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Susan Walter Hayashi

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Martha E. Ewing
Major professor

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UNDERSTANDING YOUTH SPORT PARTICIPATION THROUGH PERCEIVED COACHING BEHAVIORS, SOCIAL SUPPORT, ANXIETY and COPING

By

Susan Walter Hayashi

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ABSTRACT

UNDERSTANDING YOUTH SPORT PARTICIPATION THROUGH PERCEIVED COACHING BEHAVIORS, SOCIAL SUPPORT, ANXIETY, AND COPING

By

Susan Walter Hayashi

Understanding youth sport participation has been the emphasis of many researchers over the past 20 years. Although insight as to why youth sport athletes continue and discontinue sport participation has been provided, the past research has not identified how variables, particularly social and psychological variables, interact to affect children's decisions to continue or discontinue their sport participation. Therefore, the purpose of this study is to build on the past research and to examine if youth sport athletes who leave sport differ in their perceptions across time of coaching behaviors, perceptions of social support, level of anxiety and ways of coping from athletes who continue their sport participation. The participants in this study included 132 female youth gymnasts. The gymnasts in the study were participants in the sports of rhythmic and artistic gymnastics. The years of gymnastics participation of the participants ranged from 2 to 12 years. The athletes were training and/or competing in their sport for at least 6 months of the year. The data collection took place over a six month period of time with the gymnasts completing the same set of inventories three times during those six months. The data was examined using Generalized Estimating Equations which accounts for correlated observations over time. The results revealed that the interaction between several variables influenced youth sport participation. Specifically, for gymnasts with higher anxiety and low abilities to cope with adversity

are more likely to discontinue participating in gymnastics. Support from family and friends also played a role in gymnast's participation. That is, gymnasts who perceived more support from family and friends were more likely to continue in gymnastics. Finally, gymnasts' participation was also influenced by how they perceived their coaches' behaviors. Gymnasts who perceived their coaches to provide low amounts of non-reinforcement/ignoring mistakes feedback and who perceived their coaches to provide high amounts of punishment oriented feedback, were more likely to discontinue their gymnastics participation. These results moved the sport participation research beyond achievement motivation and expanded our understanding of the relationships between variables which influence sport participation decisions.

To Carl,

Heinz, and Trudi

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CHAPTER I

Introduction

Nature of the problem

Understanding youth sport participation has been the emphasis of many researchers over the past 20 years (e.g., Gould & Horn, 1984; Gould & Petlichkoff, 1988; Orlick, 1974; Petlichkoff, 1996; Sapp & Haubenstricker, 1978; Weiss & Petlichkoff, 1989). Although insight as to why youth sport athletes continue and discontinue sport participation has been provided, the past research has not identified how variables, particularly social and psychological variables, interact to affect children's decisions to continue or discontinue their sport participation. Therefore, the purpose of this study is to build on the past research and to examine if youth sport athletes who leave sport differ in their perceptions across time of coaching behaviors, perceptions of social support, level of anxiety and ways of coping from athletes who continue their sport participation.

Several models have been proposed to explain sport participation and withdrawal including Gould and Petlichkoff's (1988) integrated motivational model of youth sport participation and withdrawal; Linder, Johns, and Butcher's (1990) model of factors in the voluntary withdrawal from sport; and Smith's (1986) cognitive-affective model. These models have provided theoretical frameworks for explaining youth sport participation.

Of particular interest in this study is Gould and Petlichkoff's (1988) integrated motivational model of youth sport participation and withdrawal (see Figure 1). This model explains youth sport participation and withdrawal as processes that are influenced by a common set of factors (Gould & Petlichkoff, 1988). Furthermore, Smith's (1986) cognitive-affective model and Linder, Johns, and Butcher's (1990) model of factors in the voluntary withdrawal from sport are incorporated into Gould and Petlichkoff's (1988) model. Smith's model is not only one of the underlying theoretical frameworks in Gould and Petlichkoff's (1988) model but much of the research on Smith's model has focused on athletes who burnout which is addressed in the cost-benefit analysis and sport withdrawal components in Gould and Petlichkoff's model. Linder et al.'s (1990) model addressed voluntary sport withdrawal, which is also addressed in the sport withdrawal component of Gould and Petlichkoff's model.

This study will focus on the withdrawal components of Gould and Petlichkoff's model. The integrated motivational model of youth sport withdrawal encompasses three major components: (a) surface-level motivation for withdrawal and underlying theoretical motives for withdrawal (e.g., Smith, 1986), (b) a cost-benefit analysis, and (c) type or level of sport withdrawal. Each of the components will be examined in the following paragraphs to provide an overview of the model. The first component of the model addresses the descriptive research by identifying the personal and situational reasons for sport withdrawal along with the theoretical frameworks for explaining reasons for sport withdrawal. The theoretical frameworks incorporated into the model are Harter's (1978, 1981) competence motivation theory, Maehr and Nicholls' (1980)

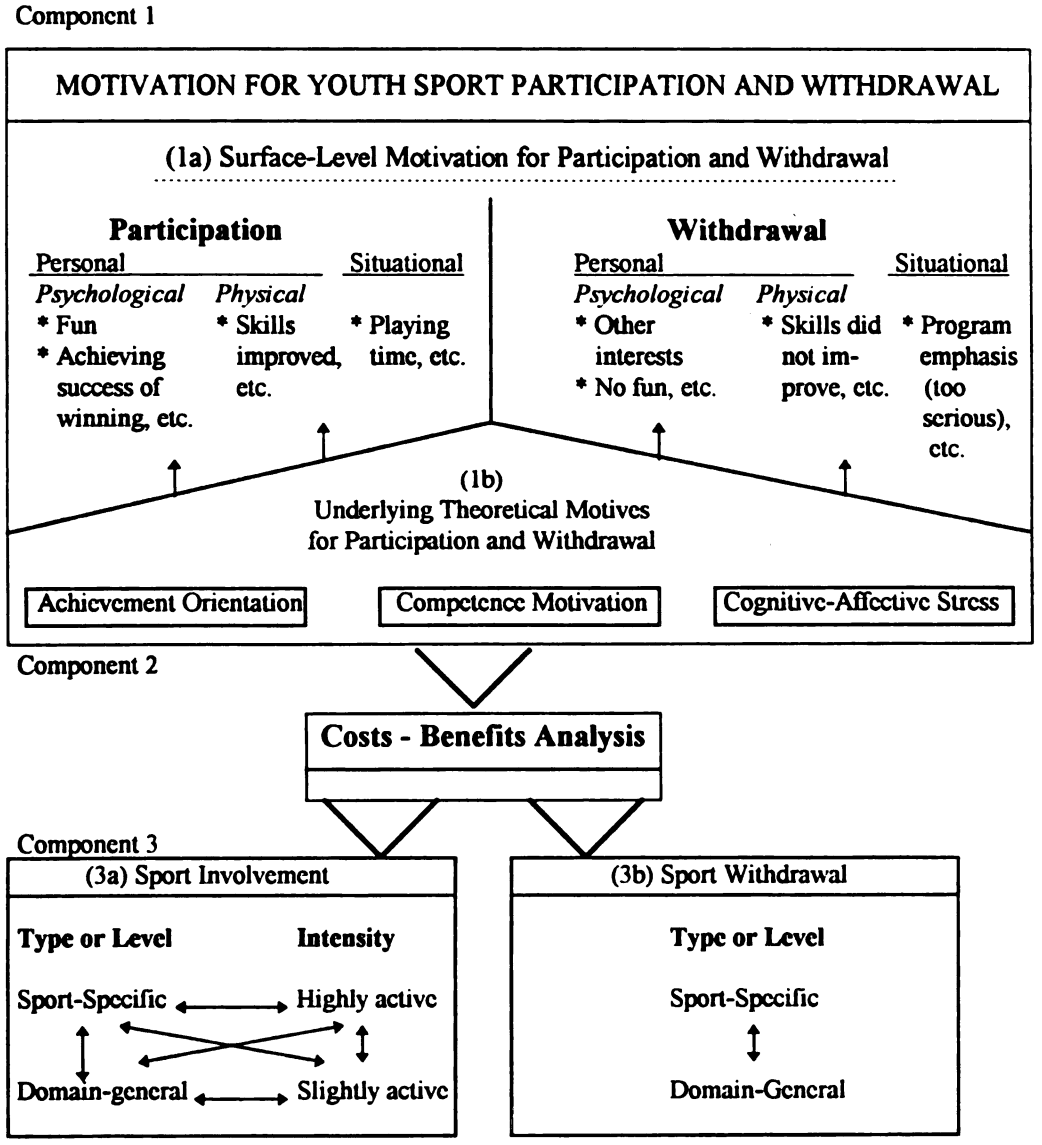

Figure 1: Gould and Petlichkoff's (1988) Integrated Motivational Model of Youth Sport Participation and Withdrawal

achievement goal orientation theory, and Smith's (1986) cognitive affective model of stress.

Harter's (1978, 1981) competence motivation theory has been the most frequently used theoretical framework to understand youth sport participation. In addition, several researchers have utilized Maehr and Nicholls' (1980) as well as Nicholls (1984) achievement goal orientation theories to examine participation motivation and attrition in sport. Smith's (1986) cognitive affective stress model has received only limited attention in the sport participation literature. However, athletes' responses to stress and their ability to cope with stress within sport have been found to impact athletes' decisions to continue or leave sport (e.g., Burton & Martens, 1986; Pooley, 1980). Due to the limited amount of research on the stress/anxiety-coping-participation relationship, further research is warranted on the influence of stress/anxiety and youth sport participation. This study will focus on the stress/anxiety theoretical framework within the model along with the situational reasons for sport withdrawal. The situational reasons for sport withdrawal have received less attention in the literature than the personal reasons for withdrawing from sport.

The second component of the model is a cost-benefit analysis in which athletes are believed to engage. Specifically, the cost-benefit analysis suggests athletes' decision to maintain involvement or to withdraw from sport is based on the perceived benefits and costs athletes experience in their sport. Limited research has been conducted on the cost-benefit analysis. Petlichkoff (1988) has conducted the only study that addressed the cost-benefit analysis in predicting sport persistence. She

identified various types of participants including starters, nonstarters, survivors (i.e., athletes who are members of the team but receive little to no playing time), dropouts, and cuttees (individuals cut from the team during tryouts). Petlichkoff found that starters and nonstarters had higher levels of satisfaction than the other types of participants. Specifically, she found that survivors had lower levels of satisfaction than did dropouts. Petlichkoff concluded that survivors and dropouts differed in their cost-benefit analysis. Dropouts found the cost of lack of playing time was greater than the benefit of being a member of a team, whereas, survivors found the benefit of being a part of the team was greater than the cost of dissatisfaction with playing time, subsequently, survivors continued their sport participation.

Finally, the third component of the model is sport withdrawal. Research has found athletes' withdrawal from sport can include leaving to participate in another sport or staying with the same sport but changing the intensity of their participation or completely withdrawing from sport altogether. Research by Gould, Feltz, Horn, and Weiss (1982) and Klint and Weiss (1986) found that if athletes discontinue their participation, they will probably reenter sport. Consequently, their research dispelled the notion that if a child discontinued their participation in a specific sport, they had dropped out of sport altogether. This study will focus on the interaction of variables that lead up to withdrawal from sport or changes in participation status rather than the third component of the model. The author recognizes the importance of the different types and levels of withdrawal; however, studying this component is beyond the scope of this study.

While Gould and Petlichkoff's (1988) model incorporates the variables of anxiety, coping, social support, and perceived coaching styles as playing a role in withdrawal from sport, the interaction of these variables has not been examined in previous sport participation research. Utilizing their model provides a framework for studying these variables in relation to youth sport participation. Furthermore, learning how anxiety, coping and social support variables interact, as well as how perceived coaching behaviors interact provides an avenue for understanding how some athletes are able to "bounce back" and persist while others withdraw in light of negative or challenging sport experiences is of interest. Although variables other than anxiety, coping, social support, and perceived coaching styles are included in the model, the variables identified above appear to be particularly salient in being able to differentiate between athletes who persist in sport and those who withdraw.

When examining research in psychology it is apparent how researchers have emphasized the relationship between anxiety, coping and social support and an individual's ability to persist in light of challenging experiences (e.g., Cowen, Work, Wyman, Parker, Wannon & Gribble, 1992; Milgram & Palti, 1993; Werner, 1984). Within sport research some of these variables including anxiety and perceived coaching styles have received a great deal of attention in the literature while other variables such as coping and social support received less attention. In the following sections an overview of the research on youth sport participation and the psychological variables (coping and anxiety), social variables (family and sport support), and the youth sport environment (perceived coaching behaviors) is provided.

Psychological Variables

The psychological variables of anxiety and coping have received limited attention in the youth sport participation literature. Rather, most of the anxiety research has focused on the relationship between anxiety and performance (e.g., Burton, 1988; Gould, Petlichkoff, Simons, & Vevera, 1987) and the coping literature has focused on the relationship between coping and injuries or performance stress (e.g., Crocker, & Graham, 1995; Hanson, McCullagh, & Tonymon, 1992; Smith, Smoll, & Ptacek, 1990). Sport has been characterized as an ideal situation for studying the antecedents, dynamics, and consequences of anxiety (Hackfort & Spielberger, 1989). If the sport arena can serve as an ideal research facility for studying anxiety, then it seems logical that anxiety could very well affect youth sport participation. Furthermore, if sport and anxiety go hand in hand, then athletes who exhibit positive coping strategies would probably be able to persist through difficult sport circumstances and continue their sport participation more readily than athletes with poor coping strategies. Specific relationships between anxiety and sport participation will be addressed below followed by a similar discussion of coping and sport participation.

Anxiety. Research on the relationship between anxiety and youth sport participation has demonstrated that, just as in adults, stress affects children in different ways (Compas, 1987). Stress has been shown to affect children's enjoyment of sport (e.g., Scanlan & Lewthwaite, 1986) as well as anticipated stress has led to children avoiding sport involvement (Orlick & Botterill, 1975; Pierce, 1980). Although

causality has not been found between stress and sport withdrawal, there appears to be a relationship between a stressful sport environment and withdrawal. Several researchers have found that former youth athletes indicated too much pressure as one reason for withdrawal from their sport (Gould, Feltz, Horn, & Weiss, 1982; McPherson, Marteniuk, Tihanyi, & Clark, 1980; Pooley, 1980). Walter (1996) found that gymnasts who left their sport had the highest levels of anxiety during the 3 months prior to withdrawal compared to their peers who continued their gymnastics participation. Thus, it appears that a better understanding of the role stress and anxiety play in youth sport participation decisions is warranted. This study proposes that it is not so much whether athletes encounter stressful situations that affects their sport participation decisions but the interrelationship between athletes' perception of situations, athletes' coping strategies and their ability to cope with the stress they encounter in sport.

Coping. Coping appears to play an integral role in allowing adults and children to deal with stressful situations (Garmezy, 1983; Shure & Spivak, 1982). Coping has been defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p.141). Specifically, coping responses have been referred to as strategies that mediate between perceived stressful events and outcomes (Crocker, 1992).

Within the sport domain, researchers have primarily focused on the relationship between athletes' coping skills and dealing with and preventing injuries as well as how

coping skills allow athletes to deal with performance-related stress (e.g., Madden, Kirkby, & McDonald, 1989; Smith, Smoll, & Ptacek, 1990). The ability to cope with difficult coaches or competitive situations appears to play an integral role in athletes' responses to stressors in sport (Gould, Finch, & Jackson, 1993) and, thus, is more than likely involved in athletes' sport participation decisions. None of the research in sport on coping skills has been related to sport participation. Furthermore, research needs to consider how coping skills relate to youth sport participation because research in psychology has demonstrated that an individual's coping ability relates to resilience to stressful situations (Rutter, 1983). It seems logical that athletes who utilize more effective coping strategies will be able to deal more effectively with negative sport situations. Subsequently, athletes will experience more enjoyment in sport and will probably maintain their sport participation for a longer period of time. Thus, further research on the relationship between coping skills and youth sport participation is warranted.

Social Variables

Social variables in sport can encompass a number of areas including, but not limited to, group dynamics, team cohesion, and social support. Research on social support in sport has focused on three areas: (a) the role of feedback from significant others in children's development of perceptions of competence (Black & Weiss, 1992; Horn & Hasbrook, 1987), (b) the role of family and significant others in socializing children into and through sport (Brustad, 1992; Martin & Dodder, 1991; Weiss & Glenn, 1992), and (c) the coach-athlete relationships (Horne & Carron, 1985; Smith,

Zane, Smoll, & Coppel, 1983) and teammate-athlete relationships (Weiss & Duncan, 1992).

Research examining the use of support from within (i.e., coaches, teammates) and outside (i.e., family, friends) of sport by young athletes and the differences between these support groups has basically been ignored. Recently, Walter (1996) found that gymnasts who left their sport identified more family support during the 3 months prior to leaving gymnastics and less support from within the sport environment (i.e., coaches, teammates). Thus, differences in the use of family support and support from within sport have been found between the gymnasts who continued their sport participation and those who left gymnastics. Within the psychological resilience literature, the presence of a supportive family environment has been identified as being extremely important characteristics of resilient children (see Garmezy, 1983). Research has not identified the process of how parents influence or protect their children to help them cope with stressful situations. It appears support from a family provides an authoritative figure, who is more knowledgeable than the child and can provide an outlet from the stressful situation (Maccoby, 1983).

When applying these findings to sport, not only having support from family is important to deal with stressful situations but also having support from within sport from coaches, teammates, and athletic trainers is important for coping with challenging sport experiences. Having support from within the sport environment may be important because social support sources from within sport generally have greater knowledge and experience regarding sport situations and the specific situations the

athlete is encountering than do family and friends. Further research on understanding the role of social support in sport is necessary to understand the role social support plays in participation decisions.

Youth Sport Environment

The youth sport environment can include but is not limited to individual personal performance, team performance, the type of leadership, and overall team climate (Horn, 1992). Of central interest to this study is the type of leadership and more specifically the perceptions of coaching behaviors by youth sport athletes because of the interaction coaches have with their athletes, the integral role coaches play in setting the tone for their team's sport environment and the fact that research has demonstrated that coaching styles influence athletes' self-esteem (Smoll, Smith, Barnett, & Everett, 1993).

