The Effect of Training Protocols on Satisfaction and Performance of Collegiate Distance Runners

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ABSTRACT

When distance runners are recruited or walk-on to participate on their college track teams, they have two main goals in mind. They want to have a satisfying individual and team experience, and they have a desire to win and be the best. The outcomes of these goals are most directly influenced by their coach, who plans, develops, and implements the mental and physical aspects of the distance runners' overall training program. Wins and losses can be measured on the track, but distance runners' perceptions of satisfaction with their athletic experience are not often or easily assessed.

Based on the advantages that satisfaction can offer student-athletes, this study was designed to achieve a dual purpose. The primary purpose of this study was to examine the relationship between collegiate distance runners' satisfaction and training protocols. The secondary purpose of this study was to determine the relationship between collegiate distance runners' training program satisfaction and performance. The participants included 130 NCAA distance runners from the six major Division I conferences. In order to assess satisfaction levels of training and instruction protocols and performance, the procedures required the distance runners to complete the 2010 Track Distance Athlete Satisfaction and Performance Questionnaire. The 2010 Track Distance Athlete Satisfaction and Performance Questionnaire was comprised of the following four sections: training (satisfaction), instruction (satisfaction), performance (satisfaction), and demographic information. The results were analyzed to determine the relationships between satisfaction and the training and instruction protocols and between overall training program satisfaction and performance, gender, and academic level.

The results of this study indicated that NCAA Division I distance runners perceive their coaches' overall training programs and training and instruction protocols as satisfying. Further research is needed to continue to fill the gap in the satisfaction and performance literature and to develop a comprehensive understanding of this complex relationship. Overall, this study found that distance runners who are satisfied with their training program tend to be confident in their training, motivated, trusting of the coach and his or her training program, and enjoy their college racing and training experience. Therefore, satisfaction also positively affects distance runner retention.

DEDICATION

To God, for giving me the strength and endurance to persevere.

To my Wife, for being my best friend and everlasting source of support and love.

To Mom and Dad, for your constant motivating phone calls, love, and encouragement.

To my Sister and Niece, for being there when I needed inspiration and a smile.

WE DID IT!

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INTRODUCTION

Coaches, student-athletes, and administration interact to comprise a complex and multi-layered sport community known as college athletics. Within this sport community, there is a common pursuit to thrive collectively in order to positively shape the sports experience for those involved. In college athletics, a better sport experience is associated with gaining a competitive advantage in order to achieve success (i.e., wins). At the heart of this community are student-athletes who perform multiple roles for the very fundamental nature of excelling at athletic performance. As Chelladurai and Riemer (1997) have noted, athletes are the "prime beneficiaries" of athletic programs. In other words, college athletics exist primarily for the benefit of student-athletes.

Student-athletes are influenced by a number of factors that help determine sport outcomes, while also impacting how they interpret their athletic experiences (Turman, 2008). One major influential force that controls the athletes' training programs to ensure there are excellent sport performances is the coach. The coach provides a crucial role in not only providing athletes with effective training programs, but also keeping an athlete satisfied while striving for optimal performance. In order to excel at athletic performance, the athlete must achieve a level of satisfaction, as defined by Chelladurai & Riemer (1997), athlete satisfaction is a positive affective state resulting when a student-athlete's athletic experiences meet his or her personal standards. One of the most important outcomes for any exercise program is the satisfaction that participants derive from it (Yardley, 1987). Studies by Chang (1998) and Yardley (1987) with fitness services found that if an individual is satisfied with an exercise program, he/she is more likely to persist with the program or come back for a second time. The

development of participant satisfaction is not only important for achieving successful exercise programs, but also for retention of exercise participants.

Upon reviewing the literature specific to athlete satisfaction, a primary source of satisfaction has often been linked to the coach (i.e. leadership behavior). In fact, there have been a significant number of studies within the sport and exercise domains that have shown a positive relationship between effective coaching behaviors and athlete satisfaction. More specifically, a couple of the major studies in sport have established that coaches (i.e., leaders) who displayed more democratic behaviors, training and instruction, social support, and positive feedback had more satisfied athletes (Riemer & Chelladurai, 1995; Weiss & Friedrichs, 1986). It is important to note however that only the coach leadership-satisfaction relationship has been comprehensively examined to date.

Although the relationship between coaching behaviors and athlete satisfaction has been examined extensively, the relationship between coaching behaviors and athletic performance has received less attention. Researchers and practitioners in the domain of athletics (i.e., organized, competitive sports where one of the prime objectives is to win) have recognized that coaches find satisfaction and performance are intuitively linked (Chelladurai & Riemer, 1998). Since sport participation is ultimately voluntary, a satisfied athlete is a prerequisite to athletes performing at the highest level (Chelladurai & Riemer, 1998). Furthermore, there have been only a few significant studies within the sport and exercise domains that have shown a positive relationship between effective coaching behaviors and performance. Specific studies by Gordon, 1986, Serpa, Pataco, & Santos, 1991, and Weiss & Friedrichs, 1986, all conclude that there is a significant link between coaching behavior congruency and athletic performance. Unfortunately, even though many acknowledge there is a correlation between athlete satisfaction and

performance, these past studies have not clearly addressed this issue. The existing literature has been more focused on finding congruent coaching behaviors that are important contributors for optimal sport performance.

Since it has been determined that coaching behaviors have a positive relationship on athlete satisfaction and performance and coaches are in control of designing, prescribing, and administering effective training programs, it begs the question, what specific training behaviors are most satisfying? In addition, are the athletes who are satisfied with their training program also performing at a high level and the most satisfied with their performance? With the focus of past studies primarily on coaching behaviors as related to athlete satisfaction, there is an interest in the present study of examining specific aspects of athlete training behaviors that are satisfying. It is imperative for coaches to understand that athlete training behavior satisfaction and performance are intuitively linked. For athletes who become dissatisfied with their training program can begin to feel disassociated with excellent performances, causing a negative interpretation of their overall athletic experience.

Athlete satisfaction and peak performance are not easy outcomes to achieve. Both athlete satisfaction and optimal performance do not result without experiencing issues involving mental, physical, and emotional stress. These issues help shape the overall athletic experience. One particular sport at the collegiate level where student-athletes follow an extremely disciplined coach-controlled training program is National Collegiate Athletic Association (NCAA) cross country and track distance running. The NCAA is an association that has served since 1906 as one of the governing bodies for collegiate athletics (Crowley, 2006). In the present study, this small population of collegiate athletes was chosen because there have been no other similar studies to date that have utilized specifically, distance runners. Collegiate distance runners were

also chosen because they have many issues that evolve with athlete satisfaction and performance due to the intense year-round training programs and competitive nature of the sport. According to the latest NCAA Sports Sponsorship and Participation Rates Report, during the 2006-07 academic year there were approximately 25,505 male and female collegiate distance runners competing among Divisions I, II and III (http://www.ncaapublications.com). These distance runners are expected to train and perform consistently at a high level. One would believe that to consistently train and race in college for four years, these dedicated distance runners have the upmost passion and enjoyment for their sport.

In particular, an even smaller group of distance running student-athletes competing among NCAA colleges and universities is Division I cross country and track distance runners. From the 2006-07 academic year, the NCAA Sports Sponsorship and Participation Rates Report found there were approximately 9,593 male and female collegiate distance runners competing at Divisions I colleges and universities (http://www.ncaapublications.com). These highly skilled collegiate distance runners are often held to the highest standards for training and performance. Division I distance runners are often given elite athlete workouts and race times to accomplish. These elite workouts are designed by the coaches to help the athletes meet the intense race time standards set by the NCAA to qualify for regionals and nationals.

Due to this elite level expectation for performance and the nature of the sport, Division I collegiate distance runners have more daily stress and time obligations than the average college student and non-Division I student-athletes. Student-athletes represent a special portion of college students who have high demands on their energy and time, as well as possessing unique needs that set them apart from the rest of the student body (Gaston, 2003). After making the choice to be a Division I level student-athlete, specifically those on scholarship have pressure to

excel at a high level for fear of losing this financial aid. From the time they arrive on campus, Division I distance runners find significant time is committed to athletics. While the core of the day is used for academic endeavors, there is ample time in the morning, late afternoon and evening for athletic activities. A typical day of an elite college distance runner is often structured in this manner: morning running session, breakfast, classes, lunch, classes, team meeting, afternoon running session, weight training session, ice bath/therapy, dinner, study table, social/relaxation time, homework, and bed. Collegiate distance runners confirm that this is a full and demanding schedule.

In general, NCAA Division I distance running has become so competitive that these student-athletes challenge their minds and bodies everyday through rigorous training programs. These highly skilled collegiate distance runners have the most pressure to excel at a peak performance level while juggling all the individual training components. Most Division I college distance training programs allow for a mere 1-2 months off from running a year. Often, half of the time spent off from running is active rest doing cross training or very easy running. The other 10-11 months of the year is spent preparing these athletes mentally and physically for a few big performances.

