help schools and organizations in the community provide support for youths' play in the outdoors. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to call me at (706) 542-3313 or send an e-mail to rchristi@uga.edu. Questions or concerns about your child's rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 629 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199; email address irb@uga.edu.

If you are willing to allow your child to participate in these interviews please read, print your name, sign, date, and return the enclosed Parental Permission Form to the school. Thank you for your consideration!

Sincerely,

Richard Christiana

Appendix K: Parent Permission Form for Qualitative Interviews

I agree to allow my child, _____, to take part in a research study titled, "A Mixed-Methods Study Investigating Factors Influencing Rural Youths' Engagement and Experiences in Noncompetitive Physical Activity in the Outdoors," which is being conducted by Mr. Richard Christiana, from the Health Promotion and Behavior Department at the University of Georgia under the direction of Dr. Marsha Davis. My child's participation is voluntary which means I do not have to allow my child to be in this study if I do not want to. My child can refuse to participate or stop taking part at any time without giving any reason, and without penalty or loss of benefits to which she/he is otherwise entitled. I can ask to have the information that can be identified as my child's returned to me, removed from the research records, or destroyed.

- The reason for the study is to find out what motivates youth to play in the outdoors.
- The researcher hopes to learn something that may help schools and organizations in the community provide support for youths' play in the outdoors. The results of the study will be shared with the _____ County School District in order to develop programming and activities for my child's age group.
- The researcher is seeking about 20 participants. If more than 20 children are given permission by a parent to participate, then the researcher will randomly select 20 participants by drawing names from a hat. If my child is not selected to participate, this does not have anything to do with my child or indicate anything negative about my child. If I allow my child to take part and my child is selected, my child may be asked to participate in two interviews to discuss their play in the outdoors. The first interview will be a short 10 minute group interview with other students to discuss the types of activities that my child likes to do in the outdoors. My child will then be given a disposable camera and asked to take pictures related to these activities and then return the camera to the school the following week. The photos will be used during the second interview and possibly in presentations and publications. All faces of persons in the photos will be blurred so that they cannot be identified and the original photos will be destroyed within 5 years. Once the photos have been developed, the second interview will be scheduled. This interview will be one-on-one with the researcher and will last no longer than 40 minutes. My child will be asked questions related to their activities in the outdoors. The two interviews will take place at the _____ and will not interfere with the school day. If I do not want my child to take part then she/he will be allowed to go about his/her usual activities.
- My child will be given a \$10 movie theater gift certificate as an incentive for participating in the two interviews. In order to process the incentive, the researcher will record the incentive amount and my child's name on a separate sheet of paper that may be shared with the researcher's department business office.
- The research is not expected to cause any harm or discomfort. My child can quit at any time or decide to not answer any of the questions with no penalty or repercussions to their school grades. If I do not want my child to participate then this will not affect their school grades.
- The two interviews will be audio taped and transcribed. Audio recordings will not be publicly disseminated and will be kept for 5 years and then will be destroyed. Any individually-identifiable information collected about my child will be kept confidential unless otherwise required by law. My child's identity will be coded, and all data will be kept in a secured location. All information linking my child to their responses will be destroyed at the end of data analysis.
- The researcher will answer any questions about the research now, or during the course of the project, and can be reached by telephone at 706.542.3313 or email at rchristi@uga.edu. I may also contact the professor supervising the research, Dr. Marsha Davis, at 706.542.3313 or davism@uga.edu.
- I understand the study procedures described above. My questions have been answered to my satisfaction, and I agree to allow my child to take part in this study. I have been given a copy of this form to keep.

Name of Researcher

Signature

Date

Name of Parent

Signature

Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your child's rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail irb@uga.edu.

Appendix L: Minor Assent for Qualitative Interviews

Dear Participant,

You are invited to participate in my research project titled, "A Mixed-Methods Study Investigating Factors Influencing Rural Youths' Engagement and Experiences in Noncompetitive Physical Activity in the Outdoors." Through this project I am learning about what motivates youth to play in the outdoors.