In addition, athletes who left sport have reported negative coaching styles and/or conflict with coaches as reasons for leaving sport (Gould, Feltz, Horn, & Weiss, 1982; McPherson, Marteniuk, Tihanyi, & Clark, 1980; Pooley, 1980). Barnett, Smoll, and Smith (1992) found that coaches who were trained to utilize a positive coaching style had youth sport baseball players who evaluated their coaches, teammates and the sport of baseball more positively than athletes who played for untrained coaches. They also found that the players who played for trained coaches the previous season had significantly less attrition at the beginning of the next baseball season than the players who played for untrained coaches the previous season. Thus, coaching behaviors have been found to have an effect on youth sport participation but

only limited research has been conducted to examine the relationship between perceived coaching behaviors and youth sport attrition. The current study examines how the relationship between various coaching behaviors influences youth sport participation and withdrawal decisions.

In conclusion, if sport researchers were to not only utilize Gould and Petlichkoff's (1988) integrated motivational model of youth sport participation and withdrawal as a framework for studying sport withdrawal but also examine the interaction of variables within the model, a better understanding of the process which leads to various participation decisions would be provided. The examination of the interaction of psychological variables and social variables, as well as the interaction of youth sport experiences of children who continue or discontinue their sport participation, will provide greater insight into the youth sport participation process.

Statement of the Problem

The purpose of this study was to examine how psychological, social and environmental variables interact to affect youth sport participation decisions. Specifically, this study examined whether youth sport athletes who leave sport differ in their perceptions of coaching behaviors, perceptions of social support, level of anxiety and ways of coping from athletes who continue their sport participation. Research in general psychology has emphasized the importance of considering cognitive, psychological, social and environmental variables to understand human behavior. Due to limited research in sport on the interaction between variables that influence sport participation decisions, further exploration of psychological, social and environmental

variables relative to sport participation is warranted.

Research Questions

Based on the findings in previous youth sport participation research, research in general psychology, and logical reasoning, four research questions are presented. These research questions are developed out of the Gould and Petlichkoff's (1988) model. Gould and Petlichkoff's model identifies the variables of negative sport experiences, anxiety, social support and coping and have suggested how these variables can be either costs or benefits which lead to youth sport participation or withdrawal. For example, costs of being involved in gymnastics could include negative gymnastics experiences or the anxiety a gymnast feels. However, a gymnast also has benefits from being involved in gymnastics such as social support from teammates, coaches, and family as well as learning new skills. If the benefits outweigh the costs, the gymnast could continue her/his sport participation. This study builds on the relationships Gould and Petlichkoff have identified and examines the dynamic process of youth sport participation. Specifically, the dynamic process of youth sport participation examined in this study utilizes the variables identified above and examines how these variables interact to lead to the behaviors of continued sport participation and withdrawal or the intention to continue or withdraw from sport.

Two research questions are posed in the following paragraphs. The research questions examine the behavior of gymnasts with regard to their continued participation or withdrawal. The research questions are as follows:

1. What is the relationship among anxiety, ways of coping, support from

within sport and support from family/friends for female gymnasts who continue and discontinue their sport participation?

2. What is the relationship among perceived coaching behaviors for female gymnasts who continue and discontinue their sport participation?

Basic Assumptions

There are two assumptions which underlie this investigation.

1. The participants of this study will respond honestly to the survey instruments.

2. Due to the fact that most of the athletes who participated in this study have chosen to participate in their sport, it is assumed that the majority of the athletes will continue participating in their sport. However, some athletes may choose to discontinue participating in gymnastics. Any differences that emerge on the variables examined between the athletes who continued and those who discontinued their sport participation is of particular interest in this study. Thus, if none of the athletes choose to leave their sport, limitations in the analyses could develop.

Delimitations

This study is delimited to female youth sport athletes who participate in gymnastics, train and compete in their sport for a minimum of 6 months of each year, who are between the ages of 9 and 14 years of age and who live in either west Texas or central Michigan. The generalizability to athletes who do not meet these criteria is questionable.

CHAPTER II

Review of Literature

This chapter will examine the theoretical frameworks incorporated by Gould and Petlichkoff (1988) in their integrated motivational model of youth sport participation and withdrawal. Included in the model are Maehr and Nicholl's (1980) achievement goal orientation theory, Harter's (1978, 1981) competence motivation theory, and Smith's (1986) cognitive affective model of stress. In addition, the youth sport participation literature utilizing these theories will be explored. Finally, the coping literature will be examined. The previously mentioned literatures are examined as a basis for understanding how variables interact to influence youth sport participation.

Theoretical Frameworks Explaining Sport Participation

Gould and Petlichkoff's (1988) integrated motivational model for youth sport participation and withdrawal identifies three theoretical frameworks that underlie youth sport participation decisions. These theoretical frameworks include Harter's (1978, 1981) competence motivation theory, Maehr and Nicholls' (1980) achievement goal orientation theory, and Smith's (1986) cognitive affective model of stress. An overview of each of these theoretical frameworks is provided in the following sections along with how these theories have been used to explain withdrawal from sport.

Competence Motivation Theory. Harter's (1978, 1981) competence motivation

theory has been popular with sport psychology researchers and has been the most frequently utilized theory to examine youth sport participation. Several features of Harter's theory, which have had particular appeal in the sport literature, are the theory's developmental framework, the identification of psychological and sociological variables, and the fact that the model is testable.

Harter (1978) developed competence motivation theory by extending Robert White's (1959) model of effectance motivation. According to White (1959), people are born with an innate urge to deal competently with their environment or to "have an effect". That is, individuals are motivated to engage in mastery attempts to have an effect on their environment. If the mastery attempts resulted in successful performances, then intrinsic pleasure is experienced, individual's perceived competence is enhanced and continued participation in the activity is desired. Harter (1978) was interested in competence motivation; however, she felt White's model was too global and untestable. Thus, Harter (1978) attempted to move effectance motivation into a developmental framework that could be tested empirically (see Figure 2).

Weiss and Chaumeton (1992) summarized Harter's competence motivation theory as a multidimensional framework that explains both the initiation of mastery attempts in particular achievement domains and the development of achievement behaviors such as persistence, approach/avoidance, and striving for higher levels of competence or challenge. Competence motivation begins with the notion of individuals engaging in mastery attempts. The participation in mastery attempts is characterized as being the urges individuals feel to demonstrate their abilities. If those

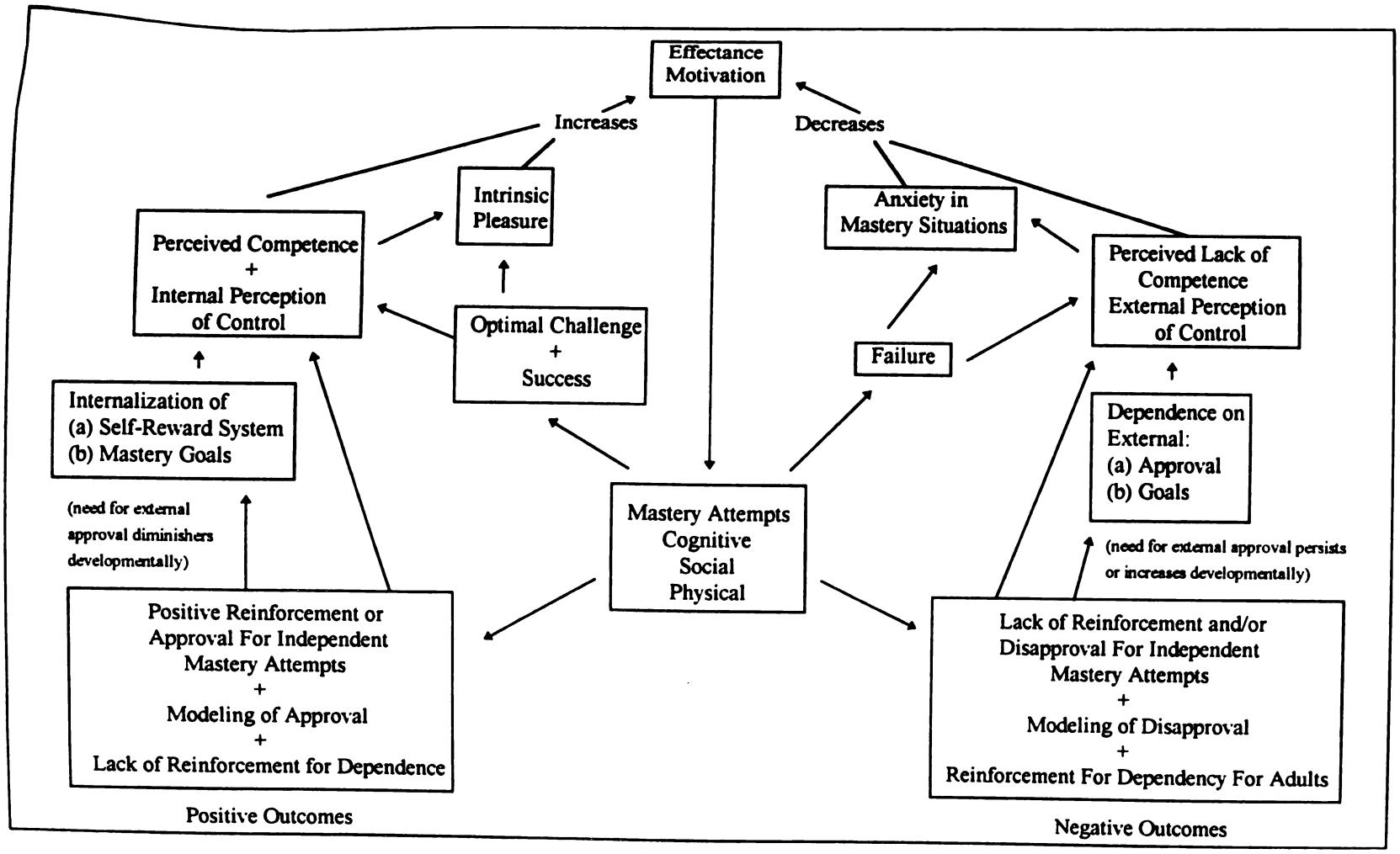

Figure 2: Harter's (1978) Competence Motivation Model

mastery attempts are optimally challenging and success in them is attained, then an increase in intrinsic pleasure, perceived competence, and internal perceptions of control is likely to occur. Furthermore, success at these optimally challenging mastery experiences results in continued motivation to participate. This facilitates the development of a more intrinsically motivated individual that is represented on the left side of Harter's (1978) competence motivation model. The consequences of repeated failures at optimally challenging mastery attempts are also addressed in the model. The results of repeated failures on individuals include increased anxiety, lower perceived competence, and an external locus of control. This is likely to result in a more extrinsically motivated individual. The right side of the competence motivation model depicts the developmental path toward an extrinsic orientation (Harter, 1978).

In addition, the model depicts the influence of significant others and the use of rewards as having either positive or negative effects on the development of competence motivation. An interaction of the constructs serves to maintain, increase, or decrease competence motivation, or alternatively stated, influence the development of a primarily intrinsically or extrinsically oriented person (Weiss & Chaumeton, 1992). For example, a gymnast engages in a mastery attempt such as practicing gymnastics routines. Over time, if the gymnast receives positive reinforcement from significant others such as parents, coaches, or teammates, has internal self-rewards and mastery goals, and perceives the routines as optimally challenging, these will lead to high levels of perceived competence and intrinsic pleasure, and the gymnast's competence motivation will increase. If this does not occur, a decrease in competence

motivation occurs. For the purposes of this study, how significant others within sport and outside of sport help athletes to deal with challenging sport experiences such as negative coaching styles and stressful situations which may influence participation decisions is of primary interest.

To help explain some of the surface level reasons for youth sport withdrawal, Gould and Petlichkoff (1988) incorporated Harter's (1978, 1981) competence motivation theory into their model. The sport literature has utilized perceived competence from within competence motivation theory to explain sport withdrawal with dropouts being characterized as having lower levels of perceived competence than individuals who continue sport participation. In addition to perceived competence influencing competence motivation, a child's perception of his or her control over the environment (perceived control) and his or her motivational orientation or the domain-specific nature of perceived competence (physical, social or cognitive competence) are also said to influence competence motivation. Thus, with regard to sport participation, several factors interact to influence decisions to withdraw from sport. For example, when Harter's model is incorporated into Gould and Petlichkoff's model, withdrawal from sport would occur when an athlete's competence motivation decreases. This decrease in competence motivation results from a combination of failure at mastery attempts, a lack of or negative social support from significant others, low perceptions of competence, an external perception of control, and, finally, an increase in anxiety.

Initial research by Roberts, Kleiber, and Duda (1981) utilized Harter's theory to examine sport participants and nonparticipants. They found that participants had

higher perceptions of cognitive and physical competence, general self-worth and expectations for future success than did nonparticipants. Feltz and Petlichkoff (1983) built on Roberts et al.'s (1981) findings by examining children in interscholastic sports and found that current participants had higher perceived physical competence when compared with dropouts. Thus, both Roberts et al. (1981) and Feltz and Petlichkoff (1983) found that sport participants where higher in perceived physical competence than sport nonparticipants and dropouts.

In contrast, Klint (1985) examined current and former gymnasts on their perceptions of physical and social competence. She found that former gymnasts were higher in perceptions of physical and social competence than current gymnasts. These results were explained as the former gymnasts having had success in gymnastics and in other sports since leaving gymnastics while the current gymnasts were still in the midst of striving to attain their success. This led to Klint and Weiss's (1986) study that examined how perceptions of competence are related to particular motives children have for sport participation. They found that children high in perceived physical competence were more motivated to participate for skill development reasons, and children high in perceived social competence were more motivated by the affiliation aspect of sport when compared to their low perceived competence counterparts.

In addition, to the examination of perceived competence and sport participation, Horn (1985) and Black and Weiss (1991) have examined the relationship between perceived competence and social support. Specifically, Horn (1985) examined how

coaches' feedback influenced female adolescent softball players' perceptions of competence and performance control. She found that players had higher perceptions of competence if they received more frequent criticisms in response to performance errors. In contrast, she found players had lower perceptions of competence if they received more frequent positive reinforcement and nonreinforcement in response to desirable performances. Horn (1985) concluded that athletes wanted contingent and appropriate feedback from their coaches because it suggested to the athletes that the coach thought they could improve their performances. Black and Weiss's (1991) study examined athletes' perceptions of coaches' behaviors in relation to perceptions of ability and motivation in swimmers. Their findings support Horn's (1985) results. Aside from these two studies the importance of coaching behaviors on the psycho-social development of athletes has gone largely unexamined in the sport literature. Weiss and Chaumeton (1992) emphasized the need for more research that examines the influence of coaches on participants continued participation or withdrawal from sport.

Several researchers have examined the relationship between perceived competence and anxiety. Weiss, Bredemeier and Brustad (1987) examined the relationship between negative trait anxiety and perceptions of competence, perceptions of control, and motivational orientation in youth sports. They found that anxiety was related to several achievement-related characteristics identified in Harter's model. Boys who were identified as high trait anxious reported lower perceived competence and more external perceptions of control than low trait anxious boys. Furthermore,

girls who were high competitive trait anxious reported lower levels of perceived competence, a more external perception of control, and lower intrinsic motivation than girls who were low in competitive trait anxiety.

In addition, Brustad (1988) studied predictors of negative and positive affect in competitive youth sport. He found that athletes high in competitive trait anxiety had higher performance-related worries and worries about negative evaluation from coaches, parents and peers than their low competitive trait anxiety counterparts. Based on these findings it is possible to see the important role anxiety plays in the experiences of youth sport athletes. Unfortunately, this perceived competence and anxiety research has not been linked back to the youth sport participation research. Again, additional research is called for by Weiss and Chaumeton (1992) to better understand the role of anxiety and perceived competence in sport behavior.

When considering the sport participation research that utilized Harter's (1978) theory within Gould and Petlichkoff's model, competence motivation relates to the personal surface-level explanations cited for sport withdrawal. For example, athletes who felt they were not good enough to play (surface-level explanation) a sport such as softball may have felt that they were not engaging in a mastery attempt (underlying theoretical motive). The fact that the mastery attempt was not optimally challenging led the athlete to feel that they did not have any social support, which led to increased anxiety. Ultimately, this could lead to withdrawal from sport. Additional research is needed to more fully understand the situational variables identified within sport withdrawal.

Achievement Goal Orientation Theory. Researchers including Ames (1984), Dweck (1986), Maehr and Nicholls (1980), and Nicholls (1984) have developed several achievement goal orientation theories. Only the work by Maehr and Nicholls (1980) and Nicholls (1984) has been used to examine the relationship between motivation and participation in sport. Gould and Petlichkoff (1988) have incorporated Maehr and Nicholls (1980) achievement goal orientation theory into their integrated motivational model for youth sport participation and withdrawal to help explain sport participation patterns. An overview of Maehr and Nicholls (1980) theory will be provided in the following paragraphs.

Maehr and Nicholls (1980) suggested that success and failure are assigned different meanings by individuals and that achievement behavior is thought of as behavior directed toward demonstrating that one possesses desirable qualities. Rather than defining one achievement behavior, Maehr and Nicholls' (1980) identified three forms of achievement motivation: ability, task, and social approval. Ability-oriented motivation is when the goal of the behavior is to maximize the subjective probability of attributing high ability to oneself and minimize the chances of attributing low ability to oneself. Task-oriented motivation is when the goal of behavior is focused on the process and conducting a task for its own sake rather than to demonstrate comparative ability. Finally, social approval-oriented motivation refers to behavior that is directed at maximizing chances of attributing high effort to oneself and minimizing the chances of attributing low effort to oneself. The goal of the social-approval behavior is to indicate virtuous intentions rather than ability (Maehr &

Nicholls, 1980). These orientations explain the motivated behavior of individuals and why some individuals participate in an activity and others avoid participating.

According to Gould and Petlichkoff's (1988) model, Maehr and Nicholls' (1980) achievement goal orientation theory explains youth's decisions to withdraw from sport by the athlete's achievement goals and by the perception of success in achieving these goals. Within the model, utilizing achievement goal orientations to explain sport withdrawal is associated with the psychological and physical explanations cited for sport withdrawal. Unfortunately, limited research has been conducted examining the relationship between achievement goal orientations and youth sport participation. Ewing (1981) utilized Maehr and Nicholls' work as the basis of examining why children drop out of sport. She found that social approval oriented individuals were more persistent than ability or task-oriented individuals (Ewing, 1981). In addition, she found that non-participants were more ability oriented than sport dropouts. Petlichkoff (1988) conducted the other study utilizing Maehr and Nicholls' (1980) achievement goal orientation theory. She examined the difference in achievement goal orientations between starters, nonstarters, survivors, cuttees, and dropouts during preseason, precompetitive, and postseason. She concluded that while achievement goal orientations were related to athletes' level of satisfaction with their sport experience, achievement goal orientations were not related to sport persistence (Weiss & Chaumeton, 1992). Thus, the research utilizing achievement goal orientations has been limited and has resulted in mixed findings.