The limited time a coach has to spend on mental preparation to keep a collegiate level distance runner motivated, focused and self-confident so that they can accomplish their goals is valuable. Developing a mentally tough athlete in practice who is attuned to their mind-body connection is vital to fast performance outcomes. Recently, the emergence of mental toughness has been identified as an important psychological construct that is related to success in sport. Clough et al. (2002) described mental toughness as a trait-like construct that allows individuals to remain rather unaffected by competition or adversity. By establishing mental toughness, an

athlete is confident on the big performance days that they are equipped with the right attitude and all the practice tools needed to succeed.

The time spent on physical preparation is equally as important as the psychological aspect in the overall training equation to successful performance. Two-a-day training sessions are frequently utilized along with speed workouts, long runs and higher aerobic based mileage. Practice times easily span a couple of hours by the time a warm-up, technique drills, running workout, cool down, weight and core training and ice bath are all completed. Most collegiate distance runners need individualized training programs because they have different characteristics of abilities, traits and needs in regard to training and performance. From a coach's perspective, there is not enough time in the day for them to truly physically and mentally develop these young 18-23 year-olds before they graduate. For these reasons at the Division I level, distance running is perhaps one of the most challenging college sports to coach and compete in.

The coach and athletes' quest for a competitive advantage has lead to the development of effective mental and physical training protocols. Most of the athletes' intense year-round training program falls under the coach's design. The need for a coach to be attuned to an athlete's perceptions of effectiveness of training protocols is very important for the success of the year-long distance running training program. With quality training protocols in place, an athlete can work towards personal performance goal attainment which aids in team performance goal accomplishment.

At the Division I level, the performance results of the athletes are very important to the coach. The coach expects a high level of athletic performance from the student-athletes on and off the track. The coach has pressure from their director and school to produce winning outcomes. Often, the coach's livelihood teeters on how well these 18-23 year-old athletes

perform. With the stress to win always looming in the back of Division I coaches' minds, most design and execute the entire distance running training program with little input from their athletes. Dependent upon the coach's leadership style (autocratic or democratic), the decision making power over all the facets of the physical training program can be controlled by the coach. Regardless of whether or not the coach lets athletes have a say in the overall training program, the coach only has direct control over the specific training protocols that their athletes are accomplishing while at practice and competitions. The rest of student-athlete's college athletic experience is shaped by the choices and decisions that they make away from practices and competitions to best satisfy their wants and needs.

Often, coaches get so caught up in controlling the specific protocols of the overall training program and over-stressing performance results that the fun and enjoyment that comes from distance running and competing is removed. Coaches' effectiveness in training and instruction can be jeopardized when all the emphasis of the distance running training program is focused around control of training and performance. From the little input that most collegiate distance runners have in their training program design and execution and due to the strenuous training demands that continuously develop, a major problem begins to surface. Distance runner satisfaction and performance can be significantly affected by this lack of enjoyment of the overall training program and sport.

When a problem with satisfaction persists, these highly skilled distance runners can become detached from the sport that has been an inseparable part of their lives for many years. Athlete burnout, poor performances and quitting are short-term indicators of dissatisfaction with the overall training program. Cohn (1990) found through a study on the most frequent sources of stress reported by high school golfers that athletes at the highest risk of burning out were likely

to either participate in too much training and competition, lacked enjoyment while practicing their sport, or experienced too much self-or-other induced pressure. A lack of enjoyment or promotion of this basic lifetime physical activity is the long-term indicator of a collegiate distance runner who was constantly dissatisfied with their overall training program.

For the past few decades, researchers have consistently examined coaches' behaviors for congruency to determine athlete's levels of satisfaction (Chelladurai, 1978; 1984; Chelladurai et al., 1988; Dwyer & Fischer, 1990; Horne & Carron, 1985; McMillin, 1990; Riemer & Chelladurai, 1995; Schliesman, 1987; Summers, 1983; Weiss & Friedrichs, 1986; Crust & Azadi, 2009). An important finding from these studies is that coaches who utilize training and instruction behaviors can expect to increase athlete satisfaction. Consequently, even though many of these studies suggest training and instruction is one of the most preferred and perceived behaviors of athletes, there has been limited focus on the specific training behaviors that influence athlete satisfaction. Many of these studies suggest that further exploration of training behaviors and athlete satisfaction provide an appealing direction for future research.

At the Division I level, are coaches really concerned about athlete satisfaction? We know that coaches are concerned about designing effective training protocols so their athletes perform at an optimal level. What if the training protocols that the coaches provide for their athletes have them achieving high performance results with minimal athlete satisfaction? For the coaches that come into their position being concerned about athlete satisfaction, the present study could provide some valuable training behaviors information and coaching education strategies. For coaches who have not been as concerned about athlete satisfaction in the past for various reasons, the present study could give an understanding of the significance of athlete satisfaction. Furthermore, if enhanced distance runner satisfaction with specific coach prescribed training

protocols can be linked to even better performances as compared to without athlete satisfaction, it could change the processes and standards that coaches utilize to deliver their training and instruction methods. A study of this nature could have a significant impact in bridging the gap in the coaching education literature on general athlete satisfaction and performance to athlete satisfaction with specific training protocols that are the most effective at producing better performance, specifically with collegiate distance runners.

In summary, keep in mind that throughout the present study there are unique features relevant to the sport of distance running. Collegiate distance running is practiced and competed in nearly year-round. Due to the intense nature of the sport, distance running tends to cause much mental and physical stress in both the athlete and coach. It is one of the only team sports that it is encouraged for athletes to receive individualized workouts and feedback about training protocols. The distance running coach often controls all aspects of the training program by making most of the decisions about athlete training behaviors.

Purpose of the Study

Based on the advantages that satisfaction can offer to the student-athlete, this study was designed to evaluate and develop an understanding of effective training protocols for satisfaction and performance in collegiate distance runners. Given the lack of research on athlete satisfaction specific to the coach controlled physical training program aspects and how satisfaction relates to performance in collegiate distance runners, the present study was designed to achieve a dual purpose. The primary purpose of this study is to examine the relationship between collegiate distance runners' satisfaction and training protocols. The secondary purpose of this study was to determine the relationship between collegiate distance runners' training program satisfaction and performance. In other words, the coach controlled training and instruction behaviors will be

assessed to determine the level of satisfaction that the distance running athlete has with these specific facets of the physical training program. Once levels of satisfaction of the training protocols are assessed, performance will then be measured as a correlate to training protocols.

Research Questions

In order to investigate whether there are certain aspects of the coaches' prescribed training protocols that influence the level of athlete satisfaction and race performance, these are the research questions with respect to the following:

1. What are the specific training protocols of a college distance runner's training program that tend to make them satisfied?
2. Does distance runner satisfaction with the training program correlate with performance?
3. Does distance runner satisfaction with the training program correlate with performance satisfaction?
4. Is there a relationship between distance runner satisfaction with the training program and gender or academic level?

Null Hypotheses

The null hypotheses are as follows:

1. There will be no correlation between training protocols of a college distance runner's training program and runner satisfaction.
2. There will be no correlation between distance runner satisfaction with the training program and performance.
3. There will be no correlation between distance runner satisfaction with the training program and performance satisfaction.

4. There will be no relationship between distance runner satisfaction with the training program and gender or academic level.

Significance of the Study

If effective distance running protocols are to be designed with the goal of developing satisfied and optimal performing runners, coaches must be concerned about athlete satisfaction and understand the significance in the link between satisfaction and performance. There is currently limited literature and minimal scientific study of athlete satisfaction with the coach-controlled training protocols and the relationship to performance, specifically with collegiate distance runners. Therefore, one of the primary goals of this study will be to clarify effective training behavior strategies and techniques for maximizing athlete satisfaction and performance. The present study has the potential to provide coaches with valuable information on behavioral aspects of training and instruction and performance. Furthermore, the present study can contribute significant implications to the limited body of knowledge on distance running coaching education literature.

Delimitations

This study is delimited to the following:

1. The pre-existing division and conference from which the subjects were chosen (NCAA Divisions I) (6 major conferences);

2. Subjects included on the official team roster in the sport of Track & Field-Distance at their respective colleges and universities;

3. Subjects who competed in at least one long distance race (3k steeple, 5k, 10k) and primarily train for these long distance events.

Definition of Terms

Student-Athlete- a young adult at a university or college who not only has academic priorities but also athletic demands due to membership on the school's sports team(s) (Etzel, Ferrante, & Pinkney, 1991).

Elite Athlete- a genetic/trained physiological shift in an athlete to a greater contribution by the aerobic energy system at a combined zone race distance (Christensen, 2010).

Athlete Satisfaction- a positive affective state resulting when a student-athlete's athletic experiences meet his or her personal standards (Chelladurai & Riemer, 1997).

Performance- an outcome of an organized, competitive sport where success and failure are measured through absolute events and/or psychological states and based on perception of goal attainment (Chelladurai, 1984).

Training Behavior, Training and Instruction, Training Protocol- a representation of coaching behaviors aimed at improving performance through strenuous physical training, and includes emphasis on both technical and tactical components, as well as structuring and coordinating member activities (Chelladurai & Saleh, 1978).

Training Program- the athletes' plan for practice of physical, physiological, and cognitive components of the skill and movement patterns and tactics and strategies of their sport (Janelle & Hillman, 2003).