If you decide to be part of this, you will be asked to sit down with me and a small group of your peers to discuss your outdoor play activities. You will be given a disposable camera to bring home for a week to take pictures of things related to your outdoor play activities. Once you return the camera, you and I will sit down for a one-on-one discussion of your pictures and the activities that you like to do outside. Your participation in this project will not affect your grades in school. I will not use your name on any papers that I write about this project. I hope to learn something about outdoor play that may help schools and organizations in the community better provide opportunities for activities in the outdoors.

If you want to stop participating in this project, you are free to do so at any time. You can also choose not to answer questions that you don't want to answer. You will be given a \$10 movie theater gift certificate for your participation in the project.

If you have any questions or concerns you can always ask me or call my teacher, Dr. Marsha Davis at the following number 706.542. 3313.

Sincerely,

Richard Christiana
Health Promotion and Behavior Department
College of Public Health
University of Georgia
rchristi@uga.edu
706.542.3313

I understand the project described above. My questions have been answered and I agree to participate in this project. I have received a copy of this form.

Signature of the Participant/Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix M: Interview Guide for Initial Group Interview

PURPOSE

To introduce the study to participants, to begin the discussion of their noncompetitive outdoor physical activities, and to hand out disposable cameras to participants to take photos of their noncompetitive outdoor physical activities.

INTERVIEW QUESTIONS

EXPLAIN WHAT THE STUDY ENTAILS AND GO OVER MINOR ASSENT FORM.

- What activities do you normally do after school?
- What noncompetitive outdoor activities do you normally do after school if any? Which of these activities, if any, do you like or enjoy doing the most?

HAND OUT DISPOSABLE CAMERAS TO PARTICIPANTS AND EXPLAIN WHAT THEY ARE SUPPOSED TO DO WITH THEM.

- What kinds of pictures do you think you will take with the camera? What activities will be shown in them? Who will be in them? Where will they be taken?
- Can you see any problems that you will have taking these pictures over the next week?

Appendix N: Interview Guide for One-on-One Interview

PURPOSE

To examine the motivations and intentions of youth to participate in noncompetitive outdoor physical activity and to understand the meanings that youth attribute to their experiences of participating in these activities.

INTERVIEW QUESTIONS

- Who do you currently live with? One parent, both parents, or other guardian?
 - o Where do you currently live? House, apartment, or condo? Do you have easy access to a backyard or some open space?
- Tell me a little about the pictures that you took? What activities are being done in them? Why did you choose to take these particular pictures? Who are the people, if any, that are in them? Where were they taken?
- What is your favorite thing to do after school or on the weekends? What outdoor activities do you normally do? What noncompetitive outdoor physical activities do you normally do? Do your parents (or guardian) encourage you to play outdoors or do any of these noncompetitive outdoor activities? When you do activities outdoors, is most of this time spent with your family, with friends, or alone? Compared to how much time you spend playing or doing activities indoors, how much time do you spend outdoors? Are you apart of the Boy/Girl Scouts, 4H, or any other group that spends a good deal of time doing outdoor activities?
- Please describe in as much detail as possible a time that you did a noncompetitive outdoor physical activity.
 - o **POSSIBLE PROBES:** What was the primary activity? Where was the location? Who else was involved and in what capacity? When did you do it? How often do you do this activity? Why do you do this activity? Do you enjoy or have fun doing this activity? Why do you enjoy/have fun or not enjoy doing this activity? What makes this activity noncompetitive or not competitive?
- Are you involved in any sports teams? What do you like/dislike about participating in sports? Compared to the outdoor activities we discussed previously, what do you like/dislike about participating in sports?
- Do you take PE class in school? What do you like/dislike about PE class? Compared to the outdoor activities we discussed previously, what do you like/dislike about PE class?
- What (or Who) do you think motivates you the most or is the most influential in getting you to participate in noncompetitive outdoor activities? Why does this motivate or influence you to participate? What about sports? What about PE class?