Cognitive Affective Model of Stress. Smith (1986) developed a theoretical

model of stress titled the cognitive-affective model of stress (see Figure 3). Smith used Thibaut and Kelly's (1959) social exchange framework to explain the process of dropping out where individuals strive to maximize positive experiences while striving to minimize negative experiences. Specifically, Smith (1986) suggested that an athlete's decision to participate and persist in sport is a result of a cost-benefits analysis where athletes are always trying to maximize the benefits (e.g., learning new skills, having fun) while minimizing the costs (e.g., being yelled at for performance errors, missing out on time with friends due to intense training).

The cognitive-affective model of stress addresses both stress and burnout in sport where burnout is a specific type of stress response. Smith suggests that both stress and burnout result from interactions among situational factors, cognitive events, physiological responses and output or coping behaviors. In Smith's (1986) model the distinction is made between athletes who burnout and others who discontinue their sport participation. The withdrawal of athletes who burnout from sport is due to chronic stress or increased stress-induced costs whereas the reasons others leave sport are primarily due to a change of interests, an incompatible preferred alternative and/or value reorientation (Smith, 1986). Smith (1986) also points out that many individuals discontinue their sport participation for reasons other than burnout. The purpose of this study does not encompass burnout. Rather, the focus of this study is how variables including stress/anxiety interact to affect youth sport participation before the point of burnout. Consequently, the stress portion of the model is of particular interest in this study due to the interaction of situational, cognitive, physiological and

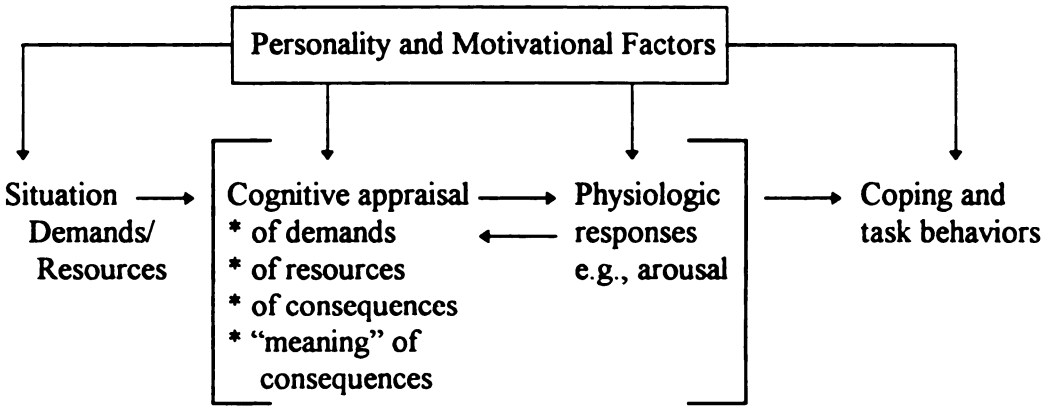

Figure 3: Smith's (1986) Conceptual Model of Stress

behavioral components to the model. Both the stress and burnout portions of the model have been addressed separately in the sport literature (e.g., McCann, 1995; Smoll & Smith, 1988).

According to Smith (1986) the word stress has typically been used in two ways. The first way refers to situations that tax the physical and/or psychological capabilities of the individual. The second way the term stress has been used relates to the individual's response to the situation. The cognitive-affective model takes into account both the situation and the individual's reactions to the situation. In the following paragraphs each of the components of the model will be addressed.

The *situational* component involves interactions between environmental demands and personal or environmental resources. If an imbalance between demands and resources occurs, stress will develop. Smith (1986) points out that stress occurs not only when demands exceed resources but also when resources exceed demands. Furthermore, the situational component can consist of external and internal situations which can generate stress (Smith, 1986). External situations can include negative feedback from coaches, disagreement among teammates, or competing against a strong opponent. Examples of internal situations include desires to reach certain goals, personal standards for competing, or conflicts in general.

The second component of the model is *cognitive appraisal*. Cognitive appraisal is an active process and refers to the psychological reality individuals create for themselves in the situations they encounter. According to Smith's (1986) model the response to the situation or the cognitive appraisal contains four elements:

appraisal of the demands, appraisal of the resources, appraisal of the nature and the likelihood of the potential consequences if the demands are not met; and the personal meaning of those consequences for the person. The appraisal made is not always accurate.

The *physiological responses* refer to the third component of the model. Physiological responses are the bodily responses such as increased heart rate or sweaty palms. These responses are reciprocally linked to cognitive appraisal. For example, when a situation is appraised as being dangerous, then arousal occurs as part of the recruitment of resources to deal with the situation.

The final component of the stress model is *output behaviors*. Output behaviors refer to an individual's attempt to cope with the situation and include task-oriented, social and other classes of coping behaviors. The model emphasizes that the output behaviors are not merely produced to meet the demands of the situation, rather cognitive appraisals and physiological responses mediate the situation and output behaviors. Ultimately, the coping behaviors are produced through this process. In addition to these interactions, the model also addresses how these four components can be affected by motivational and personality factors

Unfortunately, research utilizing Smith's (1986) cognitive-affective stress model has focused on burnout within sport. According to Smith (1986), some athletes leave sport due to burnout which occurs due to stress resulting from a perceived imbalance between performance demands and their ability to meet those demands and/or because they lack the coping capabilities. Gould and Petlichkoff (1988) suggest Smith's (1986)

model could also be used to explain withdrawal from sport beyond burnout. Gould and Petlichkoff applied Smith's model to the cost-benefit analysis as the process in which youth athletes engage to make sport participation decisions. In addition, Gould and Petlichkoff address athlete's perceptions of the situation and their ability to cope with stress as contributing to sport withdrawal.

Furthermore, while Gould and Petlichkoff (1988) have included situational factors such as social support and coaching leadership style in their model as surface level explanations for withdrawal from sport, the research on sport participation has largely ignored situational variables. Smith's model (1986) incorporates the appraisal of the situation stress as well as coping capabilities. Athletes make appraisals of their situations, encounter stress and have strengths and weaknesses in utilizing coping skills. How athletes appraise their sport situations, the degree of stress they encounter and their use of coping skills could all influence sport participation decisions. Thus, utilizing Smith's model from within Gould and Petlichkoff's (1988) model to examine sport participation in general could produce a greater understanding of the process that leads to withdrawal than previously available. Finally, Gould and Petlichkoff's model does not address how variables identified within their model could interact to influence participation decisions. In the following section the coping literature will be examined for explaining how coping skills could affect changes in sport participation status.

Coping

By incorporating Smith's (1986) model into Gould and Petlichkoff's (1988)

model the concept of coping is addressed as playing a role in the youth sport athlete's decision to participate and/or withdraw. Unfortunately, not a great deal of emphasis has been placed on coping within the youth sport participation literature except when talking about athlete burnout (McCann, 1995). The majority of athletes do not suffer from burnout, and understanding how athletes who do burnout use or do not use coping skills has been ignored. By further examining the coping literature we can see the value of incorporating the coping research into the youth sport participation research.

According to the work of Lazarus and Folkman (1984) and Lazarus and Launier (1978), stress results from a transaction between the environment and person factors. Lazarus and Folkman (1984) and Folkman and Lazarus (1980, 1985) stated that a stressful situation is only so if it is perceived as stressful by the individual and an individuals' response to the situation perceived as stressful is coping. According to Folkman and Lazarus (1980), coping strategies have been classified as problem-focused coping where individuals utilize cognitive and behavioral efforts to change the problem causing the distress and emotion-focused coping where individuals regulate emotional responses to the stressor.

When considering coping in children, children typically are dependent on adults for survival and generally have limited personal control over stressors (Compas, Malcarne, & Fondacaro, 1988; Liederman, 1983). Furthermore, the ability to cognitively appraise stressors and employ coping resources is often a function of cognitive development and functions which children are only in the process of

developing (Shaie, 1977-78). In addition, children have been shown to differ in their sensitivity to the environment. Specifically, it has been found that children who perceive more situations as stressful may need to cope with a greater number of situations than their less responsive counterparts (Compas, 1987).

Relating the coping research to a child's sport experiences, if a child is enrolled in a sport program they may not be aware of the potential stresses involved with practices, interacting with coaches, teammates, and competing. Thus, they have limited control over stressors. On top of not having control over stressors, certain athletes may be more susceptible to perceiving situations in sport as stressful and may lack also an understanding of ways to cope. If a youth athlete has this combination of circumstances and encounters stressful situations in sport such as negative coaching behaviors, they may discontinue their sport participation. The psychological resilience literature has examined coping in relation to resilience or invulnerability to stress (e.g., Garmezy, 1983). This work has shown that having positive coping skills enables individuals to deal more effectively with stressful situations. Children with maladaptive coping skills are not able to deal effectively with the stressful situations in their lives. Thus, understanding how coping relates to children's abilities to deal with challenging sport experiences could provide insight into factors affecting youth sport participation.

Sport Participation

In the previous section an overview of the theories incorporated into Gould and Petlichkoff's (1988) integrated motivational model of youth sport participation and

withdrawal has been provided. This section will focus on utilizing Gould and Petlichkoff's (1988) model to explain the relationships between variables influencing youth sport participation.

Gould and Petlichkoff's (1988) model incorporates a cost-benefit analysis, which is based on Smith's theoretical model, to address how athletes decide to continue or leave sport. Athletes' decisions to remain involved in or to withdraw from sport is based on the perceived benefits and cost he or she experiences in the situation (Gould & Petlichkoff, 1988). While Gould and Petlichkoff's (1988) model identifies important variables which lead to this cost-benefit analysis, the situational variables identified in the model including social support, coaching styles, anxiety and coping skills, have gone largely unexamined in the sport participation literature.

Furthermore, although Gould and Petlichkoff's (1988) model does not suggest how variables interact to lead to changes in sport participation status beyond the cost-benefit analysis, their model does provide a framework for studying variables which interact to influence sport participation. Specifically, Gould and Petlichkoff's (1988) model first identifies surface-level reasons along with the underlying theoretical motives for youth sport participation and withdrawal. These reasons for participating and withdrawing from sport are also supported within the sport participation literature as reasons for participation and withdrawal. In addition, the cost-benefit analysis included in Gould and Petlichkoff's (1988) model suggests that an interaction between the reasons for participation and withdrawal occurs. Unfortunately, their model does not suggest how the various reasons for participation and withdrawal interact to lead to

continued participation or withdrawal. Specifically, what has not been examined is how these reasons relate to psychological variables such as anxiety and coping, social variables such as social support and environmental variables such as coaching behaviors to influence sport participation decisions.

Finally, Weiss and Petlichkoff (1989) identified several missing links which needed to be addressed to obtain a better understanding of the youth sport participation process including further exploring the particular reasons for attrition, asking the athletes in more depth about their sport experiences and reasons for withdrawal, the development of longitudinal studies, and gaining an understanding of the social structure of sport. By incorporating the recommendations from Weiss and Petlichkoff (1989), understanding how variables interact to influence youth sport participation decisions can be achieved. Specifically, by addressing some of the missing links in sport participation, research studying the interaction of variables influencing youth sport participation can be used to build on the work of Gould and Petlichkoff (1988). By examining youth sport participation in this manner, a better understanding of how several variables interact to influence youth athletes' decision to continue or withdraw from sport can be gained.

CHAPTER III

Method

Subjects and Design

The participants in this study included 132 female youth sport athletes of which 62.6% were from Texas and 37.4% from Michigan. The participants ranged between the ages of 9 and 14 (M=11.61, SD=1.40). The gymnasts had been with their current coach an average of 3.66 years (SD=1.95). Of the 132 gymnasts who volunteered to participate in the study, 131 gymnasts participated at Time 1 of the data collection, 126 gymnasts participated at Time 2 and 120 gymnasts participated at Time 3. One gymnast who agreed to participate in the study was repeatedly absent during the data collection times and was subsequently dropped from the study. Of the remaining 131 participants who began in the study, 17.5% of the participants or 23 gymnasts discontinued their gymnastics participation during the course of the study. A more detailed discussion of these gymnasts will be provided later in the results section. A total of nine clubs participated in the study while more than 20 were contacted for participation. Due to exaggeration by some coaches of the number of gymnasts who met the criteria for participation and to unwillingness of some clubs to participate, the total number of participants was slightly lower than had been anticipated. However, this lower number did not affect the subsequent analyses.

The gymnasts in the study were participants in the sports of rhythmic and

artistic gymnastics. The years of gymnastics participation of the participants ranged from 2 to 12 years (M=6.31, SD=2.31). The athletes were training and/or competing in their sport for at least 6 months of the year. The ethnic background of the gymnasts was predominantly European-American (N=103). In addition, several other ethnic backgrounds were represented among the gymnasts including African-American (N=1), Mexican-American (N=2), Asian-American (N=1), and Other (N=24). Permission to participate in this study was obtained from the coaches, parents and athletes. The athletes were given the opportunity to discontinue their participation in the study at any time without penalty.

Instrumentation

A total of five instruments were administered during this study. These included the athlete's coping skills in sport, two measures of perceptions of coaching behaviors, social support, and anxiety in sport. All inventories were modified to be sport specific. For example, if a questionnaire utilized the words "competitive event", for the gymnasts the words "competitive event" were changed to the word "meet". The psychometric properties, including internal consistency analyses, of the instruments used in this study are provided in the following paragraphs.

Athletic Coping Skills Inventory-28. Smith, Schutz, Smoll and Ptacek (1995) developed this 28 item coping inventory (see Appendix A). The Athletic Coping Skills Inventory-28 (ACSI-28) has seven specific subscales: (a) Coping With Adversity, (b) Peaking Under Pressure, (c) Goal Setting/Mental Preparation, (d) Concentration, (e) Freedom From Worry, (f) Confidence and (g) Achievement

Motivation and Coachability. Statements are rated on a 4-point Likert scale with response choices ranging from *almost never to almost always*. A Personal Coping Resources score can be obtained by summing the subscales. Only the Coping with Adversity subscale will be used because it most closely addresses the area of coping that is of interest for this study. In addition, the Personal Coping Resources score, which can be obtained with the ACSI-28, is fairly strongly correlated with the Sport Anxiety Scale (r = -.43) which will be used in this study to assess gymnasts' anxiety. The Coping with Adversity subscale had a lower correlation with the Sport Anxiety Scale (r = -.29).

The coping with adversity subscale has demonstrated adequate validity and reliability for both team and individual sports (Smith, Schutz, Smoll & Ptacek, 1995). The coping with adversity subscale demonstrated adequate reliability (r = .75). Convergent and discriminant validity was demonstrated when the relationship between coping with adversity subscale and other coping scales including Rosenbaum's (1980) Self-Control Schedule, the Ways' of Coping Checklist (Vitaliano, Russo, Carr, Maiuro, & Becker, 1985), the Mental Health Inventory (Veit & Ware, 1983), the Washington Self-Description Questionnaire (Smoll, Smith, Barnett, & Everett, 1993), and Coppel's (1980) Self-Efficacy Scale were examined.

Coaching Behavior. To assess athlete's perceptions of their coaches' behaviors, two inventories were selected including the Leadership Scale for Sports (LSS) (Chelladurai & Saleh, 1978; 1980) (see Appendix B) and the questionnaire version of the Coaching Behavior Assessment System (QCBAS) (Amorose & Horn, in press;

Horn & Glenn, 1988) (see Appendix C). These two questionnaires were used because the LSS provides a general measure of leadership style whereas the QCBAS provides a more specific measure of coach's behavior with regard to feedback patterns.

The LSS contains 40 items representing five dimensions of leader behavior in sport. Each item is scored on a five-point Likert scale (always to never) and the athlete is asked to indicate to what extent her/his coach exhibits that particular type of behavior. The five subscales included in the LSS are Democratic and Autocratic Styles which measure the coach's decision making style, Social Support and Positive Feedback which measure the coach's motivational tendencies, and one subscale which measures the coach's instructional behavior (Training and Instruction).

The stability of the five subscale structure has been supported through independent factor analyses. In addition, admissible levels of internal consistency and test-retest reliability were obtained across several samples of students and athletes. Cronbach's alpha was used to assess internal consistency and the following scores were obtained for each of the subscales: Training and Instruction: $r = .87$; Democratic Behavior: $r = .84$; Social Support: $r = .82$; Positive Feedback: $r = .87$; and Autocratic Behavior: $r = .37$. All the coefficients except the Autocratic Behavior subscale for the LSS exceeded the .65 criterion alpha level advocated by Nunnally (1978). For the Autocratic subscale, item contributions to each subscale's alphas were examined to understand each item's contribution to the internal consistency of the subscales. While deleting one of the items would raise the alpha coefficients, deleting the item would not raise the alpha enough to reach the acceptable level. Thus, the autocratic subscale

will not be used in the subsequent analyses.

The QCBAS is made up of 16 items that represent different types of coaches' feedback responses. Athletes are asked to rate how typical it is for their coach to give them that kind of feedback in practices and games. The questionnaire is a five-point scale where athletes rate their responses from Very Typical to Not All that Typical. Eight different feedback categories are represented by the 16 items. Seven of the categories correspond to those identified in the original CBAS (Smith, Smoll, & Hunt, 1977). An additional category (reinforcement combined with technical instruction) is included in the QCBAS. This category was identified in an observational study by Horn (1985). Therefore, of the eight categories, three of these categories relate to the types of feedback coaches provide to players' performance successes (praise/reinforcement, non-reinforcement, reinforcement combined with technical instruction). The other five categories pertain to the feedback coaches provide during players' performance errors (mistake contingent encouragement, ignoring mistakes, corrective instruction, punishment, and corrective instruction combined with punishment). The reliabilities are reported in the results section for this inventory.

Social Support. Gymnasts' perceptions of the social support from within the sport environment and from outside the sport environment were assessed. This questionnaire, designed by the author, asks the gymnasts to identify who provides them with support in gymnastics (see Appendix D). The objective is to assess differences between support utilized from within the sport environment and from outside the sport environment. There are seven questions that refer to family/friends

providing support and seven questions that refer to people in gymnastics providing support. The responses are measured on a four-point Likert scale and the participants chose from responses ranging from "not important support" to "extremely important support." The questionnaire was pilot tested prior to administration. The questionnaire is based on the work of Antonucci (1986), Levitt, Weber, and Clark (1986), and Sternberg and Grajek (1984). Internal consistency analyses were conducted on the subscales. The following reliabilities were obtained for family support r = .69. The reliabilities for sport support were r = .71.