Chapter 2

REVIEW OF LITERATURE

Theoretical Model

Multidimensional Model of Leadership

Research on coaching effectiveness has led to one common model that has repeatedly aided the study of the quality of the coach-athlete relationships in athletics, the Multidimensional Model of Leadership (MML; Chelladurai, 1978, 1993; Chelladurai & Carron, 1978). Chelladurai modified his original 1978 MML to incorporate features that make this leadership model more effective and applicable to the current research findings. In general, the research based on the MML has been primarily concerned with linking leadership dynamics with athlete satisfaction and performance. The MML resulted from an interest in learning about coaching effectiveness and the influence coaches have on athletes' performance and behavior. Prior to the MML, Chelladurai (1978) found there was a need to bring a connection to the numerous methods to studying leadership in the mainstream literature. He also found the need to bring a sport-specific focus to the study of leadership. Chelladurai and Carron (1978) emphasized that the application of common leadership theory to the athletic environment may not properly explain the uniqueness of the sport perspective. Furthermore, the literature suggested that investigations of leadership in the sport environment required a multiple factor approach.

In order to help bridge the gap from mainstream leadership theory to explaining more sport specific leadership studies, the MML is one of the common theoretical frameworks utilized. The MML is based on past leadership theories including Fiedler's (1967) contingency model of leadership effectiveness, Evans' (1970) and House's (1971; House and Dressler, 1974)

path-goal theory of leadership, Osborn and Hunt's (1975a) adaptive-reactive theory of leadership, and Yukl's (1971) discrepancy model of leadership and encompasses an interactional view of leadership in sport. In sport environments, leadership is provided by a coaching staff and represents coaching behaviors. At the focus of the MML, there is the hypothesis that performance and satisfaction are largely determined by the extent to which a coach's actual behavior matches the preferences of athletes within situational constraints **(**see Figure 1**).** The MML suggests that three aspects of leader behavior need to be in congruence to achieve member satisfaction and performance. In other words, athlete satisfaction and performance can be enhanced when the coaching behavior required by the situation, the coaching behavior preferred by the athletes, and the coaching behavior perceived by the athletes are similar. In comparison, when these three behaviors are not similar, athlete performance and satisfaction are compromised.

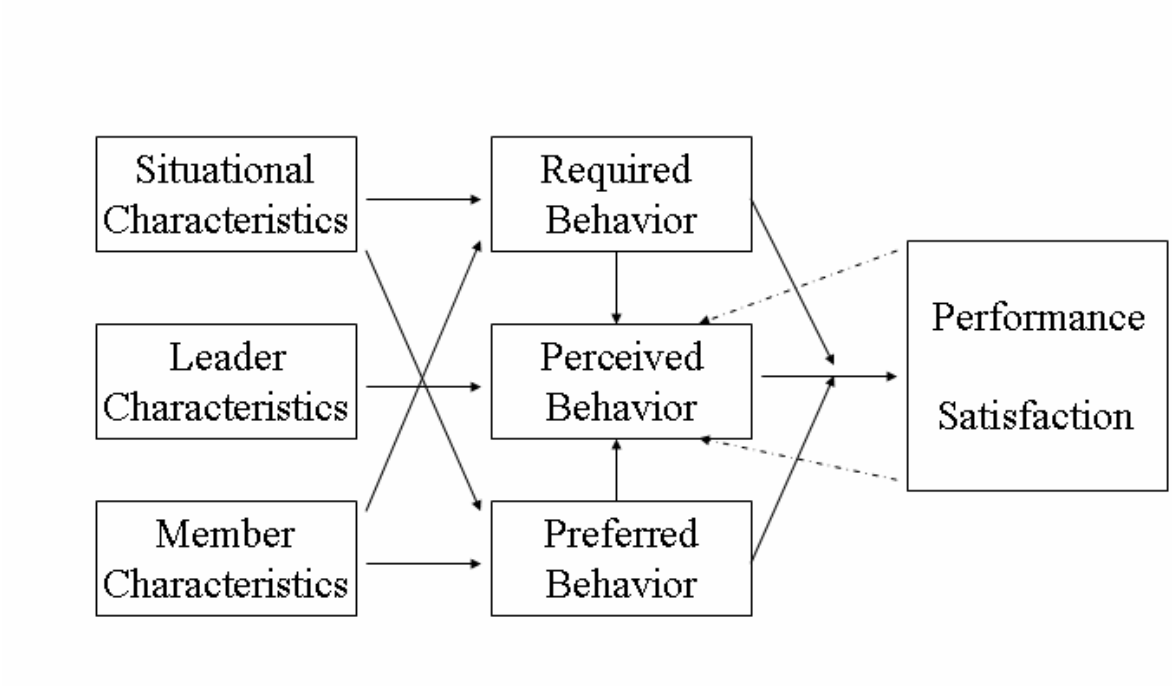

Figure 1. The Multidimensional Model of Leadership (adapted from Chelladurai, 2006)

The three states of leader behavior include required, actual also referred to as perceived, and preferred. Required behavior is the type of coach's behavior prescribed for a particular situation that conforms to the established norms of the athletic organization. For example, distance running coaches are expected to abide by a certain code of conduct at competitions and practices in the presence of their athletes and school officials. Required leader behavior is influenced by situational characteristics such as organizational goals, technology, social norms, formal structure, group task, government regulations, and the nature of the group (Chelladurai, 2006). Situational characteristics place some prescriptions on the kinds of behaviors the coach should engage in and also some proscriptions on the kinds of behaviors that should be avoided. In 1990, Chelladurai added member characteristics as an antecedent of required leader behavior. He found there was a need to account for situations where athletes lack the ability, experience, intelligence, and/or personality characteristics to make good decisions about situational requirements. In this case, the coach must make the proper decisions for the athletes. As a result, required leader behavior is determined by member and situational characteristics.

Actual behavior is the type of coach's behavior perceived by the athletes that the coach exhibits irrespective of the norms or preferences of the team. Andrew (2009) stated that "perceived leader behaviors are primarily determined by the characteristics and behaviors of the leader (i.e., personality, ability, experience, and style), but are also determined to some extent by required and preferred leader behavior" (p.263). As a result, the coach may change his or her behavior to a degree toward the preferences of the athletes and based on the requirements of the situation. Often, coaches do not tend to take into account the preferences of the athletes because many like to be in control and feel they know what is best for the team and individual athletes. For example, distance running coaches prepare actual training programs for all of their athletes,

but often these training programs have to be individualized for athletes to meet their specific needs and abilities. When training programs are not individualized for the distance runners, issues with athlete satisfaction and performance can develop.

Preferred behavior is those coaching behaviors preferred by the athletes. This type of behavior refers to the preferences of members for instruction and guidance, social support, and feedback. Preferred leader behavior stems from both the aforementioned situational characteristics and member characteristics such as personality traits, attitude toward authority, task-relevant ability, cognitive structure, and the need for affiliation. Preferred behavior is also thought of as a reflection of individual differences within the group where the group as a whole may differ from another group in terms of age, skill level, and gender. For example, the coach's behavior required and preferred in the context of a college distance running team may be different from those behaviors required and preferred by a youth distance running club team. In this case, the coach has to be attuned to the leadership behaviors he or she displays in order to accommodate to the specific population of athletes and to achieve effective group performance and member satisfaction.

In summary, even after all three states of coaching behaviors are found to be congruent in a way that they will influence the outcome variables of athlete performance and satisfaction, there is still a need for the coach to juggle and balance the demands caused by specific situations and the preferences of the athletes. In order to help combat these situations, two feedback loops were added to the MML from performance and satisfaction to actual behaviors. The feedback loops account for the likelihood that the coach needs to alter behavior based on the relative achievement of the outcome variables. For example, task-oriented behaviors would need more emphasis if the group or individual fails to reach their goals in order to enhance the performance

capabilities of the individual or group. Chelladurai (2007) stated "if the leader perceives that the members are not satisfied with the leader and/or the group and their involvement, the leader is likely to focus more on those behaviors that would foster warm interpersonal interactions between the leader and members and among the members" (p. 118).

Consequences of Leader Behavior

Through the 21st century initial research has supported the proposition and the individual tenets of Chelladurai's MML. In the MML, leadership effectiveness, as defined in terms of congruence between required, preferred, and perceived leader behavior, results in member satisfaction and performance outcomes. The MML includes member satisfaction and performance as consequences of leader behavior. Since leader behavior is comprised of required, preferred, and perceived behavior, satisfaction and/or performance could be limited by any one of the three states of leader behavior. Therefore, the MML proposes that a high congruency between required, preferred, and perceived leadership behavior will lead to increased member satisfaction and performance.