Sport Anxiety Scale. Smith, Smoll, and Schutz (1990) developed the Sport Anxiety Scale (SAS) (see Appendix E). This scale contains 21 items and responses are measured on a four-point scale (Not At All to Very Much So). The questionnaire contains three subscales: Somatic Anxiety and two classes of cognitive anxiety: Worry and Concentration Disruption. The subscales can be totaled for an overall anxiety score. For the purposes of this study the total anxiety score was used because sound reasoning within the sport participation and psychology literature does not exist for examining anxiety based on the subscales and because individuals respond differently to anxiety.

For the participants in this study, internal consistency analyses were examined and a reliability of .92 was obtained. Exploratory and confirmatory factor analyses, performed by the authors, demonstrated a stable factor structure. Convergent, discriminant and construct validity were also assessed. SAS demonstrated convergent validity due to its high correlation with the Sport Competition Anxiety Scale (Martens,

1977), r =.81, and the somewhat lower correlation with the STAI Trait scale (Spielberger, Gorsuch, & Lushene, 1970), r = .48. Furthermore, when examining the SAS subscales with the SCAT (Somatic Anxiety, r = .80; Worry, r = .66; Concentration Disruption, r =.47), the correlations suggest that the SCAT is primarily a measure of somatic anxiety and not an adequate measure of the cognitive dimensions of sport-specific anxiety (Smith, Smoll, & Schutz, 1990). Also, the SAS demonstrated construct validity when it successfully predicted tensions and confusion responses within a stressful precompetitive setting as well as when it discriminated between groups of athletes who differed in performance level.

Procedure

Permission to conduct this study was obtained from all the coaches, parents and athletes prior to the beginning of data collection. A letter was sent to the coaches of all prospective clubs to explain the purpose of the study. A follow-up phone call was placed to the coaches to answer any questions and to request if they would be willing to have their gymnasts participate in the study. After obtaining permission from the coaches to have their athletes participate in the study, the parents were contacted to obtain permission for their child to participate in this study. The nature of the study was explained to the parents and they were asked to complete a permission form (see Appendix F) which allowed their child to participate in the study. Those athletes who participated in the study were guaranteed confidentiality of their responses through the use of a code number for each subject. Furthermore, permission to conduct the study was obtained from Michigan State University's Human Subjects Committee prior to

any data collection (see Appendix G). All athletes were given the option to not participate in the study and were allowed to discontinue their participation at any time during data collection without penalty. The author administered the inventories in Texas while three trained assistants administered the inventories in Michigan.

The data collection took place at the training facilities of the youth sport athletes. Arrangements were made with the coaches to have the athletes complete the inventories. All of the inventories were administered three times. The first two times the inventories were administered, they were administered at approximately one month intervals. Initially, the gymnasts were given the inventories during their pre-competitive and early competitive gymnastics season (see Table 1). The second time the inventories were administered to the gymnasts was during their early competitive and competitive seasons. Finally, the inventories were administered to the gymnasts who were still participating near the end of the competitive season. Each data collection session took approximately 15-20 minutes and all the inventories were administered at one time. The instruments were counterbalanced each time they were given to the participants. The athletes also completed a demographic questionnaire (see Appendix H). During the three months following completion of the data collection, each of the clubs was contacted to see if any gymnasts had discontinued participating in gymnastics.

The gymnasts who discontinued their gymnastics participation were contacted by phone shortly after they left gymnastics. They were asked to complete the set of

Table 1

Data Collection Schedule

	August through November - Skill Acquisition / Prepare Routines
	January - Pre-competitive Season/Early Competitive Season
Time 1 ----- Data Collection	
	February - Early Competitive Season
Time 2 ----- Data Collection	March through May - Competitive Season
Time 3 ----- Data Collection	April - Almost the End of the Competitive Season
	End of May - Competitive Season Ends
3 Month Follow-up	June, July and August - Gyms contacted for Dropouts

inventories one final time and to complete an open-ended set of questions (see Appendix I) which asked about their decision to leave gymnastics. The questionnaires were sent to the gymnasts with a return envelope. If the former gymnasts did not return the questionnaires within two weeks, a follow-up phone call was placed to make sure they had received the packet. They were asked if they would return the completed questionnaires. Eight of the gymnasts answered the open-ended questions directly over the phone. In total, 19 of the 23 former gymnasts, or 83%, completed the open-ended questionnaires.

Pilot Study

A pilot study was conducted to examine whether the questionnaires and instructions were clear and understandable. The participants in the pilot study were 11 female gymnasts who ranged between the ages of 10 and 14 and attended clubs that did not participate in the rest of the study. Overall, the gymnasts did not have any difficulty understanding the questionnaires' items or following the instructions. Based on the results it was determined that the questionnaires to be used in this study were appropriate for the population being studied.

Treatment of the Data

The data of the present study were analyzed via the Generalized Estimating Equations (GEE) procedure. In the following paragraphs an overview of GEE is provided. Finally, the rationale for the implementation of the GEE analysis within this study is presented.

Investigations where the participants are studied over a period of time represent

an important but often overlooked strategy in understanding youth sport participation (Weiss & Petlichkoff, 1989). One of the advantages of conducting investigations with repeated observations is that researchers are able to examine individual change over time (Duncan, McAuley, Stoolmiller, & Duncan, 1993). Unfortunately, standard multivariate statistical methods often perform poorly in settings that incorporate correlated observations, non-normally distributed data, time-varying covariates, missing observations and other characteristics common in longitudinal data (Duncan et al., 1993). To deal with the limitations often encountered when using standard multivariate statistical methods with repeated measures data, more widely applicable approaches to parameter estimation or modeling are required (Ware, 1985). Liang and Zeger (1986) developed generalized estimating equations (GEE) which provides an approach for parameter estimation.

GEE is based on the generalized linear models (GLM) framework of McCullagh and Nelder (1989). Specifically, GEE extends GLM to handle correlated observations. Most of the techniques typically used for multivariate statistical analyses are special applications of the GLM framework (Tabachnick & Fidell, 1996). Furthermore, the GLM framework has already been established as a powerful and flexible analytic format (Duncan et al., 1993). Examples of methods included in GLM are multiple regression, ANOVA, ANCOVA, discriminant function analysis, logistic regression, canonical correlation, MANOVA, MANCOVA, profile analysis, and structural equation model. GLM produces consistent parameter estimates as long as several criteria are met, including that the model is correctly specified in terms of the

covariates included and their functional relation to the outcome, and the relation between the mean and variance of the residuals is correctly specified (Duncan et al., 1993).

Duncan et al. (1993) provided the following example for the relationship among classic linear regression, GLM and GEE:

> "For example, in classic linear regression, statistical inference proceeds under the assumption that the residuals are normally distributed with constant variance; but in GLM only the assumption that the variance of the residuals is constant and independent of the mean is necessary. GLM, however, assumes independent observations. If the level of correlation between observations is appreciable as it usually is for repeated measures, inferences drawn from statistical procedures that ignore the correlation can be quite misleading. Liang and Zeger (1986) have shown that GEE produces consistent estimates and robust test statistics even when the exact form of the correlation among observations is misspecified. Test statistics are most efficient, however, when the postulated correlation structure is close to the true structure."

Through this example it is possible to see how GEE has developed and the strength of using GEE in repeated measures analyses.

One of the primary reasons for using GEE in this study was because of the correlated observations that emerge through repeated measures over time. Through GEE, the GLM framework is extended to handle correlated observations (Duncan, McAuley, Stoolmiller, & Duncan, 1993). As stated in the procedure, gymnasts will

complete the questionnaires three times over the course of the gymnastics season. Thus, it is necessary to have a procedure that can handle correlated observations. By utilizing GEE, it is possible to account for the fact that there is dependence among the dependent variables.

Furthermore, GEE is useful for analyzing either discrete or continuous longitudinal data and can be used to analyze non-normal longitudinal data (Duncan, Duncan, Hopes, & Stoolmiller, 1995). In this particular study both discrete and continuous dependent variables were used. For example, whether or not gymnasts continue or discontinue participating in gymnastics is the discrete dependent variable and the intended participation as measured by the future participation question is the continuous dependent variable.

The fact that GEE can examine non-normal longitudinal data is a particular benefit for the current study because of the limitations in other statistical techniques in handling repeated measures and dichotomous outcomes. Furthermore, there is no constraint within GEE regarding number of variables or number of observations. Incomplete data can be analyzed and the examination of unequal time cells is possible. According to Zeger and Liang (1986), GEE's approach to modeling longitudinal data requires the following: (a) specification of the link formation - an expression relating the expected value of the dependent variable to a linear function of the covariates; (b) description of the outcome variance as a function of the outcome mean; and (c) designation of a "working correlation matrix" for the set of responses from each subject.

The analyses of the predicted relationships would be conducted by running each of the research questions through GEE. The iterative operations that would be performed by GEE on the predicted comparisons include:

1) Obtaining initial estimates for regression coefficients. These are unweighted least squares regression coefficients. These estimates assume independence of the data.

2) Given the current estimate of regression coefficients, the working correlation matrix for the dependent variables is estimated.

3) Given (1) and (2) the regression coefficients are updated taking into account the data are not independent. The coefficients are weighted based on correlations among the dependent variables. For example, in this study anxiety is measured three times over a 6 month period. The procedure would take these highly correlated data into account when calculating the regression coefficients.

4) Finally, a continuous iterative process (3) occurs until the solution converges and/or maximum iterations have been reached.

In conclusion, GEE is believed to be the most appropriate method to answer the research questions identified in this study. Specifically, by utilizing GEE analyses correlated observations which emerge in repeated measures analyses will be accounted for and the richness of repeated measures data will be appropriately analyzed. Through GEE analyses the researcher will be able to examine how and which variables are able to predict changes in the participation status of the gymnasts. The

interpretation of the findings would be based on which variables or combination of variables are better able to identify those gymnasts who continue or discontinue their gymnastics participation.

CHAPTER IV

Results

The results for this study are presented in three sections. In the first section, results from the preliminary analyses are presented. The preliminary analyses of the data included examining internal consistency of the measures, Multivariate Analysis of Variance to examine for differences in responses by state of residence, and factor analyses on the QCBAS. In the second section of this chapter the results from the Generalized Estimating Equations (GEE) analyses are presented. The GEE analyses examined the previously stated research questions. The final section will address the findings from the open-ended questions from the gymnasts who discontinued their participation.

Preliminary Analyses

Internal Consistency Analyses

For this population, the reliability of the inventories was examined. Internal consistency measures of reliability were computed for all the inventories and subscales except the QCBAS inventory by calculating Cronbach's (1951) alpha coefficients. The results are presented in the method section along with where the inventories are identified. The internal consistencies were not reported for the QCBAS in this section. A factor analysis was conducted on the QCBAS to first determine the underlying structure of the gymnasts' perceptions of their coaches' feedback. The internal consistencies for the factors are reported in the section reporting the findings of the factor analysis.

Multivariate Analysis of Variance

A preliminary multivariate analysis was conducted to examine if gymnasts' responses differed according to their state of residence. A one-way multivariate analysis of variance (MANOVA) was performed on 12 dependent variables: anxiety, coping, family support, sport support, the LSS subscales (democratic, social support, positive feedback, training and instruction) and the QCBAS factors which were identified in the factor analysis (see Factor Analysis section). The independent variable was state (Texas, Michigan). The multivariate analysis was not significant, Wilks, Lambda=.88, $F(11,119) = 1.47$, $p < .15$. Consequently, all subsequent analyses were combined for gymnasts from Texas and Michigan. See Appendix K for means and standard deviations.

Factor Analyses

According to Smoll, Smith, Curtis and Hunt (1978) and Amorose and Horn (in press), a principal axis factor analysis should be conducted on the QCBAS to determine the structure underlying gymnasts' perceptions of their coaches' feedback. Although the QCBAS contains items which represent eight different feedback categories, according to Smoll et al. (1978) and Amorose and Horn (in press) the items should not be merely totaled for each of the feedback categories. Rather, a factor analysis is done to extract the combination of these feedback categories to identify how athletes' perceive their coaches' feedback and to weight each item's contribution to the resulting construct. Thus, principal axis factor analyses were conducted on the scores obtained from the administration of the QCBAS for each data

collection time.

A principal axis factor analysis was conducted on the data from Time 1, Time 2, and Time 3. For each factor analysis, factor scores were calculated for use in the GEE analyses. The three different factor analyses were conducted due to the fact that we were primarily concerned with how changes over time in the gymnasts' perceptions of coaching behaviors contributes to gymnastics participation. Using the factor scores in the GEE, which is different than the scalar scores we typically use, allows for the different weighting of the items to be reflected by the factor loadings. We were not concerned with a single measure of coaching behaviors. The subsequent GEE analyses allowed us to examine these changes over time. Following the identification of the factor structure, internal consistency of the factors were assessed.

Three interpretable factors were extracted at Time 1, Time 2, and Time 3 accounting for 49.7%, 50.6%, and 54.5% of the total variance, respectively (see Table 3 for factor loadings and variance explained by each factor for Time 1). The criteria for extracting factors were a minimum eigenvalue of 1.0, and varimax rotation resulted in the identification of three conceptually distinct factors. The criteria for item inclusion on a particular factor were a minimum loading of .40 on that factor to label the factor. There were two uses of the data: (a) to label the factor to describe the items which load in a similar manner and (b) to compute factor scores for use in the subsequent GEE analyses. At Time 1 and Time 3 a couple of the items cross-loaded. Typically, items which cross load would be eliminated from the factor analyses and the data would be reanalyzed. However, for our purpose items which cross load were

Table 2

QCBAS Factor Analysis for Time 1: Factor Loadings and Variance Explained

Time 1 Factors and Items:	**Factor Loadings**		
	Positive and Informational Feedback	Punishment-Oriented Feedback	Non-Reinforcement/ Ignoring Mistakes
"Good pass."	**0.64**	0.01	-.08
"Way to go! You really extended your legs that time."	**0.72**	-.19	-.20
"Great routine! Now you're keeping your toes pointed."	**0.78**	-.17	-.04
"Excellent practice today."	**0.58**	-.08	-.05
"That's O.K., Keep working at it."	0.21	-.12	-.11
"Hang in there! You'll do better next time."	0.36	-.16	-.09
"That was a really stupid mistake."	-.10	**0.92**	0.11
"Your technique looks lousy! Keep your head up."	-.21	**0.49**	0.13
"That performance sucked."	-.26	**0.57**	.17
"No, that's not right, you need to work on a faster release"	-.08	0.21	0.09
"How many times have I told you to extend your legs?"	-.08	**0.53**	0.02
"You dropped your elbow. Next time keep it up."	-.31	-.09	-.07
"Coach ignores good performance"	**-.44**	.20	**0.50**
"Coach doesn't say anything about your performance."	**-.55**	.19	**0.52**
"Coach ignores your error or poor performance."	-.02	.01	**0.69**
"Coach doesn't say anything to you about your error or poor performance."	-.11	.12	**0.72**
Eigenvalue	4.81	2.01	1.12
Percent Variance	30.1	12.6	7.0
Reliability	0.82	0.88	0.73

retained because their factor loadings are primarily being used to compute factor scores and only generally used to label a factor. When examining the items which cross load, depending on how the athlete interprets the statement (for example, "coach doesn't say anything about your performance"), it makes intuitive sense that it could be interpreted as positive and informational feedback or non-reinforcement/ignoring mistakes feedback. These criteria and procedures are consistent with Amorose and Horn (in press). The total variance each factor accounted for and an explanation of how the factors were labeled is provided below.

For Time 1, factor 1 accounted for 30.1% of the total variance and was labeled Positive and Informational Feedback. Items that related to feedback coaches provide athletes following performance successes included statements such as "Way to go! You really extended your legs that time.", "Excellent practice today.", and "Good Pass!". Factor 2 accounted for 12.6% of the total variance and was labeled Punishment-Oriented Feedback. The items on this factor included the following statements "That was a really stupid mistake." and "Your technique looks lousy! Keep your head up." These items related to feedback coaches provide athletes following player performance errors. The final factor related to feedback which coaches provide following player performance successes and errors and accounted for 7.0% of the total variance. This factor was labeled Non-reinforcement/Ignoring Mistakes. Items that were included on this factor were statements such as "Coach ignores good performance." and "Coach doesn't say anything to you about your error or poor performance." The items that loaded highest were used to label the construct.

For Time 2, factor 1 accounted for 31.3% of the total variance, factor 2 accounted for 12.5% of the total variance and factor 3 accounted for 7.4% of the total variance. See Table 3 for factor loadings and variance explained by each factor for Time 2. For Time 3, factor 1 accounted for 31.4% of the total variance, factor 2 accounted for 15.2% of the total variance and factor 3 accounted for 7.7% of the total variance (see Table 4 for factor loadings and variance explained by each factor for Time 3). The factor structures from Time 1 to Time 2 to Time 3 included almost identical items. Items with factor loadings below .40 were included on the factors for Time 1, Time 2, and Time 3. This was done to provide consistency in reporting because factor scores were calculated which uses the factor loadings as weights for the item's contribution to the factor score. Due to the fact most of the items loaded consistently across time, the same labels were kept for each of the factors.

Internal consistency measures of reliability were computed for the QCBAS subscales by calculating Cronbach's (1951) alpha coefficients (see Table 5). The alpha coefficients for Time 1, Time 2, and Time 3 were .82, .80, and .90 for Positive and Informational Feedback, .88, .83, and .83 for Punishment-Oriented Feedback, and .73, .74, and .81 for Non-reinforcement/Ignoring Mistakes, respectively. All of the reliabilities met acceptable levels advocated by Nunnally (1978). All of the alpha coefficients changed slightly over time. These changes may be due to the decrease in the number of gymnasts during each time period. Consequently, there was a slightly different population on which the internal consistency analyses were conducted. As stated previously, these slight changes have been found acceptable by

Table 3
QCBAS Factor Analysis for Time 2: Factor Loadings and Variance Explained

Time 2 Factors and Items:	**Factor Loadings**		
	Positive and Informational Feedback	Punishment-Oriented Feedback	Non-Reinforcement/ Ignoring Mistakes
"Good pass."	0.36	-.03	**-.62**
"Way to go! You really extended your legs that time."	**0.74**	0.07	-.49
"Great routine! Now you're keeping your toes pointed."	**0.68**	0.03	-.31
"Excellent practice today."	**0.53**	-.19	-.37
"That's O.K., Keep working at it."	**0.71**	-.10	-.06
"Hang in there! You'll do better next time."	**0.65**	-.22	-.08
"That was a really stupid mistake."	-.19	**0.67**	0.23
"Your technique looks lousy! Keep your head up."	-.15	**0.76**	0.16
"That performance sucked."	-.31	**0.64**	0.29
"No, that's not right, you need to work on a faster release"	0.17	**0.53**	0.06
"How many times have I told you to extend your legs?"	-.13	**0.60**	0.03
"You dropped your elbow. Next time keep it up."	0.29	0.36	-.16
"Coach ignores good performance"	-.11	0.34	**0.71**
"Coach doesn't say anything about your performance."	-.33	0.37	**0.62**
"Coach ignores your error or poor performance."	-.18	.08	-.02
"Coach doesn't say anything to you about your error or poor performance."	-.08	-.02	0.25
Eigenvalue	5.02	1.99	1.19
Percent Variance	31.3	12.5	7.4
Reliability	0.80	0.83	0.74

Table 4
QCBAS Factor Analysis for Time 3: Factor Loadings and Variance Explained

Time 3 Factors and Items:	**Factor Loadings**		
	Positive and Informational Feedback	Punishment-Oriented Feedback	Non-Reinforcement/ Ignoring Mistakes
"Good pass."	**0.74**	-.15	-.24
"Way to go! You really extended your legs that time."	**0.85**	0.02	-.13
"Great routine! Now you're keeping your toes pointed."	**0.72**	0.06	-.09
"Excellent practice today."	**0.54**	-.07	-.17
"That's O.K., Keep working at it."	**0.75**	-.08	0.01
"Hang in there! You'll do better next time."	**0.69**	-.15	0.09
"That was a really stupid mistake."	-.22	**0.65**	0.26
"Your technique looks lousy! Keep your head up."	-.31	**0.74**	0.10
"That performance sucked."	-.31	**0.59**	0.31
"No, that's not right, you need to work on a faster release"	0.26	**0.55**	0.01
"How many times have I told you to extend your legs?"	-.08	**0.71**	0.10
"You dropped your elbow. Next time keep it up."	**0.40**	**0.49**	-.03
"Coach ignores good performance"	**-.46**	.33	**0.43**
"Coach doesn't say anything about your performance."	**-.41**	0.38	**0.52**
"Coach ignores your error or poor performance."	-.05	0.05	**0.83**
"Coach doesn't say anything to you about your error or poor performance."	-.01	0.16	**0.76**
Eigenvalue	4.81	2.01	1.12
Percent Variance	31.4	15.2	7.7
Reliability	0.89	0.83	0.81

Table 5

Internal Consistency Analyses for QCBAS: Cronbach's Alpha Coefficients

	Cronbach's Alpha Coefficients		
	Time 1	Time 2	Time 3
Positive and Informational Feedback	.82	.80	.90
Punishment-Oriented Feedback	.88	.83	.83
Non-Reinforcement/Ignoring Mistakes	.73	.74	.81

researchers (Bohrnstedt, 1970; Carmines & Zeller, 1989).

Finally, the factor pattern weights obtained from the factor analyses were used to calculate three factor scores for each time period for each gymnast in the study. These factor scores were then used as a measure of the gymnast's perceptions concerning their coaches' feedback style in the subsequent analyses.

Generalized Estimating Equations

In this section the results of the Generalized Estimating Equations (GEE) analyses are presented. To build on the treatment of the data section presented in Chapter 3, an overview of the procedure for running the GEE analyses is provided. This will be followed by the format in which the GEE results are presented. In addition, the research questions for this study are re-stated. Finally, the GEE analysis results for each of the research questions are presented.

GEE Procedure. The procedure for conducting GEE analyses is described below. First, the correlations of the independent variables are computed. These correlations collapsed across time represent interindividual associations of the measures. Then the correlation among the dependent variables collapsed over time is calculated. This correlation is used in calculating and updating the beta weights between the independent or predictor variables and the dependent measures.

Then, the initial multivariate model, which is based on the variables identified in the research questions, is specified. The initial multivariate model includes all possible interactions and main effects of the variables identified in the model. The model is estimated and the significance of the model is examined. If the entire model is not significant, then a backwards elimination procedure is employed. The backwards elimination is used to eliminate the least significant interaction term and the model is then re-estimated. A full factorial GEE analysis with a backwards elimination procedure is necessary for examining both main and interaction effects of the variables which influence gymnasts' actual participation or intended participation.

For example, in research question number one, the model incorporates four independent variables. The model is estimated and if the 4-way interaction is not significant, backwards elimination is employed and the 4-way interaction is eliminated. Then, the model is re-estimated with all the 3-way interactions, 2-way interactions and main effects and the 3-way interactions are examined for significance. If all the 3-way interactions are not significant, then the least significant 3-way interaction is eliminated and model is re-estimated. If a significant interaction emerges then that

significant interaction is kept but the backwards elimination procedure continues for the 2-way interactions and main effects not involved in the 3-way interactions.

The backwards elimination procedure is continued until only the significant interactions (if there are any) are kept in the model and any lower order interactions and/or main effects which are not significant and do not contribute to the higher order interaction are removed from the model. If there are not any significant interactions, then the backwards elimination procedure is conducted for the main effects where the least significant main effect is removed until only significant main effects remain in the model. The estimated regression coefficients and associated z-statistics for the final model are reported.

Finally, if there are significant interactions, the simple effects are computed for the significant interactions. To determine the nature of the interaction effects, using the final model that produces a regression equation, simple effects are calculated using standard techniques (Aiken & West, 1991). The procedure explained by Aiken and West (1991) serves as the basis for the interpretation of the interaction. Calculating the simple effects makes it possible to interpret the significant interactions.

Research Questions. Two research questions were previously identified for this study. Based on these research questions, which are once again provided below, several models were tested using GEE analyses.

1. What is the relationship among anxiety, ways of coping, support from within sport and support from family/friends for female gymnasts who continue and discontinue their sport participation?

2. What is the relationship among perceived coaching behaviors for female gymnasts who continue and discontinue their sport participation?

GEE Results Format. The results of the GEE analyses will be presented in the following format. First, the correlation matrix for the variables in the model collapsed across time will be reported. Second, the correlations among the dependent variables will be reported. The correlation among the dependent variables is reported because the regression weights, which will be reported next, are based on the correlations among the dependent variables. Third, the results from the backwards elimination and the subsequent specified model will be reported. The results from the specified model are composed of the predictors for the dependent variable. Finally, the simple effects will be reported which allow the significant interactions to be examined. The results for the research questions are provided in the following paragraphs.

GEE Analyses Results

In this section the results from the GEE analyses for each of the research questions are provided. Each research question is identified for the section where the results are presented. The results are reported in the following order. First, the effect of anxiety, the coping with adversity subscale from the SAS, sport support and family support subscales from the social support inventory on gymnastics participation are reported. Then, the results from the effect of perceived coaching behaviors, from the QCBAS subscales and LSS subscales, on gymnastics participation is provided. The means and standard deviations for each inventory are provided in Appendix J.

The Effect of Anxiety, Coping with Adversity, Sport Support and Family Support on Gymnastics Participation. Gymnasts were monitored during the study and for the 3 months following the completion of the questionnaire phase of the study to see if any gymnasts discontinued participating in gymnastics. The dichotomous dependent variable was the gymnasts who actually continued or discontinued their gymnastics participation. The main effects for the analyses were anxiety, coping with adversity, sport support, and family support. The original specified model was the interaction between anxiety, coping with adversity, sport support, and family support. The correlations between anxiety, coping with adversity, sport support and family support collapsed across the three time periods for all of the participants, are presented in Table 6. The correlation among the dependent variables (continued, discontinued participation) collapsed over time was $r = .96$.

GEE analysis was first used to estimate the following model: the interaction between anxiety, coping with adversity, sport support, and family support on continued gymnastics participation. The backwards elimination procedure was employed because the original model was not significant. Following backwards elimination, the final model which emerged included the two-way interaction between anxiety and coping with adversity, and the main effect for family support (see Table 7). The significant main effect for family support had a negative direction. Specifically, higher family support is associated with continuing in gymnastics and low family support is associated with discontinuing in gymnastics.

Table 6

Correlations Among Anxiety, Coping with Adversity, Sport Support and Family Support Collapsed Across the Three Time Periods

	Anxiety	Coping	Sport Support	Family Support
Anxiety	1.00			
Coping	-.51	1.00		
Sport Support	-.20	0.30	1.00	
Family Support	-.07	0.08	-.45	1.00

Table 7

Estimated Regression Coefficients and z-Statistics for the Final Models Following Backwards Elimination of Nonsignificant Effects

	B	z
intercept	-1.562	-6.825
Anxiety	.002	.137
Coping	-.005	-.470
Family Support	-.042	-2.357*
Anxiety x Coping	-.017	-2.314*

* Note. z-values of 1.96 or greater are significant at $p < .05$.

The results for the simple effects are presented in Table 8. The results from the simple effects revealed that there was a significant effect of anxiety on leaving gymnastics for those with low coping with adversity. The direction of the results is positive. Thus, these results suggest that for those with low coping with adversity and higher anxiety are more likely to discontinue participating in gymnastics. In contrast, for those with low coping with adversity and lower anxiety, the more likely they are to continue to participate in gymnastics. Furthermore, for those with moderate coping with adversity and high coping with adversity the effect does not emerge. Thus, moderate and high coping skills may serve as protective mechanisms and allow gymnasts with higher anxiety to continue participating in gymnastics.

Table 8

Simple Effects in Coping with Adversity by Sport Support for Effects of Anxiety on Continued Gymnastics Participation Collapsed Across Time

	B	z
Effect of Anxiety on:		
Low Coping	.054	2.017*
Moderate Coping	.002	.137
High Coping	-.050	-1.795

Note. * $z \geq 1.96$, $p < .05$.

One limitation of these findings is that when analyzing the simple effects for the interactions, the significant results did not emerge until plus or minus three standard deviations were utilized. Thus, the significant simple effects are not very representative of this group of gymnasts.

The Effect Perceived Coaching Behaviors on Gymnastics Participation. The effect of perceived coaching behaviors on gymnastics participation was examined. This was the second research question. Specifically, perceived coaching behaviors were assessed using the subscales for the QCBAS and the LSS. Separate analyses were conducted on the QCBAS subscales on the gymnastics participation and the LSS subscales on gymnastics participation. The results of the GEE analyses with the QCBAS subscales are presented first and then the results of the GEE analyses with the LSS subscales are presented second.

QCBAS Subscales. The QCBAS subscales were calculated through the principle axis factor analyses reported earlier in the results. The three QCBAS subscales that emerged following the factor analyses were (1) positive and informational feedback, (2) punishment-oriented feedback, and (3) non-reinforcement/ignoring mistakes. The three subscales served as the independent variables. Gymnasts were monitored during the study and for the 3 months following the completion of the questionnaire phase of the study to see if any gymnasts discontinued participating in gymnastics. The dichotomous dependent variable was the gymnasts who actually continued or discontinued their gymnastics participation. The original model that was specified was the 3-way interaction between positive and informational feedback, punishment-oriented feedback, and non-reinforcement/ignoring mistakes. The correlations between positive and informational feedback, punishment-oriented feedback, and non-reinforcement/ignoring mistakes feedback collapsed across the three time periods for all of the participants, are presented in Table 9. The

correlation among the dependent variables (continued,discontinued participation) collapsed over time was r = .96.

Table 9

Correlations Among Positive and Informational Feedback, Punishment-Oriented Feedback, and Non-Reinforcement/Ignoring Mistakes Collapsed Across the Three Time Periods

	Positive and Informational Feedback	Punishment-Oriented Feedback	Non-reinforcement/ Ignoring Mistakes
Positive and Informational Feedback	1.00		
Punishment-Oriented Feedback	-.18	1.00	
Non-Reinforcement/ Ignoring Mistakes	-.42	-.11	1.00

GEE analysis was used to estimate the following model: the interaction between positive and informational feedback, punishment-oriented feedback, and non-reinforcement/ignoring mistakes feedback on continued gymnastics participation. The results of the first model estimation revealed that the three-way interaction was not significant. Thus, the backwards elimination technique was employed. The two-way interaction between punishment-oriented feedback and non-reinforcement/ignoring

mistakes feedback was significant. The results from the specified model are presented in Table 10.

Table 10

Estimated Regression Coefficients and z-Statistics for the Final Models Following Backwards Elimination of Nonsignificant Effects

	B	z
intercept	-1.550	-6.751
Punishment-Oriented Feedback	0.002	0.272
Non-Reinforcement/Ignoring Mistakes	0.000	-.071
Punishment-Oriented Feedback x Non-Reinforcement/ Ignoring Mistakes	-.011	-2.774*

* Note. z-values of 2.58 or greater are significant at $p < .01$.

The results for the simple effects are presented in Table 11. The results from the simple effects revealed several things including that there was a significant effect of punishment-oriented feedback on continued gymnastics participation for those gymnasts with perceptions of coaches providing low non-reinforcement/ignoring mistakes feedback. The direction of the effect is positive thus gymnasts who perceive their coaches to provide low amounts of non-reinforcement/ignoring mistakes feedback and who perceive their coaches to provide high amounts of punishment oriented feedback, will be more likely to discontinue their gymnastics participation. In

contrast, if these same gymnasts perceive their coaches to be low in providing punishment-oriented feedback, they will be more likely to continue their gymnastics participation.

Table 11

Simple Effects of Non-Reinforcement/Ignoring Mistakes for Effects of Punishment-Oriented Feedback on Gymnastics Participation

	B	z
Effects of Punishment-Oriented Feedback on:		
Low Non-Reinforcement/Ignoring Mistakes	0.024	2.354*
Moderate Non-Reinforcement/Ignoring Mistakes	0.002	0.272
High Non-Reinforcement/Ignoring Mistakes	-.020	-1.641

Note. * $z \geq 1.96$, $p < .05$.

A limitation with these findings is that when analyzing the simple effects for the interactions, the significant results did not emerge until plus or minus two standard deviations were utilized. Thus, the significant simple effects are not very representative of this group of gymnasts.

LSS Subscales. The LSS assesses athlete's perceptions of their coaches' behaviors and contains 40 items that represent five subscales. Only the following four LSS subscales were used in the GEE analyses: (a) democratic coach's decision making style, (b) positive feedback a coach provides, (c) social support a coach provides, and

(d) coach's training and instructional behavior. The fifth subscale, an autocratic coach's decision making style, was eliminated due to low reliabilities (see internal consistencies section). The four subscales served as the independent variables. Gymnasts were monitored during the study and for the 3 months following the completion of the questionnaire phase of the study to see if any gymnasts discontinued participating in gymnastics. The dichotomous dependent variable was the gymnasts who actually continued or discontinued their gymnastics participation. The main effects for the analyses were a democratic coach's decision making style (democratic), the positive feedback a coach provides (positive feedback), the social support a coach provides (social support), and a coach's training and instructional behavior (training and instruction). The original model that was specified was the 4-way interaction between democratic, positive feedback, social support, and training and instruction. In this section the results of the GEE analysis will be presented. The correlations between democratic, positive feedback, social support, and training and instruction collapsed across the three time periods for all of the participants, are presented in Table 12. The correlation among the dependent variables (continued,discontinued participation) collapsed over time was r = .96.

GEE analysis was used to estimate the following model: the interaction between democratic, positive feedback, social support, and training and instruction on gymnastics participation. The results of the first model estimation did not reveal a significant four-way interaction. Thus, the backwards elimination technique was employed. During the backwards elimination, none of the three-way or two-way

interactions emerged as significant.

Table 12

Correlations Among Democratic, Positive Feedback, Social Support and Training and Instruction Collapsed Across the Three Time Periods

	Democratic	Positive Feedback	Social Support	Training and Instruction
Democratic	1.00			
Positive Feedback	.03	1.00		
Social Support	.06	.03	1.00	
Training and Instruction	-.55	-.25	-.33	1.00

Finally, backwards elimination was employed on the main effects. None of the main effects emerged as significant. Thus, no model was specified for the LSS subscales of democratic, positive feedback, social support and training and instruction on the gymnasts who actually continued or discontinued their gymnastics participation. No further analyses were conducted because no final model emerged. These results suggest that we are not able to predict gymnasts' participation from these particular coaching behaviors.

In conclusion, the results for this study revealed several findings. When gymnasts' decision to continue or discontinue participating in gymnasts was examined,

several variables were identified which predicted that behavior. For example, the interaction between anxiety and coping with adversity as well as support from family and friends influenced gymnasts participation decisions. In addition, the interaction of two perceived coaching behaviors (punishment-oriented feedback and non-reinforcement/ignoring mistakes) influenced gymnasts decisions to continue or discontinue gymnastics participation.

Gymnasts Who Discontinued Participation

The 23 gymnasts who discontinued their gymnastics participation were between the ages of 10 and 13 (M=11.7, SD = 1.19). The former gymnasts had been with their current coach an average of 3.65 years (SD= 2.55). Eighty-seven percent of the dropouts were Anglo-American and their years of gymnastics participation ranged from two to ten years (M=5.44, SD = 2.15). The gymnasts who discontinued their gymnastics participation were contacted to answer a series of questions regarding their decision to leave gymnastics. Of the 23 gymnasts who discontinued their gymnastics participation, 19 answered the questionnaires. The former gymnasts were asked how long it took them to decide to leave gymnastics. Their answers reflected that for most of the gymnasts deciding to leave gymnastics was a process that extended over a period of time. Specifically, six of the gymnasts took more than 6 months to decide, five of the gymnasts took 3-4 months to decide, five of the gymnasts took 1-2 months to decide and two gymnasts decided in 1-2 weeks. Finally, one gymnast had no choice as the decision to leave gymnastics was made for her due to finances. She was told that she must leave gymnastics because the family could no longer afford for her

to attend. These results indicate that for most gymnasts, the thought process of leaving gymnastics is a long one and begins either at the end of the previous competitive season or around the beginning of the gymnastics season in which they ultimately leave gymnastics.

The former gymnasts responded to five open-ended questions. A transcription of the former gymnasts' responses are presented in Appendix K. The former gymnasts were asked what they like most about being in gymnastics. The rank order and frequency percentages of what the former gymnasts liked most about being in gymnastics are presented in Table 13. The five most popular areas identified by the

Table 13
What Former Gymnasts Liked the Most About Gymnastics: Rank Order and Frequency Percentages

Rank Order	Frequency Percentages
1) Learning New Skills	53%
2) Teammates/Friends	32%
3) Coaches	21%
3) Competing	21%
5) Traveling to Competitions	16%
6) Challenge	11%
7) Being in Top Physical Condition	5%
7) Performing Something I'm Good At	5%
7) Winning	5%
7) Having fun	5%
7) Support from Family	5%

former gymnasts included: (a) Learning New Skills, (b) Teammates/Friends, (c) Coaches and Competing, (tie), and (e) Traveling to Competitions. More than half of the gymnasts identified Learning New Skills as something they liked the most about gymnastics. Thus, the former gymnasts appear to have valued the learning component in their sport.