Member Satisfaction

Many studies have clearly identified a link among congruence in the three states of leader behavior and athlete satisfaction (Andrew, 2009; Chelladurai, 1978; 1984; Dwyer & Fischer, 1990; Horne & Carron, 1985; Riemer & Chelladurai, 1995; Schliesman, 1987; Summers, 1983; Weiss & Friedrichs, 1986). In particular, Chelladurai (1978) studied the leadership preferences and perceptions of 216 university level male athletes in wrestling, basketball, and track and field. Chelladurai utilized the team as the level of analysis and found that the congruence between perceived and preferred autocratic and positive feedback behaviors influenced satisfaction with the coach in a curvilinear fashion. As a result, the members were less satisfied when the coach's

perceived behavior deterred from the preferred behavior in either direction. Autocratic coaching behaviors reflect a coach's independent decision-making process and represent the coach as an authority figure. Positive feedback coaching behaviors represent reinforcement of an athlete through recognizing and rewarding good practice or performance. This was an important initial study because it helped discover autocratic and positive feedback coaching behaviors as major influences of athlete satisfaction.

In 1984, Chelladurai later reanalyzed the university level male athlete data with the 216 individuals as the unit of analysis and found that the discrepancy between a member's preferences and his/her individual perceptions of coaching behavior was associated with member satisfaction with leadership, team performance, and overall involvement. It is also important to highlight that the effects of the discrepancies were more evident on satisfaction with leadership than on the other facets of satisfaction. In 1985, Horne and Carron went onto support these findings through their study that found discrepancies in training and instruction, social support, and positive feedback were significant predictors of satisfaction with leadership. Training and instruction coaching behaviors are aimed at improving performance through strenuous physical training. It is important to note that this was one of the first studies where training and instruction behaviors were found to be an important predictor of athlete satisfaction.

Schliesman (1987) studied 40 male collegiate track and field athletes and found perceived democratic behavior and social support to be positively related to general satisfaction with leadership. In this particular study, perceived democratic behavior and social support were slightly better predictors of satisfaction with coaching leadership than the corresponding discrepancy scores. Democratic coaching behaviors allow athletes to participate in the decision-making process throughout their sport experience. Social support coaching behaviors are

characterized by a concern for the welfare of athletes and are aimed at generating a positive group atmosphere. Weiss and Friedrichs (1986) analyzed the relationship of 251 U.S. college basketball players' perceptions of their coaches' behavior on both the team and individual levels. At the team level of analysis, perceived leadership was predictive of team satisfaction, with positive feedback as the most predictive factor of team satisfaction. At the individual level of analysis, the collective leadership variables contributed to athlete satisfaction, but only the perceived democratic behavior and social support dimensions were statistically significant. In general, Weiss and Friedrichs found that coaches who engage in frequent rewarding behavior, social support behavior, and a democratic style of leadership increase athletes' satisfaction.

A study by Dwyer and Fischer (1990) discovered that wrestlers were more satisfied with their coaches if higher levels of positive feedback and training and instruction and lower levels of autocratic behavior were displayed. Coaches' leadership behaviors of perceived social support and democratic behavior were not statistically significantly contributors to wrestlers' satisfaction. Summers (1983) analyzed 128 lacrosse players' perceived training and instruction, social support, and positive feedback behaviors. The results concluded that athlete satisfaction was positively correlated with perceived behavior of all three dimensions. Recently, Andrew (2009) analyzed 245 NCAA Division I, II, and III tennis players' preferred and perceived coaches' behaviors to determine if significant leadership satisfaction ensued. According to the results, it was found that when there is congruency of preferred and perceived coaches' behaviors collegiate tennis players were more satisfied with their coaches if higher levels of autocratic and training and instruction behaviors were exhibited.

According to the literature to date, not all research has universally supported the idea of satisfaction as an outcome of coaching behavior congruency. A study by Riemer and Toon

(2001) examined the relationship between leadership and satisfaction among 148 tennis players competing at the NCAA Division I and II Tennis Championships. The results indicated that athlete satisfaction was not dependent upon the congruence between perceived and preferred coaching behaviors. Riemer and Toon propose that the validity of the congruency hypothesis might be a function of situational conditions or how perceived behavior is utilized. According to the authors, issues with past studies concerning measurement of leader's actual behaviors and congruence are thought to have contributed to a lack of clarity.

In general, the aforementioned leadership studies emphasize the relationship between coaching behaviors and satisfaction. This research illustrates the way leadership in sport has been studied in the classical sense. As Chelladurai (1993) has noted, "Athletes are satisfied with leadership to the extent that the coach emphasizes (a) training and instruction that enhance the ability and coordinated effort by members, which in turn contributes to task accomplishment; and (b) positive feedback that recognizes and rewards good performance (p. 654)." These studies conclude that athletes are more satisfied when actual and prescribed coaching behaviors agree with the athletes' own preferred coaching behaviors.

Performance

Although the relationship between coaching behaviors and member satisfaction has been examined extensively within the construct of the MML, the relationship between coaching behaviors and performance has received less attention. The relatively small amount of literature examining athletes' perceptions of coaching behaviors as contributing factors to performance may be attributed to the difficulties in objectively defining a measure of performance (Andrew, 2009; Crust & Azadi, 2009; Gordon, 1986; Horne & Carron, 1985; Loughead & Hardy, 2005; Serpa, Pataco, & Santos, 1991; Weiss & Friedrichs, 1986). From the abovementioned Weiss and

Friedrichs (1986) study where 251 U.S. college basketball players' perceptions of their coaches' behavior were analyzed on both the team and individual levels, they discovered the players' perceptions of their coaches' behavior were associated with performance. By utilizing the team as the unit of analysis, Weiss and Friedrichs found perceived coaching behaviors to be predictive of win/loss percentage. At the individual level of analysis, the coaching dimension of perceived social support was most strongly, yet negatively, linked with win/loss percentage.

A study by Gordon (1986) measured more successfully performing Canadian university soccer players against their less successful counterparts. The results highlighted that university soccer players from more successful teams perceived more training and instruction, autocratic, social support, and positive feedback behaviors than less successful players. A similar study by Serpa, Pataco, and Santos (1991) indicated that members of the best handball team from the 1988 World Championships perceived their coach to be emphasizing significantly more autocratic behavior, and significantly less social support, democratic behavior, and rewarding behavior when compared to the last place handball team members.

Horne and Carron (1985) implemented an appealing approach to encompass the performance measure when they requested that athletes rate their own performance. The results indicated that athletes' perceptions of positive feedback were positively correlated with their perceptions of their own performance. A study by Loughead and Hardy (2005) examined 238 Canadian athletes from a wide range of team sports, including track and field, on their perceptions of coaching behaviors most frequently demonstrated that aid in improving performance. The results found that athletes perceive their coaches to exhibit higher levels of direct task-related coaching behaviors (i.e., training and instruction) as well as an autocratic decision-making style. Even though this study indirectly analyzed performance, these results are

consistent with the belief that one of the most important functions of coaches is to provide athletes with assistance in improving performance levels (Martens, 1987).

The aforementioned study by Andrew (2009) also found through analysis of the 245 NCAA Division I, II, and III tennis players' preferred and perceived coaches' behaviors that there is potential for an improvement in athlete performances. The results indicated that through an increase in coaches' training and instruction and autocratic behaviors the coach has the capability to influence the athlete's satisfaction with his or her own task performance (i.e., absolute performance, improvements in performance, and goal achievement). Recently, Crust and Azadi (2009) examined 103 athletes who participated in a variety of team sports for perceived and preferred coaching behaviors in relationship to mental toughness. They discovered that coaches working with mentally tough athletes should consider emphasizing training and instructive behaviors if they wish to attain congruence between perceived and preferred leadership behaviors. Mental toughness was not found to be significantly related to preference for social support, democratic behaviors, autocratic behaviors, or positive feedback. Crust and Azadi (2009) noted "It is likely that mentally tough athletes' preference for training and instructive behaviors reflects a commitment to and striving performance for enhancement (p. 328)". Although there are a minimal number of studies examining the relationship between coaching behaviors and performance, a link between coaching behaviors and performance seems acceptable at this time.

Antecedents of Leader Behavior

The MML includes three determinants of leader behavior that resulted from prior leadership models: situational characteristics (Osborne & Hunt, 1975a), leader characteristics (Fiedler, 1967), and member characteristics (Hersey & Blanchard, 1977; House, 1971). It is

anticipated that these antecedents influence required, preferred, and perceived leadership behavior. The majority of research concerning the antecedents of leadership behavior in sport has focused on individual differences/member characteristics (Chelladurai & Carron, 1983; Chelladurai & Saleh, 1978; Erle, 1981; Mondello & Janelle, 2001; Riemer & Toon, 2001; Salminen, Liukkonen, & Telama, 1990; Serpa, 1990; Serpa & Antunes, 1989; Serpa, Pataco, & Santos, 1991; Terry, 1984).

Member Characteristics

There are multiple studies on gender as an individual difference that have been found to be a significant determinant of preferred and perceived coaching behaviors. In 1978, Chelladurai and Saleh sampled 160 physical education students and found that males preferred more autocratic and supportive leadership behavior than their female counterparts. Similarly, Riemer and Toon (2001) investigated 148 tennis players competing at the NCAA Division I and II Tennis Championships and found only female athletes to prefer more social support behavior when they were coached by males. Additionally, Terry (1984) found males to prefer more autocratic behavior than females in a sample of competitive elite athletes. A similar study by Erle (1981) utilized a sample of 335 male and female intramural and intercollegiate hockey players. The outcomes indicated that males preferred more training and instruction, autocratic behavior, and social support from their coaches than the females. Conversely, female players preferred more democratic leadership behavior from their coaches when compared to the male players.

Gender has also been an important topic of study within the context of perceived leadership. A study by Serpa, Pataco, and Santos (1991) investigated 87 male handball players from the 1988 World Championships and a study by Serpa and Antunes (1989) analyzed 80 elite female volleyball players participating in the Portuguese National Championship. Although these

studies explored different participant genders and sports, both had similar results. Athletes perceived their respective coaches to highlight rewarding behavior, and training and instruction, while placing the least importance on democratic behavior. Nonetheless, other studies have provided contradictory finding. A study by Liukkonen and Salminen's (1990) of 399 young Finnish athletes suggest that female coaches were perceived to be more democratic and socially supportive than male coaches. In addition, Salminen, Liukkonen, and Telama (1990) noted that female coaches perceived themselves to be more supportive, rewarding, and instructive than Finnish male coaches. Mondello and Janelle (2001) indicated that coaches of male teams exhibited significantly higher levels of positive reinforcement than coaches of female teams. The preliminary results of these studies indicate the level of competition may influence perceived leadership since the coaches of elite female and male players seem to exhibit similar behaviors.

Athlete maturity level is also connected with preferred leadership behavior. A study by Chelladurai and Carron (1983) evaluated the leadership preferences of high school midget, high school junior, high school senior, and university level basketball players. The findings indicated that preference for training and instruction progressively decreased from high school midget through junior to senior levels and increased at the university level. Additionally, the preference for social support steadily increased from the high school midget to the university level. Serpa (1990) noted that younger female basketball players in Portugal preferred more democratic behavior and social support, while older players preferred more autocratic behavior. Other studies have found that more experienced players preferred more positive feedback (Erle, 1981) and social support and autocratic behavior (Chelladurai & Carron, 1983) in contrast to less experienced players. Chelladurai (1993) indicated that the evidence shows "as athletes gain

experience and/or ability, they seem to prefer their coaches to be more autocratic and socially supportive. That leads to the concept of the coach as the benevolent autocrat (p. 652)."

Situational Characteristics

While the majority of research concerning the antecedents of leadership in sport has focused upon individual differences, studies on situational variables have also been utilized to support the MML. Situational characteristics are expressed in the MML as a significant determinant of leader behavior. The situational characteristics influencing required leader behavior include group task, government regulations, formal structure, social norms, organizational goals, technology, and the nature of the group (Chelladurai, 2001). The situational variables that have received the most attention in the context of sport leadership are organizational goals and task type (Chelladurai, 1978; Erle, 1981; Lindauer, 2000).

The abovementioned Erle (1981) study explored 335 intercollegiate and intramural hockey players with conflicting organizational goals. The finding indicated that the intercollegiate teams participated in the pursuit of excellence while the intramural teams were in pursuit of pleasure. The members of intercollegiate hockey teams preferred greater social support and training and instruction from their coaches, while the intramural players preferred more democratic behavior and positive feedback from their coaches.

Studies found conflicting leadership preferences based on task type. Chelladurai (1978) indicated that athletes involved in variable tasks (open sports such as basketball) or interdependent tasks (team sports) preferred more training and instruction than did the athletes in nonvariable tasks (closed sports such as swimming) or independent tasks (individual sports). In addition, athletes in independent tasks and in nonvariable tasks preferred more democratic behavior than their respective counterparts, who preferred more autocratic behavior. A study by

Lindauer (2000) explored the preferred leadership behaviors of college student-athletes in the following individual and team sports: men's and women's track and field, softball, baseball men's basketball, and wrestling. Lindauer's study consisted of 167 Division III level collegiate athletes. The results suggest that individual sport athletes preferred a greater degree of positive feedback and democratic behavior than those who competed in team sports. As noted by Chelladurai (1993), "A general conclusion that can be drawn about the influences of sport type is that as task dependence and/or task variability increase, the need for training and instruction, autocratic behavior, social support, and positive feedback increases (p. 653)."

The results of the aforementioned studies support the inclusion of the separate dimensions of leadership behavior within the MML. Overall, initial research has supported the MML's main proposition and the individual tenets. More specifically, a summary of these sport leadership studies concludes that when coaches exhibit the behaviors of training and instruction, social support, positive feedback, democratic behavior, and autocratic behavior athlete satisfaction and performance are increased. Furthermore, training and instruction proved to be a recurring preferred and perceived coaching behavior among athletes.

Leadership Assessment

Over the past few decades, sport leadership research has focused on one major source that has been found to have the most influence on an athlete's satisfaction and performance, the coach's behavior. The athlete's behavioral changes are thought to be a direct result of the coach's leadership. Barrow (1977) defined leadership as, "the behavioral process of influencing individuals and groups towards set goals" (p.232). Most research on coaching effectiveness has assumed that coaches greatly influence athletes' performance and behavior, as well as their general psychological and emotional well being (Chelladurai, 1990; 1993). Horn (2002)

recognized that the behavior of coaches directly influences the self-perceptions, perceived success, motivation, and achievement behavior of athletes.

In general, Horn (2002) found that over the past few decades the majority of research in sport leadership had been directed toward identifying particular coaching styles that are the most effective for successful performance and/or positive psychological responses from athletes. There have been important results and much merit that has come from these studies linking positive coaching behaviors with increased athlete satisfaction and performance. These studies have helped lay the foundation for how sport leadership in the classical sense has been identified and explained. These past studies have also paved the way for more specific research on the Multidimensional Model of Leadership's satisfaction and performance outcomes. However, there are still issues and gaps in the literature that the researcher feels have not been addressed and do not always make this leadership information directly applicable to coaching. In order to understand the present issues with some of the current coaching leadership studies, a look at Division I college coaches' and administrators' priorities is needed.

In order to consistently keep a coaching job at the elite level NCAA Division I ranks, it is apparent coaches have proven themselves in the past or are currently successful at leading their respective student-athletes. The road to becoming a coach at a Division I program is not paved overnight. There are many bumps that develop along the way. The leadership style that the coach brings to a Division I level program has been learned and developed through a formal coaching education program or most often informally through years of experience in watching and learning from a head coach. In a study by Malete and Feltz (2000) on the effect of successful completion of a coaching education program on the level of coaching efficacy, they found coaching education may not be as formal as coaching education certifications, but some coaches

may prepare more for their coaching job than others by taking courses, going to workshops and clinics, reading coaching manuals, and assisting a head coach before taking their own head coaching position. Regardless of formal or informal coaching education, through these endeavors along with the coach's personality traits, by the time he or she reaches their Division I dream job their leadership style is formed. At this point in the coach's career, he or she has been successful and is confident with their current coaching abilities, knowledge, and ideas. Once a Division I level job is acquired, there are often no plans by the coach to change his or her leadership style.

Since Division I schools and athletic departments hire a coach with a given leadership style, the real question is how do they assess athletic success? At the Division I level, success is usually measured through wins and losses and not athletes' satisfaction levels. As suggested by Jones (2002), coaches are the people responsible for the performance of their teams; they get hired and fired based on their student-athletes' performances. In order for a coach to obtain the amount of wins to continue to keep his or her job, they often feel they must control all of the variables that they possibly can in their athletes' training programs. Outside of practice and competitions, coaches have no real control over the decisions their athletes are making. Through this feeling of a lack of control in the student-athletes' lives, many coaches want to take excessive control of the overall training program. Unfortunately, the student-athlete's perceptions and preferences of their overall training program often get placed by the wayside jeopardizing their athletic experience. Over time, the grueling training program and constant pressure from the coach can cause the athlete to become dissatisfied, have poor performances, and possibly quit. For these reasons, it is appropriate to note that athlete training programs need more analysis, since these coach-controlled training protocols can affect athlete satisfaction and performance, which help shape the student's athletic experience.

Recently, Horn (2008) suggested "we can no longer assume one set of coaching behaviors will be effective for all athletes in all sports situations. Rather, we should recognize that effective coaching behaviors will vary as a function of the athlete and the sport context" (p.244). While it is important to recognize sport leadership studies that have been discussed in the classical sense, the present study has a goal to develop an understanding of effective training protocols for satisfaction and performance in collegiate distance runners. With adequate research clearly identifying a link between leadership congruency and athlete satisfaction, it is time to move forward as Horn (2008) has suggested. Given the lack of research concerning athlete satisfaction specific to the coach-controlled training protocols and how satisfaction with training programs relates to performance, there is a need to examine the extent of these relationships. Attaining such knowledge could allow a coach to manipulate his or her student-athletes' training protocols to accomplish a higher degree of athlete satisfaction and optimal performances.

Before progressing into more specific research on athlete satisfaction and performance, it is important to understand how athlete satisfaction and performance have been typically assessed. Through utilization of assessment scales, the MML variables of coaching behaviors (required, perceived, and preferred), athlete satisfaction, and performance have been successfully measured. These assessment tools have assisted in providing significant findings that support the basic principle underlying the MML. The MML proposes that when a coach's required, perceived, and preferred behaviors are in congruence enhanced athlete satisfaction and performance result.