The second question asked the gymnasts what they liked least about being in gymnastics. The former gymnasts identified several things including: (a) Time Demands, (b) Coaches, (c) Fear of Event/Injury and Pressure on Self, (tie), (e) Teammates and Practicing when Tired (tie). The rank order and frequency percentages are presented in Table 14. Time demands of gymnastics emerged as something the former gymnasts liked the least about gymnastics.

Table 14

What Former Gymnasts Liked the Least About Gymnastics: Rank Order and Frequency Percentages

Rank Order	Frequency Percentages
1) Time Demands	53%
2) Coaches	26%
3) Fear of Event/Injury	16%
3) Pressure on Self	16%
5) Teammates	11%
5) Practicing when Tired	11%
7) People with Bad Attitudes	5%

Gymnasts who discontinued their participation then responded to the question asking why they left gymnastics. The majority of former gymnasts indicated the time demands placed on them was at least one of the reasons they left gymnastics (see Table 15). This is consistent with what the former gymnasts liked least about gymnastics. It appears that what these gymnasts liked the most about gymnastics was unable to override the time constraints involved with participating in their sport. In addition, the second most popular reason given for leaving gymnastics was that they were tired of gymnastics. Considering the average number of years the former gymnasts had participated in gymnastics was slightly over 5 years and considering the average age of the former gymnasts was approximately 11.5 years of age, it seems logical that they could have grown tired of gymnastics by then. The other most cited responses were the Coaches, Injury, and Family Could Not Afford It.

Table 15
Why Former Gymnasts Discontinued Participation: Rank Order and Frequency Percentages

Rank Order	Frequency Percentages
1) Time Demands	53%
2) Tired of Gymnastics	26%
3) Coaches	21%
4) Injury	16%
5) Family Could Not Afford It	11%
6) Too Stressful	5%
7) Summer Vacation	5%

The former gymnasts were also asked what the best and the hardest parts were about leaving gymnastics. The former gymnasts identified three things they liked best about their decision to leave gymnastics. The most popular responses were (a) Free Time to Pursue Other Activities, (b) Reduced Stress, and (c) Time for Homework. The rank order and frequency percentages are presented in Table 16. It is interesting that all of the gymnasts identified only three things that they liked best about leaving gymnastics because these same gymnasts had identified several reasons for leaving gymnastics.

Table 16

What was the Best Part for Former Gymnasts About Leaving Gymnastics: Rank Order and Frequency Percentages

Rank Order	Frequency Percentages
1) Free Time to Pursue Other Activities	74%
2) Reduced Stress	32%
3) Time for Homework	21%

In contrast, the four most popular responses by former gymnasts on the hardest part about leaving gymnastics were (a) Leaving Teammates, (b) Leaving Coaches, (c) Losing Ability to do Skills, and (d) Missing Gymnastics and the Great Times (see Table 17).

Finally, the gymnasts were asked whether they had joined any activities since leaving gymnastics. Eight of the former gymnasts indicated that they had not joined

Table 17
What was the Hardest Part for Former Gymnasts About Leaving Gymnastics: Rank Order and Frequency Percentages

Rank Order	Frequency Percentages
1) Leaving Teammates	42%
2) Leaving Coaches	37%
3) Losing Ability to do Skills	26%
4) Missing Gymnastics and the Great Times	21%
5) Telling Coaches	5%
6) Giving Up Years of Hard Work	5%

any other activities since leaving gymnastics. Seven of those eight said they alreadywere in other activities before leaving gymnastics and planned to continue those activities. Furthermore, eleven of the former gymnasts indicated they joined other activities since leaving gymnastics but in examining their answers it appears they already were involved in most of these activities. The activities they are involved in are predominantly school activities such as sports and clubs. Thus, the gymnasts are not discontinuing their activities, rather they appear to be switching to other activities or focusing on activities to which they were previously committed.

In conclusion, the age of the dropouts (Range=10-13; M=11.7, SD= 1.19) and current gymnasts was almost the same (Range= 9-14; M=11.61, SD=1.40). In addition, the dropouts (M=3.65, SD=2.55) had been coached by their current coach for almost the same period of time as the current gymnasts (M=3.66, SD=1.95). The former gymnasts indicated the decision to leave gymnastics generally took place over

several months. Thus, it was not a quick decision that was made. Few gymnasts were forced to leave the sport. The dropouts indicated learning new skills was what they liked the best about being in gymnastics and the time required to participate in the sport was what they liked the least about gymnastics. The time demands of participating in gymnastics was also the most frequently identified reason for leaving gymnastics. Finally, the former gymnasts identified that leaving their teammates and coaches was the hardest part about leaving gymnastics while the best part about leaving gymnastics was having the free time to pursue other activities. Thus, the time demands of the sport of gymnastics played an integral part in gymnasts decisions to leave their sport.

In conclusion, the results for this study revealed several findings. When gymnasts actual decision to continue or discontinue participating in gymnastics was examined, several variables were identified which predicted that behavior. For example, the interaction between anxiety and coping with adversity as well as support from family and friends influenced gymnasts participation decisions. In addition, the interaction of two perceived coaching behaviors (punishment-oriented feedback and non-reinforcement/ignoring mistakes) influenced gymnasts decisions to continue or discontinue gymnastics participation.

CHAPTER V

Discussion

The purpose of this study was to examine how psychological variables, social variables, and environmental variables interact to affect youth sport participation decisions. Specifically, this study examined whether female gymnasts who leave gymnastics differ in their perceptions of coaching behaviors, perceptions of social support, level of anxiety and ways of coping from gymnasts who continue their sport participation. The discussion is presented in the following manner. First, the research questions and results are discussed in light of theoretical implications. Then, practical implications are offered. And finally, future research directions and conclusions are presented.

Theoretical Implications

For this study, two research questions were identified. The first research question addressed the relationship between anxiety, coping with adversity, support from within sport and support from family/friends among female gymnasts who continue and discontinue their sport participation. The second research question concerned the relationship between perceived coaching behaviors in female gymnasts who continue and discontinue their sport participation. Several interesting findings related to gymnastics participation emerged from these research questions. The research questions are discussed in light of theoretical implications. In addition, a section is included to examine psychological and sport resilience relative to the

findings from this study.

Gould and Petlichkoff's (1988) integrated motivational model of youth sport participation and withdrawal was used as the conceptual framework for this study. This model explains youth sport participation and withdrawal as processes that are influenced by a common set of factors (Gould & Petlichkoff, 1988). Incorporated into Gould and Petlichkoff's (1988) model are Harter's (1978, 1981) competence motivation theory, Maehr and Nicholls' (1980) achievement goal orientation theory and Smith's (1986) cognitive affective model of stress which serve as the underlying theoretical motives for participation and withdrawal.

Based on these underlying theories, the following constructs are included in Gould and Petlichkoff's (1988) model: anxiety, coping, social support, and coaching behaviors. What is not addressed in the model is how the variables of anxiety, coping and social support interact to influence withdrawal from sport or how specific coaching behaviors interact to influence withdrawal from sport. Furthermore, prior to this study the interaction between anxiety, coping and social support had not been examined relative to sport participation.

The results from the present study provide insight into how anxiety, coping and social support interact as well as how specific coaching behaviors interact to influence decisions to participate in and withdraw from gymnastics. The findings were that anxiety and coping interact to influence gymnasts' actual participation. More specifically, gymnasts who cannot cope effectively with adversity or difficult situations, which can easily arise in sport in general and in this case in gymnastics,

and the higher these gymnasts' anxiety, the more likely they will discontinue participating in gymnastics. Thus, a relationship emerged between gymnasts' abilities to cope, their level of anxiety and their decision to participate in gymnastics.

Furthermore, these results are consistent with what has been found in research in psychology where an individual's coping ability relates to resilience in stressful situations (Garmezy, 1983; Rutter, 1983). That is, if a gymnast can cope effectively with the stressful situations in their sport environment, they will be more likely to continue participating in gymnastics. It may be beneficial for the sport participation research to futher examine the psychology literature to gain greater insight into the process of sport participation.

In addition, these findings identify the need for gymnasts to develop adequate coping skills or strategies to deal with the stressful situations they may encounter in gymnastics which would allow them to continue their sports participation. The coping research in sport has primarily focused on athlete burnout (Gould, Tuffey, Udry, & Loehr, 1996a, 1996b, 1997; McCann, 1995) and athletes' coping with injuries (Smith, Smoll, & Ptacek, 1990). In addition, many youth athletes have not fully developed their coping skills (Shaie, 1977-78) and sport can be a stressful environment (Brustad, 1988), thus, the current findings provide a greater understanding of the role of coping with adversity in gymnasts' participation decisions.

An example of how the findings from this study relate to gymnastics is provided. Kim is a gymnast who, under her coaches' orders, has been working to learn several difficult skills. Kim has been having difficulty learning the new skills

and her coach has become frustrated with her. Kim has become increasingly more nervous before practice because she knows she needs to perform the skills and she does not want to disappoint her coach. As a result of this, Kim is feeling a great deal of pressure but does not know how to deal with the pressure. According to the current findings, if Kim does not know how to deal with the situation she is in (low coping skills) and she is very stressed about learning the new skills and dealing with her coach (high anxiety) then Kim will be more likely to discontinue participating in gymnastics if the situation does not change. In contrast, a gymnast who encounters the same situation of needing to learn several new skills and is having difficulty learning the new skills but is able to cope effectively with the pressure she is feeling, this gymnast will be more likely to continue participating in gymnastics.

Specifically, the results from the current study expand our knowledge of which psychological variables (i.e., anxiety and coping) influence gymnastics participation as well as how anxiety and coping interact to influence gymnastics participation. That is, if gymnasts have low abilities to cope with adversity, and experience higher anxiety, the more likely they are to leave gymnastics. Furthermore, when we consider the reasons the gymnasts identified for discontinuing their gymnastics participation in the follow-up questionnaires, we recognize only part of the story is being told regarding youth athletes' participation decisions. We now know that in the months prior to leaving gymnastics, anxiety and coping are interacting and are related to the decision to leave gymnastics. However, a better understanding of the psychological variables that influence youth sport participation is necessary.

The analyses also identified that support from family and friends played a role in decisions to continue participating in gymnastics while support from individuals from within the sport domain such as coaches or teammates were not related to actual participation decisions. This particular finding does not support the work of Walter (1996) who found that gymnasts who continued their gymnastics participation utilized more support from within gymnastics (i.e., support from coaches, teammates) than gymnasts who discontinued their participation. Walter (1996) also found that gymnasts who discontinued participating in gymnastics utilized more and more family support as they got closer to leaving gymnastics. For the group of gymnasts who participated in this study, support from family and friends played a significantly more prominent role in gymnastics participation than did support from within gymnastics.

These conflicting results between past research and the present study suggest the need to further examine whether differences exist between where athletes obtain support (i.e., support from within sport and support from outside of sport) and whether that relates to sport participation decisions. These differences may have occurred because the majority of the gymnasts in the current study were not involved in as intense a gymnastics program as were the gymnasts in the study by Walter (1996). The gymnasts who are involved in highly competitive gymnastics programs, such as in the present study, may see their family and friends outside of gymnastics as integral parts of their gymnastics participation. In contrast, gymnasts who participate in extremely demanding gymnastics programs, such as in the Walter (1996) study, may perceive individuals outside of their sport domain as being distracting and not sources

of support.

Although research on support from family and friends generally has not been tied back to participation, the results are consistent with and build on research that has examined parental support in sport in general. Specifically, previous research has found that athletes who perceived their parents to be supportive reported more enjoyment while participating in their sport (Ommundsen & Vaglum, 1991; Scanlan & Lewthwaite, 1988). VanYperen (1995) reported that parental support provided a buffering effect for when problems emerged such as coaches' criticism of an athlete's performance or problems with teammates. Thus, parental support appears to play a role in youth athletes' sport experiences and ultimately sport participation decisions.

In addition, these findings provide further insight into the work of Burton and Martens (1986) who were unable to clearly delineate the role of significant others in the decision to drop out of wrestling. The current results indicate that while support from family and friends may not directly contribute to the decision to drop out of gymnastics, the support family and friends provide plays a role in allowing gymnasts to continue their sport participation.

Limited research has been conducted on the relationship between athletes' perceived coaching behaviors and sport participation decisions (e.g., Barnett, Smoll & Smith, 1992). Rather, the coaching behavior research has focused on the relationship between perceived coaching behaviors and three major areas including: (a) perceptions of ability and motivation (Black & Weiss, 1992), (b) coaching effectiveness training and youth sport attrition (e.g., Barnett, Smoll, & Smith, 1992; Smoll, Smith, Barnett,

& Everett, 1993), and (c) perceived coaching behaviors and team cohesion/play satisfaction (e.g., Gardner, Sheilds, Bredemeier, & Bostrom, 1996; Horne & Carron, 1985; Weiss & Friedrichs, 1986). Based on the results from the current study we now know that when gymnasts perceive coaches to provide specific coaching behaviors (i.e., punishment-oriented feedback and non-reinforcement and ignoring mistakes) that they do interact to influence participation decisions.

Relating the work of Barnett, Smoll, and Smith (1992) to the present study is particularly relevant because they found that athletes who played for coaches who were trained to be more encouraging in their interactions with their Little League baseball players had a significantly lower attrition rate from baseball the following season. If coaches can be trained to provide less punishment-oriented feedback and to ignore performance errors when they cannot provide positive and informational feedback, then, in the case of the current study, the gymnasts may perceive their coaches to be more encouraging and would not leave gymnastics.

Furthermore, Weiss and Petlichkoff (1989) specifically identified the importance of understanding coaching styles and how they relate to sport participation as one of the missing links in sport participation research. The results from this study have, for the first time, examined the social structure of gymnastics by examining the relationship between perceived coaching behaviors and how they interact to influence gymnastics participation. Specifically, when athletes perceive the coach ignores performance errors while providing high amounts of negative feedback, these athletes will be more likely to discontinue participating in gymnastics. The results from this

study have not only provided greater insight on the types of coaching behaviors which play a role in youth sport participation decisions but insight has also been gained on how specific coaching behaviors interact to influence youth sport participation.

For example, if gymnasts perceive their coach to seldom ignore mistakes they make and the gymnasts perceive the coach to provide a great deal of feedback that contains punishment, then these gymnasts may feel they never get a break from their coach. Thus, gymnasts perceive their coach never misses a mistake they make and is always yelling at them, even if the feedback they are getting contains a great deal of information for how to improve. As a result of feeling like they are being continually watched and criticized, these gymnasts will be more likely to discontinue participating in gymnastics.

Gymnasts processed the type of feedback provided to them and made participation decisions based on how they interpret the information from their coaches. Having open communication channels between coaches and their gymnasts would provide opportunities to discuss any miscommunication and thus the athlete would avoid beginning the process of leaving gymnastics. We know from the gymnasts who left gymnastics that their decision to leave generally took place over a period of several months. If coaches' behaviors do not become an issue to the gymnast then the gymnast does not begin to think about leaving. While coaching behaviors may be factors in gymnasts' participation decisions, it is necessary to also consider that other factors such as athletes' coping ability and sources of support which may limit the influence of certain coaching behaviors on gymnasts' participation decisions. Further

research is necessary to explore these relationships.

These findings also make intuitive sense. Gymnasts may perceive the coach will not ignore some mistakes they make and provides feedback that includes mostly negative language rather than instruction. These gymnasts may feel that they are never good enough because they do not get the moves correctly, never get a break from the coach, and, consequently, decide to leave gymnastics. In contrast, if gymnasts perceive the coach does ignore mistakes at least some of the time then the amount of punishment-oriented feedback does not affect decisions to participate. While the gymnasts want to learn the skills, the learning environment the coach has created with the type of feedback provided does not allow some of the gymnasts to continue participating.

For example, Horn (1985) examined the relationship between coaching behaviors and junior high female athletes' perceived competence over the course of the season. She found that perceived competence increased with criticism-type feedback from their coaches. Horn (1985) explained these findings by stating athletes identified the importance of appropriate and performance-contingent feedback. Thus, if the junior high athletes received praise but it was not appropriate to the effort or ability demonstrated, then the athletes interpreted this as they were so bad the coach could not find anything to say to help them improve their performance.

It is possible to relate Horn's (1985) work to the findings from the current study. That is, gymnasts may perceive that, coaches' feedback was not appropriate and contingent on their performance. If gymnasts perceive this to happen repeatedly over

the course of the year, then the gymnasts may feel they have little control over changing the coaches' behaviors, the environment in the gym, or their ability to learn the skills necessary to be successful. Thus, the gymnasts may have felt that their only recourse was to leave gymnastics.

Finally, the results of the open-ended questions the former gymnasts completed are discussed. The reasons the former gymnasts gave for withdrawing from gymnastics are consistent with previous research (e.g., Gill, Gross, & Huddleston, 1985; Gould, Feltz, & Weiss, 1985; Longhurst & Spink, 1987). Specifically, the results of the present study revealed that time demands of the sport were the most frequently cited reason for leaving gymnastics. Other frequently cited reasons for leaving gymnastics were the coaches, fear of the events or injury, and pressure on themselves. The results from the present study were consistent with findings of why gymnasts (Klint & Weiss, 1986) and swimmers (McPhereson, Martenick, Tihanyi, & Clark's, 1980) discontinued their sport participation.

The results also revealed similarities between the things gymnasts liked most about participating in gymnastics and the findings of past research regarding the reasons for sport participation identified by athletes. For example, numerous studies found that athletes participated in sport to learn new skills/improving skills (Gill, Gross & Huddleston, 1985; Gould, Feltz & Weiss, 1985; Longhurst & Spink, 1987; Sapp & Haubenstricker, 1978). These findings are consistent with the results from this study. What the gymnasts liked the most about being in gymnastics was learning new skills. For the gymnasts in this study, additional frequently cited things they

liked the most about being in gymnastics were their teammates/friends in gymnastics, the coaches and competing. In general, these results support the previous research on reasons for sport participation (Gill et al., 1985; Gould et al., 1985; Longhurst & Spink, 1987). The findings differ in that their teammates/friends in a sport have not been identified as motives for participating.