Athlete Satisfaction Assessment

Satisfaction is an inherent feeling that people desire in every avenue of life. Researchers and practitioners in the social sciences have explored the realm of possible opportunities where

satisfaction is a need that affects human behavior. Popular areas of study in satisfaction include: job, life, leisure, and consumer. Of these areas, the construct that has received the most attention is job satisfaction. In 1976, Locke noted that literally thousands of articles that dealt with satisfaction had been published on job satisfaction. Through the years, the rate of publications on job satisfaction has not subsided. This abundance of research may have its basis in the belief many persons embrace that an individual's level of satisfaction is associated with (a) the amount of effort that will be put into a task, (b) how long they remain with the organization, (c) their level of cooperation with others in the immediate environment, and (d) their overall happiness (Saal & Knight, 1988).

Job satisfaction research theories describe that if what was experienced or received meets with a standard, it would lead to satisfaction, and if the standard is not met it would lead to dissatisfaction (Saal & Knight, 1988). Researchers in behavioral disciplines use this basic comparison idea as the framework for assessing satisfaction. This idea on comparison processes underlying job satisfaction is straightforward, but theories differ on the standards used by researchers in their comparisons. Maslow (1943) in his theory of human motivation describes that the standards can be one's physiological needs and psychological needs. For example, when the job satisfies one's needs, satisfaction will follow; and if the needs are not met, dissatisfaction will occur. A theory by Locke (1976) derives from what one values in the work context. The factors one values or wants are the standards that a person would use in comparison to personal outcomes. For example, if high importance is attached to a particular outcome from that point forward that would be the basis of comparison for satisfaction to ensue. These two fundamental theories of needs and values first applied to the workplace have helped lay the foundation for the exploration of many more constructs of satisfaction.

With the foundation of abundant literature on job satisfaction solidified, researchers and practitioners began to seek out information on other constructs of satisfaction. One particular construct of satisfaction that became of interest to sport psychologists and those involved in the domain of athletics is athlete satisfaction. In the sport psychology literature, satisfaction has often been used as a catalyst to assess behavior change in athletes. Researchers of athlete satisfaction found that they needed a conventional definition of the construct and a comprehensive classification system for the various dimensions. It was not long after that Chelladurai & Riemer (1997) came up with a definition and a way to delineate the various facets of athlete satisfaction. Chelladurai & Riemer's (1997) have defined athlete satisfaction as "a positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience" (p. 135). In fundamental terms, it is the extent to which one's athletic experiences meet one's personal standards. The more incongruent one's athletic experience and personal standards become, the more dissatisfaction one is believed to experience.

Both Chelladurai & Reimer (1997) recognized three specific criteria for classifying the different facets of athlete satisfaction. First, the identified facet must be categorized into related outcomes (e.g., winning, goal attainment) or those associated with the processes that result in outcomes (i.e., leadership). The second criterion is that the facets must reflect both individual and team outcomes and processes. This criterion stems from the idea that certain outcomes desired by the individual may be derived only through the efforts and performance of their teammates. Conversely, it is possible that an athlete may develop attitudes toward the team as an entity apart from themselves. The third classification criterion is based on the understanding that some outcomes and processes are entirely task related and others are more social. Examples of

task outcomes and processes include personal goal attainment, performance improvement, and training and instruction. Examples of social outcomes and processes include social status, loyalty support, and social support.

Once the different facets of athlete satisfaction are identified and categorized, the assessment process is conducted. In the past, the typical methodological approach has been to utilize a single-item measure to assess one or more of the facets that encompass athlete satisfaction (e.g., Chelladurai, 1984; Reimer & Chelladurai, 1995; Schliesman, 1987). The assessment tools of the past were associated with a problem in that they did not fully assess athlete satisfaction's multidimensionality. Zellar and Carmines (1980) stated that "the use of a single item (indicant) to reflect a construct is quite undesirable because it is impossible to estimate the reliability of that measure unless a priori information is available (which is typically not the case)" (p. 48). Additionally, these tools often assess global satisfaction and lack the comprehensiveness needed to fully address the nature of athlete satisfaction. To overcome the limitations of the single-item assessment tools and to measure the facets of satisfaction identified by Chelladurai and Riemer (1997), the Athlete Satisfaction Questionnaire was developed (ASQ; Reimer & Chelladurai, 1998).

The ASQ provides a sound measure of athlete satisfaction and is the most familiar and commonly utilized athlete satisfaction questionnaires. The ASQ is a 56-item questionnaire that contains 15 dimensions of athlete satisfaction. The 15 subscales that are assessed by the ASQ address the most significant features of athletic participation: (a) performance (team and individual), (b) leadership, (c) the team, (d) the organization, and (e) the individual. To complete the ASQ, respondents answer questions based on a seven point Likert scale ranging from "not at all satisfied" to "extremely satisfied".

Of the 15 subscales in the ASQ, only four subscales are conceptually related to leadership behavior. These four subscales include: personal treatment satisfaction, training and instruction satisfaction, team performance, and individual performance satisfaction. Specifically, the first two subscales evaluate satisfaction with the processes of coaching behavior, while the second two subscales focus on satisfaction with outcomes associated with the leadership process (Riemer & Chelladurai, 1998). In previous studies utilizing the ASQ to measure athlete satisfaction as an outcome of leadership behavior (e.g., Al-Tahayneh, 2003; Andrew, 2009; Reimer & Toon, 2001); the number of questionnaire items for the ASQ was reduced down to 14 items from the four subscales. This has been common practice when assessing leadership behavior to narrow the ASQ to these four subscales that theoretically relate to coaching behavior.

By utilizing the ASQ, researchers have been able to assess prescribed aspects of coaches' behavior that are perceived and preferred through athletes' levels of satisfaction. Chelladurai & Reimer (1998) describe the ASQ "to possess the qualities suggested by Ironson, Smith, Brannick, Gibson, and Paul (1989) and Smith et al. (1969) as able to empirically distinguish between the various facets of satisfaction; useful across settings or populations (i.e., a variety of sport types and organizational types); understandable, short, and allowing for group administration; and easy to read and respond to" (p. 146). With an established definition, classification, and measurement system for athlete satisfaction in place, the processes and standards underlying athlete satisfaction are left to be explored.

Training Behavior Assessment

Another area in sport psychology and the domain of athletics that has received much focus is training behavior. Chelladurai (2007) described that training behavior focuses on developing technical, cognitive, and emotional skills. From sport to sport, it is important to

recognize that the content and comparative significance of these forms of training may immensely vary. In reference to technical training, it is training in the skills and movement patterns of a given sport (Janelle & Hillman, 2003). Technical training involves the coach's instruction and directives toward increasing athletes' physical and physiological abilities. Cognitive training focuses on strategies and tactics and understanding the correct time to utilize them in different circumstances (Janelle & Hillman, 2003). With cognitive training, it is centered on attention to and the interpretation of cues and the decision making process that result. Emotional training has a significant impact in the pursuit of excellence in sport at the practice and performance stages. The coach and athletes must understand and learn to regulate their emotions to make the overall athletic experience more effective.

In the research, all three areas of training behavior have received attention but the area that has received the most focus is on technical training. This category of behavior is often interchanged with training and instruction and training protocols as a dimension of leader behavior in sports. Chelladurai & Saleh (1978) have described training and instruction as a representation of coaching behaviors aimed at improving performance through strenuous physical training, and includes emphasis on both technical and tactical components, as well as structuring and coordinating member activities. Effective training protocols in sport provide a crucial role in the pursuit of excellence. The coach plays a key leadership position in guiding student-athletes' athletic behavior. Within the overall training program, the coach is directly in charge of the training and instruction. Through proper awareness of training and instruction, a coach is able to plan and implement individualized quality training programs for every one of their athletes.

There are three commonly utilized scales for measuring training and instruction coaching behavior in sport. The original scale for assessing leadership preferences in sport has most often been studied using the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980). The LSS was developed in concurrence with the Multidimensional Model of Leadership so that the constructs of the model can be adequately tested.

The LSS consists of 40 items which measure the following five dimensions of coaching behaviors: Training and Instruction, Democratic Behavior, Autocratic Behavior, Social Support, and Positive Feedback/Rewarding Behavior. Training and Instruction reflects the coach's ability to improve the performance level of the athlete. Democratic behavior reflects the extent to which the coach permits participation by the athletes in decision-making. Autocratic behavior indicates the extent to which a coach keeps the athletes out of the decision-making and stresses his or her authority in dealing with them. Social support refers to the degree by which the coach is involved in satisfying the interpersonal needs of the athletes. Positive feedback refers to the coach's expressions of recognition and readiness to compliment the athletes for their performance and strong effort. Two of these dimensions (Democratic and Autocratic Behaviors) describe the coach's style of decision making or the extent to which athletes are encouraged to participate in the decision making process. Two other dimensions (Training and Instruction and Positive Feedback) are task-oriented behaviors aimed at improving performance and using praise and rewards. The fifth dimension (Social Support) is associated with constructing a friendly and positive group climate that focuses on the welfare of the athletes.

In order to determine preferred and perceived coaching behaviors, the LSS is administered to athletes as an inventory that asks them to complete the scale according to the coaching behaviors they prefer or according to the coaching behaviors they actually observe in

their coach. To determine prescribed coaching behaviors, the LSS is administered to coaches and asks them to complete the scale relative to how they believe they coach. The Likert scale response format utilized with the LSS is one that refers to the frequencies of the behavior displayed by the coach in five categories ranging from "always" to "never".

The LSS remained as the major coaching behavior assessment tool in sport until Zhang, Jansen, and Mann (1997) discovered the need to include more dimensions and items; therefore modifying the original scale. The modified scale took on a new name known as the Revised Leadership Scale for Sports (RLSS). It continued to serve the major purpose of assessing perceived and preferred leadership behavior. The difference in the RLSS as opposed to the LSS is that it is composed of 60 items measuring six behaviors. The new questionnaire now contains the following subscales: Training and Instruction, Democratic Behavior, Autocratic Behavior, Social Support, Positive Feedback, and Situation Consideration. Zhang, Jansen, and Mann (1997) described the new subscale, situational consideration behavior as: "aimed at considering the situation factors (such as the time, individual, environment, team, and game); setting up individual goals and clarifying ways to reach the goals; differentiating coaching methods at different stages; and assigning an athlete to the right position" (p. 109-110). Similarly to the LSS, the RLSS utilizes a Likert scale response format that refers to the frequencies of the behavior displayed by the coach in five categories ranging from "always" to "never".

One other assessment tool that measures training and instruction behavior is the Athlete Satisfaction Questionnaire (ASQ; Reimer & Chelladurai, 1998). As previously discussed, the ASQ's purpose is to provide a comprehensive and sound measure of athlete satisfaction with the sport experience. With four of the 15 subscales in the ASQ conceptually related to leadership behavior, the ASQ has one subscale specific to training and instruction behavior. Within the

ASQ, training and instruction has a primary focus on satisfaction with the processes of coaching behavior. Through utilization of the ASQ, researchers have been able to assess prescribed aspects of coaches' behavior that are perceived and preferred through athletes' degrees of satisfaction.

The ASQ differs from the LSS and RLSS in that it specifically focuses on satisfaction of the coach's training and instruction behaviors rather than the frequencies of the training and instruction behavior displayed by the coach. The ASQ has been utilized to assess student-athletes' satisfaction with their whole athletic experience, while the LSS and RLSS focus on specific dimensions of leader behavior. In discussing the major difference between the LSS and RLSS, Zhang, Jensen and Mann (1997) argue that the RLSS is more contextually appropriate for collegiate athletes in the United States than Chelladurai & Saleh's (1980) original LSS. Chelladurai (2007) has refuted this claim of the RLSS superiority describing that further investigation is needed in future studies employing a comparison of both scales. With five of the six factors in the revised RLSS the same as the five dimensions of the LSS, the internal consistency estimates have not improved to any extent. Even with the sixth factor of the RLSS, it has not been found to indicate more significant leadership behavior findings as compared to those already highlighted in the five dimensions of the LSS. Depending on the purpose of the sport related study of coaching behaviors, all three measurement tools continue to provide internal consistency for exploration of valuable coaching education information.

Performance Assessment

A third area of sport psychology and the domain of athletics that provides an important avenue for research interest is directed towards achieving effective performance. Performance has not been formally defined but when associated with the domain of athletics it involves an

organized, competitive sport where one of the prime objectives is to win. On the other hand, Chelladurai (1984) noted performance success and failure do not exist as absolute events such as to win or lose, but rather are based on the perception of goal attainment. This means that performance should be considered a psychological state. Therefore, when determining effectiveness of performance it is intuitively linked by many practitioners in the domain of sport with athlete satisfaction. Since collegiate sport participation is ultimately voluntary, a satisfied athlete is seen as a requirement to athletes performing consistently as the highest level.

Performance is often classified as an outcome variable because it reflects goal achievement by individuals or groups. Performance is hard to measure as it has been found that it can be easily influenced by outside sources. Courneya and Chelladurai (1991) noted that several measures related to performance (i.e., win-loss percentage, the difference between points scored for and against the team, and the ratio of final score of the two contestants) are contaminated by random chance, opponent's outstanding performance, strategic choices made by the team/coach, and officials' wrong calls. Studies by Chelladurai (1984) and Horne and Carron (1985) suggest that one way to avoid these drawbacks is to use player perception of individual and team performance. Another way is to assess players' satisfaction with their own performance and that of the entire team. Chelladurai and Riemer (1998) included these two assessment facets in their Athlete Satisfaction Questionnaire. In summary, win and loss measures do not necessarily reflect the relative performance or the athletic experiences of teams or individuals. Based on the informal definition of performance and the way it is most accurately measured, practitioners conclude that performance is more of a psychological state contingent upon perception of goal attainment.

One issue with this abovementioned idea raised by Chelladurai (1984) and Courneya and Chelladurai (1991) about there being no absolute measures of performance and performance being contaminated by factors out of the athletes control is that they did not take into consideration a team sport like distance running in track. Due to the nature of elite Division I level athletics, a common theme exists in that success is often measured by wins and losses rather than by athlete satisfaction with their performance effectiveness and overall athletic experience. In track-distance running, this equates to achieving time standards to qualify for nationals or by scoring points at the conference meet. Distance running is unique in that an individual is not only running against the clock, but also against the opposition. The individual can score points for his or her team if they perform well and if a set time standard of performance is achieved the individual moves onto higher competition rounds (i.e., regionals, nationals). For many runners, they have also been taught that performance success is measured by decreasing one's time as compared to previous personal best times or from improvement in time or place from one year to the next. For those runners who do not meet their racing time goals or score points at their conference meet, performance effectiveness is then measured as failure in the coach's, athlete's and, organization's perspective.

However, as Chelladurai (1998) first suggested with the Athlete Satisfaction Questionnaire, there is a need for a satisfaction measure of performance. In a sport such as distance running, an athlete needs to feel a sense of satisfaction for all the hard work they are accomplishing. Otherwise, they are likely to feel disconnect and possibly quit. For the runners who slightly miss scoring points at their conference meet and are not meeting their time performance goals, rather than being thought of as failure, there still needs to be a measure of the athletes' performance. If satisfaction is utilized as a performance measure, the coach can become

cognizant of the effectiveness of their training protocols. Through the use of satisfaction to assess training protocols, the coach might find that he or she needs to alter the training program for specific individuals so they respond accordingly. For those coaches that feel athlete satisfaction is important, the present study could help them understand the methods and strategies to assist in getting all their athletes to perform at a higher level.

Other commonly utilized scales for measuring performance through training and instruction coaching behavior in sport are the previously mentioned LSS and the RLSS. Both measurement tools assess athletes' preferences, perceived, and required coaching behaviors in sport. The LSS was the first scale to be developed in concurrence with the Multidimensional Model of Leadership so that the constructs of the model can be adequately tested. The RLSS is a slightly modified version of the LSS with one more dimension of coaching behavior to measure. Training and Instruction is one of the five dimensions measured in the LSS and the RLSS. Training and Instruction is a task-oriented behavior that reflects the coach's ability to improve the performance level of the athlete. The Likert scale response format utilized with the LSS and RLSS is one that refers to the frequencies of the behavior displayed by the coach in five categories ranging from "always" to "never".

Further exploration is needed with a sport like distance running to determine the relationship between collegiate distance runners' training protocols satisfaction and performance. Performance has been given limited consideration in studies that involve examining effective coaching behaviors. Specifically, the influence that athlete satisfaction has on performance still needs much attention. Research on performance, athlete satisfaction, and coaching behavior (required, perceived, preferred) has shown that the three can influence one another.

Specifically, a summary of the leadership studies in sport indicate that when coaches exhibit more behaviors of social support, positive feedback, training and instruction, democratic behavior, and autocratic behavior, athlete satisfaction and performance are increased. In the majority of sport-leadership studies, the most common preferred behavior that constantly emerged as a significant result was training and instruction behavior. These present findings support past literature of Chelladuria (1993), who found that training and instruction was the most preferred behavior of athletes. Furthermore, even though training and instruction has proven to be the most preferred coaching behavior, there is currently limited literature and minimal scientific study of athlete satisfaction with the training protocols and the relationship to performance, specifically, with collegiate distance runners. Next, through exploration of the limited yet more specific studies on athlete satisfaction, training behaviors, and performance, the primary investigator will review the relationships among the variables.