Weiss and Petlichkoff (1989) examined the sport participation literature which has shown that children's attrition from a sport is often temporary (Gould, Feltz, Horn & Weiss, 1982; Klint & Weiss, 1986; White & Coakley, 1986). The research has shown that children participate in a phenomenon of "dropping in and dropping out" of sport (Weiss & Petlichkoff, 1989). That is, when youth sport athletes discontinue participating in a sport, they often do not leave sport altogether. Rather, the individuals either choose to participate in other sports or to participate in the same sport at a lower intensity. The findings from the open-ended questions in this study supported the earlier research that when a child leaves gymnastics, they are not permanently disengaging from sport or other activities. Rather, they have chosen to discontinue participating in gymnastics and would rather spend their time in other activities. For the gymnasts in this study 95% of the gymnasts who left gymnastics indicated they were either previously involved in other activities and would continue those activities or had joined other activities since leaving gymnastics.

It has been suggested that identifying the reasons for withdrawal alone does not provide an adequate picture of the process children may go through before they leave their sport (Gould, 1987; Gould & Petlichkoff, 1988; Petlichkoff, 1993; Weiss &

Petlichkoff, 1989). The results from this study began to identify the process gymnasts may go through before they withdraw from gymnastics. We know that anxiety and coping are interacting in the months prior to actual withdrawal to influence participation decisions. Thus, while the reasons for withdrawal are similar to findings from previous research, the findings from this study provide insight to the psychological variables that are influencing gymnastics participation.

In conclusion, from the current study we have gained insight into how variables interact to influence gymnasts' participation decisions. We have also learned the importance of following gymnasts over an extended period of time to observe their behaviors. Finally, we now understand more about the complex nature of youth sport participation.

Psychological and Sport Resilience. When looking beyond the sport literature, a line of research in psychology can provide guidance for understanding the interaction between the variables examined in this study and how these variables could affect sport participation. Resilience has been defined as when individuals encounter negative or challenging experiences yet develop normally (Rutter, 1990). Although youth sport athletes generally are not at risk for abnormal development, they do encounter negative or challenging situations that could affect decisions to continue sport participation. Thus the concept of resilience, where individuals modify their response to a risk or stressful situation, is applicable to sport. That is, in sport most youth athletes will encounter negative or challenging situations, such as having difficulty learning a skill or being yelled at by a coach. Some athletes are unaffected

by these negative experiences whereas others are greatly affected by these negative experiences. More specifically, based on their sport experiences some athletes will continue their sport participation while others will discontinue their sport participation.

The essential defining feature of resiliency is that there is a modification of the person's response to a risk situation. Resilient individuals have been found to have lower levels of anxiety (Milgram & Palti, 1993), more positive coping skills (Rutter, 1983), secure attachments (Fongay, Steele, Steele, Higgit, & Target, 1994) and good peer relationships (Cowen & Work, 1988). The resilience literature has focused on what allows some children's development to be severely affected by major life events or daily hassles (non-resilient children) while other children's development is not affected by these events (resilient children) (Luthar & Zigler, 1991). Researchers have found that resilient individuals have certain qualities such as positive coping skills, lower anxiety, and higher social support whereas non-resilient children lack these qualities (Felner, Primavera, & Cauce, 1981; Milgram & Palti, 1993; Rutter, 1983; Werner & Smith, 1982).

The resilience literature has identified high-risk children and factors that appear to be protective mechanisms for children in light of negative experiences. In the sport context a similar relationship between factors could be supported. That is, if a child has stressful events in sport but maintains positive coping skills, has lower anxiety and has social support from within sport, this child would be resilient and probably continue sport participation. The resilience literature attempts to identify social, situational, and individual difference variables that predispose individuals to either

negative or positive reactions to stressful events (Garmezy, 1981; Rutter, 1979). Within the sport literature, only one study (Smith, Smoll, & Ptacek, 1990) has utilized the resilience literature for examining the interaction of variables.

Smith et al. (1990) framed their study in terms of the research on vulnerability and resiliency and examined how life stress, social support, and coping skills interact to determine if certain children were more vulnerable to sport injury. Smith et al. (1990) indicated that in life event research, situational and individual difference variables such as social support and coping have been identified as factors that increase the vulnerability of people to the impact of negative life events. Smith et al. (1990) found that a lack of social support and coping skills and the presence of major life stress left youth sport athletes vulnerable for injury. They concluded by emphasizing the need to consider the joint influence of social support and coping skills in life event research.

Youth sport athletes have identified injuries as a reason for leaving sport (Petlichkoff, 1993) thus it is possible to link Smith et al's. (1990) findings to youth sport participation research. That is, Smith et al. (1990) found that athletes who are low in social support and coping skills, and encounter major negative life stress, will be predisposed to injury. For these athletes who are predisposed to injury, they may also be vulnerable to withdrawing from their sport due to having low social support and coping skills, and encountering major negative life stress. In addition, it is interesting to consider if youth sport athletes, who encounter negative situations yet continue their sport participation, have qualities similar to resilient children and

athletes who encounter negative situations yet leave sport, have qualities similar to non-resilient children. If these scenarios are supported, then the youth sport participation process may be better understood through examining the interaction of variables including coping, anxiety, social support and negative experiences as have been supported in the psychological resilience literature.

Based on the resiliency research in general psychology and the work of Smith, et al. (1990), Walter (1996) introduced the concept of sport resilience. A pilot study was conducted on college students examining the concept of sport resilience utilizing a retrospective approach. Participants were identified as sport resilient and sport non-resilient by whether they had continued participating in the same sport for more than four years during junior high and high school. Interviews were conducted on the subjects identified as resilient and non-resilient. Differences between resilient and non-resilient individuals emerged in their support from within the sport environment. Sport resilient athletes reported receiving more support from within the sport setting than did sport non-resilient athletes. These findings warranted further examination of the concept of sport resilience on youth sport athletes currently involved in sport.

Based on the psychological resilience literature, Walter (1996) operationally defined sport resilience as a child who participates in at least one sport for a minimum of four years, encounters negative sport experiences, has high perceptions of control, has high self-confidence, has low levels of anxiety, develops supportive relationships in sport, and continues his/her sport participation. The operational definition for non-sport resilience was a child who participates in at least one sport for a minimum of

four years, encounters negative sport experiences, has negative coping skills, fails to develop supportive relationships in sport, has high levels of anxiety, has low self-confidence, and discontinues her/his sport participation. The minimum of four years of sport participation in one sport was selected because if an athlete has participated for at least four years it was assumed that they have committed to the sport and withdrawal is not a result of sampling various sports.

Walter (1996) found support for the operational definition of sport resilience when gymnasts who continued their sport participation had encountered negative sport experiences, had high self-confidence, had lower levels of anxiety, developed more supportive relationships in sport than gymnasts who discontinued their sport participation. The gymnasts who were identified as sport non-resilient were found to have during the three months prior to leaving gymnastics lower self-confidence, higher anxiety, reported fewer supportive relationships in sport, and encountered more negative situations in sport when compared to the sport-resilient gymnasts (Walter, 1996). Thus, support for all of the components Walter proposed in the operational definition of sport resilience was found except perceptions of control. No differences were found in perceptions of control for sport resilient and sport non-resilient gymnasts (Walter, 1996).

Partial support has been found for the operational definition of sport resilience. The results from this study which support the operational definition of sport resilience are the interaction between anxiety and coping with adversity. These findings are consistent with Walter's (1996) findings that gymnasts' who were identified as non-

resilient had higher levels of anxiety and lower coping abilities. The results from this study provide additional insight because the specific nature of the relationship between these two variables was identified. That is, gymnasts who were identified as being low in their ability to cope with adversity, and had higher anxiety, were more likely to discontinue participating in gymnastics. These findings are consistent with the psychological resilience literature where resilient individuals have been found to have lower levels of anxiety (Milgram & Palti, 1993) and more positive coping skills (Rutter, 1983).

The results from this study did not find that support from within the sport domain was more important than support from family and friends. Rather, the results indicated that support from family and friends played a role in the continued sport participation of gymnasts. These findings, as stated previously, are not consistent with the work of Walter (1996) who found that support from within sport was important for gymnasts to continue their sport participation. However, the findings from the present study are consistent with the psychological resilience literature that developing strong social support is important for dealing with difficult situations (Fongay, Steele, Steele, Higgit, & Target, 1994). Based on these findings, there appears to be some support for the concept of sport resilience, however, further work is needed to fully explore the nature of the variables involved in sport resilience. Specifically, work is needed on the definition of sport resilience, the variables involved in sport resilience, and how those variables interact.

What the concept of sport resilience and the psychological resilience research

add to our understanding of sport participation is an avenue for incorporating the interaction of variables as well as individual variables identified in this study as playing a role in gymnasts participation decisions into Gould and Petlichkoff's (1988) model. Specifically, we now know that anxiety and coping interact to influence gymnasts' participation as well as support from family and friends playing a role in gymnastics participation. Gould and Petlichkoff's (1988) model provided insight into the decisions youth athletes make in participating and withdrawing from their sport. However, we now know there are specific variables (anxiety, coping, family/friend support, and coaching behaviors) which are involved in participation decisions and how these variables interact to influence gymnasts participation decisions. Gould and Petlichkoff's model fails to identify how different variables interact to influence youth athletes participation, the length of time involved in the decision making process for whether or not to continue participating, and the complexity of youth sport participation.

The underlying theoretical frameworks identified in Gould and Petlichkoff's (1988) model include Harter's (1978, 1981) competence motivation theory, Maehr and Nicholls' (1980) achievement goal orientation theory, and Smith's (1986) cognitive affective model of stress. While these theoretical frameworks are depicted in Gould and Petlichkoff's (1988) model as being directly related to the surface-level motivations for participation and withdrawal, nowhere in the model is the interaction between the variables discussed. In the present results we know that variables are interacting to influence sport participation. For example, from the results of this study

we know that while the gymnasts identified similar reasons for withdrawal such as other interests, when examining the time period leading up to their withdrawal from gymnastics we see that anxiety and coping were interacting to influence those participation decisions.

In addition, family and friends played an integral role in providing support for the gymnasts which led to continued participation and certain coaching behaviors were identified by the gymnasts to interact to influence participation decisions. Thus, while the athletes were able to provide reasons for withdrawal they may not have been willing to or able to articulate the psychological processes that were occurring to influence those participation decisions. Thus, the model is not complete in being able to explain the sport participation process.

By utilizing the psychological resilience literature and the preliminary work conducted on sport resilience a more complete understanding of gymnasts sport participation and withdrawal is provided. For example, the psychological resilience literature has identified the same variables as have been identified in this study, anxiety, coping and support from family and friends, as being important in helping individuals to deal with stressful situations. Furthermore, the concept of sport resilience has been partially supported from the current findings. Additional research is needed to see if the current findings can be replicated across different sports and for both genders. If future research does support the current findings, Gould and Petlichkoff's (1988) model would need to be rethought.

Practical Implications

Several practical implications can be offered in light of the results from this study. First, it is apparent that gymnast's ability to cope with the situations they encounter in gymnastics plays a role in their participation decisions. Thus, if coaches are aware of this they can provide networks within their gyms to help the youth gymnasts cope with the various experiences they encounter in their gyms. For example, group discussions could be held by older gymnasts with the younger gymnasts to tell them how they dealt with the stresses of competition, fear of new skills and overcoming injuries.

Second, coaches need to be aware that many young athletes have not fully developed their coping skills so they can deal effectively with the various situations they may encounter. So, when gymnasts face difficulty in learning skills, coaches and athletes may view the same situation very differently. For example, a gymnast may be having difficulty learning a new skill and both the coach and athlete are becoming frustrated. The coach may view the situation as the athlete merely requiring more time to learn the skill. In contrast, the gymnast may not know how to cope with not learning the skill, may view not learning the skill as a failure, their anxiety may increase and they begin to consider leaving gymnastics. A coach needs to understand that providing sources of support from individuals such as parents, other coaches, teammates, or sport psychologists to the athlete are important for the athlete to develop their coping skills. If the coach can provide some resources for support to help an athlete cope more effectively with the situations they encounter, less anxiety

will develop and they will be more likely to continue participating in gymnastics.

Third, if coaches know that parents provide important social support for the gymnasts which influences participation decisions, coaches could work on the communication they have with parents. Often several problems exist regarding communication between coaches and parents. For example, parents do not feel they are kept informed of their child's progress or situations in the gym, no avenue exists for regular communication between parents and coaches, and/or parents are extremely critical of coaches' decisions and consequently poor communication exists between coaches and parents. By alleviating some of the problems that often exist with coach-parent communication, coaches can work to cultivate a positive relationship with parents which includes regular communication. Then, parents and coaches may be able to work more closely to provide the child with the support necessary to deal with difficult or challenging situations that may arise in gymnastics.

Finally, if coaches know the specific behaviors, which can influence gymnasts' participation, they may be willing to learn more about how to provide appropriate feedback to help create an environment where gymnasts want to continue participating. From previous research we know that athletes do not want feedback that is always positive and containing no criticism. Rather, athletes want feedback from coaches that is rich with information on how they can improve their skills. Athletes understand that sometimes criticism is necessary. Coaches' education on the importance of providing feedback that contains information for improvement and awareness that a balance between positive feedback, negative feedback, and ignoring mistakes feedback

is necessary for athletes to continue participating in their respective sports.

Future Directions

The present study contributed to the sport participation literature in several ways. First, the gymnasts were studied over the course of the season. In addition, how psychological variables including anxiety and coping interact to influence gymnastics participation was examined. Social variables were also examined in relation to gymnasts' participation. Specifically, support from family and friends emerged to influence sport participation decisions. Finally, the interactions between coaching behaviors and how those behaviors influence gymnastics participation was explored. These findings have provided a new approach for examining the sport participation process that is based on the missing links identified by Weiss and Petlichkoff (1989). Despite these contributions, additional research is needed to better understand youth sport participation. Thus, future research directions are offered.

First, most of the sport participation research has been grounded in participation motivation. That is, reasons for sport participation and withdrawal have been understood through achievement motivation theories such as Harter's (1978, 1981) competence motivation theory and Maehr and Nicholls' (1980) achievement goal orientation theory. These theories are the underlying motivational theories incorporated into Gould and Petlichkoff's (1988) integrated motivational model of youth sport participation and withdrawal along with Smith's (1986) cognitive-affective model of stress.

The findings from this study are that gymnasts' decisions to continue

participation and withdrawal are influenced by the interaction of variables such as anxiety and coping, various coaching behaviors, as well as social support. While Gould and Petlichkoff's (1988) model has provided guidance for studying and understanding youth sport participation, the results from the present study suggest the need for additional research to see if the findings from the present study can be generalized across different sports. If the results can be generalized across sport, then the parts of the model addressed by this line of research needs to be revised to incorporate the specific interaction of variables which lead to sport participation and withdrawal.

Second, while this study employed a repeated measure technique over approximately a 6 month period, it seems to be important to follow athletes over longer periods of time. As Petlichkoff (1996) suggested, if athletes are followed through phases of participation it would then be possible to examine the role of other variables such as whether previous experiences influenced participation withdrawal or was the decision to withdraw due to experiences during that season.

Finally, the use of recent statistical advances such as GEE to analyze the results provides an avenue for studying repeated measures data without the typical limitations one encountered in longitudinal analyses. This statistical tool is particularly appropriate for examining youth sport participation because of the need to study athletes over extended periods of time. Thus, researchers are encouraged to explore this statistical technique for examining questions where they may encounter correlated observations, non-normal distribution of data, or continuous and/or discrete

dependent variables.

Conclusion

In conclusion, the purpose of this study was to examine how psychological variables, social variables, and environmental variables interact to affect youth sport participation decisions. Specifically, this study examined whether female gymnasts who leave gymnastics differ in their perceptions of coaching behaviors, perceptions of social support, level of anxiety and ways of coping from gymnasts who continue their sport participation. The findings from this study identified the interaction of psychological variables related to gymnastics withdrawal, the importance of social support from family and friends in continued gymnastics participation, and the interaction of coaching behaviors to influence withdrawal from gymnastics. In addition, this study employed the statistical technique of Generalized Estimating Equations to analyze the repeated measures data which allowed the researcher to avoid some of the problems inherent in repeated measures analyses.

Understanding the variables that influence youth sport participation and how they interact is important for helping more athletes maintain their sport participation. While previous sport participation research has been grounded in achievement motivation and has provided a great deal of insight for understanding sport participation, the results from this study identify that other variables influence sport participation decisions. Thus, the need exists to more completely explore the variables that influence youth sport participation.

APPENDICES

APPENDIX A

Athletic Coping Skills Inventory-28

DIRECTIONS A number of statements that athletes have used to describe their experiences are given below. Please read each statement carefully and then recall as accurately as possible how often you experiences the same thing. There are no right or wrong answers. Do not spend too much time on any one statement. Please check the line which indicates how often you have these experiences when playing sports.

	Almost Never	Sometimes	Often	Almost Always
1. I remain positive and enthusiastic during competition, no matter how badly things are going.	_____	_____	_____	_____
2. When things are going badly, I tell myself to keep calm, and this works for me.	_____	_____	_____	_____
3. When I feel myself getting too intense, I can quickly relax my body and calm myself.	_____	_____	_____	_____
4. I maintain emotional control regardless of how things are going for me.	_____	_____	_____	_____

APPENDIX B

Leadership Scale for Sports

Each of the following statements describe a specific behavior that a coach may exhibit. For each statement there are five choices. Please indicate your perceptions of your coaches' behavior by circling the appropriate number. Please answer all items.

	Always	**Often** (75% of the time	**Occasionally** (50% of the time)	**Seldom** (25% of the time)	**Never**
	5	4	3	2	1
My coach					
1) sees to it that gymnasts work to their capacity.	5	4	3	2	1
2) asks for the opinion of the gymnasts on strategies for specific meets.	5	4	3	2	1
3) helps gymnasts with their personal problems.	5	4	3	2	1
4) compliments gymnasts for good performance in front of others.	5	4	3	2	1
5) explains to each athlete the techniques and tactics of the sport.	5	4	3	2	1
6) plans relatively independent of the gymnasts.	5	4	3	2	1
7) helps members of the group settle their conflicts.	5	4	3	2	1
8) pay special attention to correcting gymnasts' mistakes.	5	4	3	2	1

9) gets group approval on important matters before going ahead. 5 4 3 2 1

10) tells a gymnast when the gymnast does a particularly good job. 5 4 3 2 1

11) makes sure that the coach's function in the team is understood by all gymnasts. 5 4 3 2 1

12) does not explain his/her actions. 5 4 3 2 1

13) looks out for the personal welfare of the gymnasts. 5 4 3 2 1

14) instructs every gymnast individually in the skills of the sport. 5 4 3 2 1

15) lets the gymnasts share in decision making. 5 4 3 2 1

16) sees that a gymnast is rewarded for a good performance. 5 4 3 2 1

17) figures ahead on what should be done. 5 4 3 2 1

18) encourages gymnasts to make suggestions for ways to improve practices. 5 4 3 2 1

19) does personal favors for the gymnasts. 5 4 3 2 1

20) explains to every gymnast what should be done and what should not be done. 5 4 3 2 1

21) lets the gymnasts set their own goals. 5 4 3 2 1

22) expresses any affection felt for the gymnasts. 5 4 3 2 1

23) expects every gymnast to carry out one's assignment to the last detail. 5 4 3 2 1

24) lets the gymnasts try their own way even if they make mistakes.	5	4	3	2	1
25) encourages the gymnasts to confide in the coach.	5	4	3	2	1
26) points out each gymnasts' strengths and weaknesses.	5	4	3	2	1
27) refuses to compromise on a point.	5	4	3	2	1
28) expresses appreciation when a gymnast performs well.	5	4	3	2	1
29) gives specific instructions to each gymnast on what should be done in every situation.	5	4	3	2	1
30) asks for the opinion of the gymnasts on important coaching matters.	5	4	3	2	1
31) encourages close and informal relations with gymnasts.	5	4	3	2	1
32) sees to it that the gymnasts efforts are coordinated.	5	4	3	2	1
33) lets the gymnasts work at their own speed.	5	4	3	2	1
34) keeps aloof from the gymnasts.	5	4	3	2	1
35) explains how each gymnast's contribution fits into the total picture.	5	4	3	2	1
36) invites the gymnasts home.	5	4	3	2	1
37) gives credit where it is due.	5	4	3	2	1
38) specifies in detail what is expected of gymnasts.	5	4	3	2	1

39) lets the gymnasts decide on skills or routines to be used in competition.	5	4	3	2	1
40) speaks in a manner which discourages questions.	5	4	3	2	1

APPENDIX C

Coaching Behavior Assessment System Questionnaire

As you perhaps already know, coaches really differ from each other in the type of feedback they give in response to their athletes' performances.

This questionnaire is designed to find out what type of coaching feedback your coach typically gives you in practices and meets.

Coaching Responses to Athlete's Successes

Listed below are six examples of the feedback your coach might have given to you after you had a successful performance in a meet or practice. PLEASE RATE EACH STATEMENT IN TERMS OF HOW TYPICAL IT WAS TO THE KIND OF FEEDBACK YOUR COLLEGE COACH GAVE YOU AFTER YOU HAD A SUCCESSFUL PERFORMANCE.

	Very Typical				Not at all Typical
1. "Good Play!"	5	4	3	2	1
2. Coach ignores your good performance	5	4	3	2	1
3. "Way to go! You really extended your legs that time"	5	4	3	2	1
4. "Great routine. Now you're keeping your toes pointed."	5	4	3	2	1
5. "Excellent work in practice today."	5	4	3	2	1
6. Coach doesn't say anything to you about your good performance.	5	4	3	2	1

Coaching Response to Players' Errors

Listed below are 10 examples of the type of feedback your coach might have given you if you had made a mistake or committed an error in a game or practice. PLEASE RATE EACH STATEMENT IN TERMS OF HOW TYPICAL IT WAS OF THE KIND OF FEEDBACK YOUR COLLEGE COACH GAVE YOU AFTER A PERFORMANCE ERROR OR POOR PLAY.

	Very Typical				Not at all Typical
1. "That's O.K. Keep working at it!"	5	4	3	2	1
2. Coach ignores your error or poor performance.	5	4	3	2	1
3. "That was a really stupid mistake."	5	4	3	2	1
4. "You dropped your elbow. Next time keep it up."	5	4	3	2	1
5. "How many times have I told you to extend your elbow?"	5	4	3	2	1
6. "Hang in there! You'll do better next time."	5	4	3	2	1
7. Coach doesn't say anything to you about your error or poor performance.	5	4	3	2	1
8. "Your technique looks lousy! Keep your head up."	5	4	3	2	1
9. "That performance sucked."	5	4	3	2	1
10. "No, that's not right, you need to work on a faster release."	5	4	3	2	1

APPENDIX D

Social Support Scale

Who Is Your Support for Gymnastics?

In gymnastics you may have good and bad experiences. We would like to know who gives you support in gymnastics and the people with whom you share your gymnastics experiences. Please circle the number which most closely describes how much support these people provide for you. There are no right or wrong answers.

1) How much support does your mother provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

2) How much support does your coach provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

3) How much support does your father provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

4) How much support does your assistant coach provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

5) How much support does your brother(s) provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

6) How much support does a teammate provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

7) How much support does your sister(s) provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

8) How much support does your team provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

9) How much support do your grandparents provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

10) How much support does your athletic trainer provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

11) How much support do other relatives provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

12) How much support does your doctor provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

13) How much support do friends outside of gymnastics provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

14) How much support do other people in gymnastics provide for you in gymnastics?

1	2	3	4
No Important Support	Somewhat Important Support	Important Support	Extremely Important Support

APPENDIX E

Sport Anxiety Scale

REACTIONS TO COMPETITION

A number of statements which athletes have used to describe their thoughts and feelings before or during competition are listed below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you usually feel prior to or during competition. Some athletes feel they should not admit to feelings or nervousness or worry, but such reactions are actually quite common, even among professional athletes. To help us better understand reactions to competition, we ask you to share your true reactions with us. There are, therefore, no right or wrong answers. Do not spend too much time on any one statement, but choose the answer which describes how you commonly react.

	Not At All	Somewhat	Moderately So	Very Much So
1. I feel nervous.....	1	2	3	4
2. During competition, I find myself thinking about unrelated things.....	1	2	3	4
3. I have self-doubts.....	1	2	3	4
4. My body feels tense.....	1	2	3	4
5. I am concerned that I may not do as well in competition as I could.....	1	2	3	4
6. My mind wanders during sport competition.....	1	2	3	4
7. While performing, I often do not pay attention to what's going on....	1	2	3	4

8. I feel tense in my stomach...	1	2	3	4
9. Thoughts of doing poorly interfere with my concentration during competition.....	1	2	3	4
10. I am concerned about choking under pressure.....	1	2	3	4
11. My heart races.....	1	2	3	4
12. I feel my stomach sinking..	1	2	3	4
13. I am concerned about performing poorly.....	1	2	3	4
14. I have lapses in concentration during competition because of nervousness.....	1	2	3	4
15. I sometimes find myself trembling before or during a competitive event.....	1	2	3	4
16. I'm worried about reaching my goal.....	1	2	3	4
17. My body feels tight.....	1	2	3	4
18. I'm concerned that others will be disappointed with my performance.....	1	2	3	4
19. My stomach gets upset before or during competition..	1	2	3	4
20. I'm concerned I won't be able to concentrate.....	1	2	3	4
21. My heart pounds before competition.....	1	2	3	4

APPENDIX F

Parent Consent Form

Dear Parent,

My name is Susan Walter and I am currently a doctoral student a Michigan State University. I have recently moved to Texas and will complete my degree while living here in Texas. In order to complete my degree, I am conducting a research study to examine how gymnasts deal with positive and frustrating sport experiences. Specifically, I am interested in the experiences youth sport gymnasts have while they are participating in gymnastics and what allows some gymnasts to continue their sport participation while others leave gymnastics.

I have recently met with your child's coach and they have agreed that the study I would like to conduct is a worthwhile project to support and would help them gain insight into better understanding gymnasts. I would like to ask that your child be a participant in the study.

The purpose of this study is to understand how gymnasts interpret their sport experiences and what leads some gymnasts to continue participating in gymnastics while others choose to leave gymnastics. The study would involve your child completing several questionnaires which explore their feelings toward gymnastics over the next several months. I will be in the gym three times and your child will be asked to complete the questionnaires a total of three times. Completing the questionnaires will be done during gymnastics practice. If your child decides to stop participating in gymnastics, I will contact them and ask them to complete the questionnaires one final time. All of your child's responses will be kept to completely confidential (i.e., they will not be shared with any of the coaches or parents) and each gymnast will be assigned a code so anonymity is assured. There are no risks to your child participating in this study. Participation is voluntary and your child can withdraw from the study at any time without penalty.

I feel this is a worthwhile project for your child to participate in because of the impact if could have on youth sports. If we can better meet the needs of athletes in their sport, they will enjoy their sport experiences even more and continue participation for a lifetime.

If you would like your child to participate in this study, please complete the bottom portion of the letter and return it to your child's coach. If you have any questions, do not hesitate to contact me, (806) 742-3361. I will be happy to speak with you.

Sincerely,

Susan M. Walter
Michigan State University

----------(cut here)----------
(keep top portion, send bottom)

I agree to have my child participate in the study described above:

Print: _____ Signature: _____
parent or guardian's name parent or guardian's name

I understand my rights as a subject in this study and I want to be a participant:

Print: _____ Signature: _____
gymnast's name gymnast's name

APPENDIX G

Michigan State University's Human Subjects Committee Permission Letter

MICHIGAN STATE
UNIVERSITY

116

May 16, 1997

TO: Martha E. Ewing
201 IM Sports Circle

RE: IRB#: 95-174
TITLE: CONSIDERING RESILIENCY IN SPORT: A RETROSPECTIVE APPROACH
REVISION REQUESTED: N/A
CATEGORY: 1-C
APPROVAL DATE: 05/13/97

The University Committee on Research Involving Human Subjects'(UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Susan M. Walter

OFFICE OF
RESEARCH AND GRADUATE STUDIES

University Committee on Research Involving *Human* Subjects (UCRIHS)

Michigan State University
246 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX: 517/432-1171

APPENDIX H

Demographic Questionnaire

1) What is your birthday: _____ _____ _____
month day year

2) How old are you? _____

3) Are you a (check the correct response):
Male_____ Female _____

4) With which ethnic group do you identify yourself with (check only one response)? :

_____ European-American _____ African-American

_____ Mexican-American _____ Asian-American

_____ Other

5) For how many years have you been participating in gymnastics? _____

6) For how many years have you been working with your current coach? _____

APPENDIX I

Dropout Questionnaire

1) **What** did you like the most about being in gymnastics?

2) **What** did you like the least about being in gymnastics?

3) **Why** did you decide to leave gymnastics? (please explain in detail)

4) **How** long did it take you to decide to leave gymnastics?

5) **What** was the best thing about leaving gymnastics?

6) **What** was the hardest part about leaving gymnastics?

7) **Have** you joined any other activities since you left gymnastics? Yes No

(circle one)

If yes, in what activities are you involved?

APPENDIX J

Means and Standard Deviations

Variable	Texas Mean	Texas Standard Deviation	Michigan Mean	Michigan Standard Deviation
Anxiety	45.50	11.54	45.80	10.72
Coping with Adv.	6.04	2.58	6.31	2.56
Family Support	18.13	4.19	18.86	4.08
Sport Support	20.40	3.51	20.08	3.90
Democratic	29.44	6.86	26.37	7.07
Social Support	24.26	6.60	22.16	5.74
Positive Feedback	20.52	4.18	18.45	4.25
Training & Inst.	51.13	8.30	48.88	8.93
QBAS - Factor 1	0.11	0.94	-.18	0.82
QBAS - Factor 2	-.14	0.92	0.24	0.93
QBAS - Factor 3	-.09	0.88	0.15	0.81

APPENDIX K

Means and Standard Deviations

	Time 1		Time 2		Time 3	
	Mean	SD	Mean	SD	Mean	SD
Sport Anxiety Scale	45.61	11.20	47.48	12.82	44.50	13.06
ACSI-28, Coping subscale	6.14	2.57	6.17	6.62	6.27	2.90
Social Support						
Family Support	18.41	4.15	18.90	4.01	19.27	3.99
Sport Support	20.28	3.65	20.54	4.00	20.59	4.06
Leadership Scale for Sports						
Democratic	28.29	7.08	28.97	7.24	28.06	7.07
Autocratic	13.36	2.82	13.26	3.22	12.96	3.16
Social Support	23.47	6.35	23.14	7.02	21.66	6.15
Positive Feedback	19.75	4.31	20.41	3.98	19.92	4.26
Training and Inst.	50.29	8.58	51.30	8.17	49.19	8.83

APPENDIX L

Quotes of Former Gymnasts

Question 1: What did you like most about being in gymnastics?

Raw Quotes:

Learning new tricks

I liked going to meets and competing even though I got nervous. I also liked being there with my friends.

My teammates and coach

I like the people there and learning new tricks.

The support from my family and the competition. I also like winning.

I liked to go to double-mini.

Performing something I'm good at.

I liked the floor as an event and the challenge of each event.

My coaches and teammates. Learning new skills. Going to nationals and having a blast. Most of all just having fun when doing gymnastics.

Always being in top physical condition and being able to perform something I'm good at.

I liked seeing my teammates (also my friends) and as for skills I liked to do a lot of dance moves on beam and floor.

Learning new skills. Challenging things in gymnastics - goals & tricks couldn't do yet & trying to do them.

The trampoline and to bounce up and down and do flips.

Going to meets. Doing tumbling and dance moves.

The competition.

Go to be with my friends.

Loved Jane* (coach). She made it really fun. My best friend was there.

The (gymnastics) events, actually doing them in practice.

Fun to tumble and flip.

* Note: Name changed for confidentiality.

Question 2: What did you like the least about being in gymnastics?

Raw Quotes:

Teammates

The time it took up. Sometimes it seemed like I just didn't want to go at all. The coaches got on my nerves too.

People with bad attitudes.

When I was tired and had to workout.

The time-consuming process that you had to commit to in order to achieve high places.

Going two days a week and staying there for about four or five hours.

Those days when you just could not be yourself because I was having an off day.

Missing out on what my friends are doing because I had to go to gymnastics.

I didn't like the beam and I didn't like having to go to gym almost everyday.

Fear of being injured. Disappointment I feel about myself when I don't perform as I know I am really able to.

I didn't like it when our coaches seemed mad or disappointed in us and I didn't like it when they yelled at us.

Not having time with friends. Not being able to study as much.

Didn't like double-mini.

Long hours of workout. Pressure on self and from coaches. Coaches pressure from them.

All the time it took-up, so much homework and wasn't getting it done in all.

Conditioning.

It was really hard to go, took up most of my time and wanted to do other things.

All the conditioning. Didn't like all the pressure of always doing tricks right. Pressure from coaches and other girls how they could do it. I compared myself to other girls a lot.

The coaches, they were mean.

Question 3: Why did you leave gymnastics?

Raw Quotes:

Because I wanted to do other sports besides gymnastics.

Because I was sick of the coaches always griping at me. They had favoritism. Every time me and Sally* would talk we would get separated but no one else ever would. Also, it took up too much time. I didn't have time to get my homework done and my grades were dropping.

I had done the sport for a long time and I was tired of it. I was always complaining about going. I was also hurt. And the drive!

My mom couldn't afford cheer and gym. I had to choose. I chose cheer because I get my tumbling at cheer.

I decided to leave gymnastics because after breaking my foot - I liked the break and the extra time with my family and friends. I also was going to Junior High School, so I needed more time for homework.

I was tired of going to _____ (city) and getting home at 10 or 11 o'clock.

This year I have had no time to go to practice. Therefore, it has been hard to devote all the way to it. I had been struggling with time so I finally decided to quit and take a break. One of these days I might decide to go back. It was beginning to become stressful.

I was just too busy with homework and other school stuff, so there just wasn't any time.

I quit gym because I wanted to have a life outside of gym, do other sports and I was just getting tired of gym and my heart wasn't in it anymore.

It became too expensive for our family to manage, with four kids in the family.

I wanted to do more things with my friends and family. I wanted to get back into things I did before I got serious about gymnastics.

Made cheerleading at school. Wanted to spend time with friends. School work become more important.

Getting tired of it. Wanted to try something new - cheerleading, basketball.

Was going to be gone most of the summer and mom didn't want to pay if not there. Was going to go back in fall. A lot of times didn't get along with coaches. Didn't agree with coaches a lot of work on corrections.

Homework was more important. Wanted to do Future Problem Solving Group.

Getting tired of doing it.

Over the summer, wasn't going to be in town and didn't want mom to pay fee while gone. Will wait for Kate* (coach) to have baby.

Question 3 continued:

Mom didn't want to drive in summer and I wanted a break.

Had broken your ankle and had knocked you out of Nationals. Had planned to quit after National because getting kind of tiring and do cheerleading. Then broke ankle and quit sooner.

* Note: Name changed for confidentiality.

Question 4: What was the best thing about leaving gymnastics?

Raw Quotes:

Do other sports.

Having a lot more time to do fun stuff.

More time on my hands.

I wasn't so tired or burned out.

The extra time I had for other things important to me.

I get to spend more time playing and talking to my friends.

I have more time and I'm less stressed now.

I have time to be with my friends now.

I didn't have to go. I had a free life.

It gave me so much more time to spend with friends and other activities. I also have a lot less stress in my life!

I'm getting the chance to get back into things I really enjoyed doing before I had to go to gymnastics 4 days a week.

More quality time to myself. Being able to study.

More time to do other things like read and stuff. Now have time to do my homework.

Don't have to worry about it any more (doing good at meets). No pressure from coaches and myself to do good at meets.

More time to do whatever. Time for homework.

Have a little bit more free time.

More time to do homework and started making better grades.

Don't feel all the pressure of always going and always doing the tricks right.

Don't have something every single night and get to be home.

Question 5: What was the hardest part about leaving gymnastics?

Raw Quotes:

My coaches

Well, I've been in it for six years so it was kind of hard to just give up six years of hard work. Also, I thought my coach would be mad because he coaches me at school too.

Leaving my coach and teammates.

Not seeing my friends or the coaches.

Telling my coaches, especially Bill* - he was my favorite - and I felt I had disappointed him - but he was really decent about it.

The things I've learned, I might not be able to do them anymore.

The sport itself because I still love to do it. My wonderful coaches and teammates. All of the great times I have had there, and all of the nationals I've been to. I miss it.

Leaving my coaches. After a while they became my friends.

Leaving my teammates and coaches.

Losing the availability of the gym for working out and not having motivation of the coach and other gymnasts to help me stay in the best physical condition.

Leaving my friends.

Losing my strength and tricks

Leaving the trampoline and all the medals.

Afraid I was going to miss it too much.

Missing some of my best friends at gymnastics. I don't get to see them much anymore.

Miss all my friends I went with.

Was going to miss Beth* (coach).

Miss doing all the events.

Not going to Nationals.

* Note: Name changed for confidentiality.

LIST OF REFERENCES

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