Athlete Satisfaction and Performance

Lorimer and Jowett (2009) describe the coach-athlete relationship as "a close relationships with a high degree of interdependence and interaction occurring within the training environment, during practice of the skills and techniques of their sport" (p. 201). The close relationships that are formed enable the student-athletes and coaches to achieve goals that they could not achieve alone. The coach-athlete relationship is developed through the athlete's need to obtain knowledge from the coach, the coach's need to impart expertise to the athlete, and for them both to translate this into positive outcomes (Lorimer & Jowett, 2009). In order for the coach and student-athlete to gain positive outcomes, they need to maintain a healthy relationship that is built around trust, good communication and respect. If both parties involved receive rewards rather than acquire costs, they will perceive the relationship as beneficial. When coaches

get their distance runners to score points in the conference championships, qualify for regionals and nationals, and become athletic All-Americans, they receive rewards. When athletes run personal bests, score points, qualify for nationals, and are satisfied with their coach and sport, they receive rewards. However, Lorimer and Jowett (2009) suggest that if the relationship is perceived to incur costs (e.g., conflict, lack of performance, dissatisfaction), then coaches and athletes are less likely to want to continue together, and may seek alternatives (e.g., new coach, new team, quit the sport). Thus far, researchers have thoroughly examined the impact of leadership congruency on athlete satisfaction in a variety of sport-specific settings (Andrew, 2009; Chelladurai, 1978; 1984; Dwyer & Fischer, 1990; Horne & Carron, 1985; Riemer & Chelladurai, 1995; Schliesman, 1987; Summers, 1983; Weiss & Friedrichs, 1986). Conversely, limited studies have been conducted on specific aspects of the coach-athlete relationship that have been shown to have a positive effect on athlete satisfaction (Lorimer & Jowett, 2009; Park et al, 1999; Schliesman, 1987; Sullivan & Gee, 2007).

Athlete Satisfaction

Although many studies can be found in the academic literature regarding job satisfaction, very few studies have specifically examined athlete satisfaction as a separate construct. The concept of athlete satisfaction is a positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience (Chelladurai & Riemer, 1997). The level of an athlete's satisfaction is determined by the discrepancy between what is wanted by the athlete and the perception of what is received within the psychological, physical, and environmental domains.

A study by Park et al (1999) examined the degree of satisfaction of 168 elite track and field athletes in South Korea with six factors: facilities, equipment, financial support, head

coach's technical ability, training methods, and leadership. The results of this study indicated the top South Korean track and field athletes were generally satisfied with facilities, head coach's technical ability, training methods and leadership. However, they were not satisfied with their financial support. For this study, the authors constructed their own athlete satisfaction questionnaire. The abovementioned Schliesman (1987) study surveyed 40 male university level track and field athletes and found a significant positive linear relationship between coaching discrepancy scores (preference and perceptions) and satisfaction with coaching. Schliesman utilized the LSS with these track and field athletes to measure their preferred and perceived coaching behaviors.

Sullivan and Gee (2007) studied 79 team sport athletes' perspectives of their relationship between intrateam communication and athlete satisfaction. The results indicated that communication and satisfaction are significantly associated based on the perceptions of these athletes. Specifically, athletes who receive frequent, clear, and positive instructions/guidance with respect to their competitive responsibilities are more likely to perceive their athletic experiences as satisfying. In general, such a finding is important because athlete satisfaction and intrateam communication have been found to influence overall team performance. A current satisfaction study by Lorimer and Jowett (2009) explored the coach-athlete dyads of 120 coaches and athletes from individual and team sports, including track and field. The focus of the research was on specific contributors to satisfaction in the coach-athlete relationship. The results indicated that athletes who feel their coach trusts, likes, and respects them, is committed to them, and works well with them are more likely to be satisfied. The Sullivan and Gee and Lorimer and Jowett studies both utilized specific subscales of the ASQ to assess athlete satisfaction.

Performance

Although athlete satisfaction as a separate construct has received little attention from researchers, even fewer studies have specifically examined performance or the relationship among athlete satisfaction and performance. The relatively small amount of literature examining performance may be attributed to the difficulties in objectively agreeing on and defining the best measure of performance. Examining athletes' perceptions of coaching behaviors as contributing factors to performance have resulted in significant findings (Andrew, 2009; Crust & Azadi, 2009; Gordon, 1986; Horne & Carron, 1985; Loughead & Hardy, 2005; Serpa, Pataco, & Santos, 1991; Weiss & Friedrichs, 1986). However, performance as a dependent variable in relation to attitude or other behaviors has received little attention from researchers outside of the coach-leadership behaviors domain (Greenleaf, Gould, & Dieffenback, 2001; Adie & Jowett, 2008).

In one of the few studies specific to performance, Greenleaf, Gould, and Dieffenback (2001) analyzed Olympic athletes from the 1996 Summer Games on the predictors of the coach-athlete relationship and the effect on performance. According to the results, for those who did not perform as well as expected felt that conflict with the coach, receiving inaccurate technical information, the coach's inability to handle selection controversy, and lack of focus on team climate played significant roles in lower-level performance. Conversely, trust, friendship, and feedback from the coach had a positive impact on the performances of athletes who met or exceeded expectations.

A more recent study by Adie and Jowett (2008) examined 156 track and field athletes' meta-perspectives of the coach-athlete relationship (i.e., how they believed their coaches viewed the athletic relationship) relative to their goal performance adoption and motivation types. The results indicated that athletes' meta-perspectives predicted the adoption of a mastery approach

goal (i.e., task or self-referenced goals), which in turn promoted athletes' intrinsic motivation. Although this study analyzes motivation, the research is still important because it has started to indicate that a positive meta-perspective of the quality of the coach-athlete relationship is associated with a number of personal and interpersonal benefits (i.e., goal achievement, enhanced performance, satisfaction with performance).

Summary

An important theme has surfaced from this literature review that needs further investigation. The MML congruency research has identified a relationship between athlete satisfaction and performance. Unfortunately, even though many acknowledge there is a correlation between athlete satisfaction and performance, past studies have not clearly addressed this issue. There is a significant gap in the literature regarding athlete satisfaction specific to training protocols and in relationship to performance. The existing literature has been more focused on finding congruent coaching behaviors that are important contributors for optimal sport performance. Since it has been determined that specific coaching behaviors have a positive influence on athlete satisfaction and performance and coaches are in control of designing, prescribing, and administering effective training programs, it begs the question, what specific aspects of the training protocols are satisfying? In addition, are the athletes who are satisfied with their training program also performing at the highest level and the most satisfied with their performance? It is imperative for coaches to understand the effect of training protocols on athlete satisfaction and that training program satisfaction and performance are intuitively linked. The present study is set to evaluate and develop an understanding of effective training protocols for satisfaction and performance in collegiate distance runners.

Chapter 3

METHODOLOGY

This chapter discusses the participants, instrumentation, procedures and data analysis used in the study. This study utilized quantitative research methods to analyze the essential components of training and instruction protocols, athlete satisfaction, and performance as perceived by NCAA Division I track distance runners. The present study was designed to achieve a dual purpose. The primary purpose of this study was to examine the relationship between collegiate distance runners' satisfaction and training protocols. The secondary purpose of this study was to determine the relationship between collegiate distance runners' training program satisfaction and performance.

Participants

The study group was comprised of elite college male and female student-athletes who compete in track-distance running from the six major Division I conferences. The six major Division I conferences represented participants over a broad geographical region throughout the United States to include: Atlantic Coast Conference (ACC), Big East Conference (Big East), Southeastern Conference (SEC), Big Ten Conference (Big 10), Big 12 Conference (Big 12), and Pacific-10 Conference (Pac 10). Only major conferences were selected for the sample group in order to control for the varying skill and ability levels among Division I college and university track-distance running programs. For the purpose of this study, it was important to be consistent in selecting major versus non-major Division I conferences because even within the sport of Division I college track-distance running coaches' prescribed training protocols can differ based on the competiveness of the conference. Among these six major Division I conferences, there are a total of 140 teams that sponsor men's and/or women's track and field. Of the 140 teams, there are 72 women's and 68 men's distance running teams. The overall demographic make-up

included 130 male and female freshman through graduate students who range in age from eighteen to twenty-three years-old+ and comprised the long distance runners on their respective track teams.

In the present study, there were a couple of factors that helped determine the 130 participant sample size. On average, there are at least seven long distance runners per track and field team. In the fall during cross country season, seven distance runners get to race at championship meets for their team, so it can be presumed that most of these runners race long distance events in Spring track. However, there is potential for a few of the seven cross country distance runners to drop down in track to middle distance events (i.e., 1500, 800), which could slightly decrease a team's estimated participant sample size. Another important contributor to the participant sample size was dependent on whether or not the 132 distance coaches of the 140 teams forwarded the email of the web-based questionnaire link on to their team of long distance running student-athletes. Therefore, permission from distance coaches for approval of their athletes to participate in the web-based questionnaire was required. Overall, 25 coaches representing 50 teams from 24 different college and universities and all six major Division I conferences forwarded the survey link on to approximately 350 long distance runners.

In order to be eligible to participate in the study, the student-athlete had to qualify for all four of the following guidelines: a.) currently listed on their team's 2010 outdoor track roster, b.) have competed in at least one long distance race (i.e., 3k steeple, 5k, 10k) during the Spring 2010 track season, c.) primarily train for and race in long distance track events (i.e., 3k steeple, 5k, 10k), and d.) be 18 years of age or older. Middle distance runners (i.e., primarily compete in the 800 meters and 1500 meters) were not considered for this study due to major differences in their training protocols as compared to long distance runners. Although it was emphasized in the

general instructions email to the coaches of the 140 teams that they were to only forward the email of the web-based questionnaire link on to their long distance runners who fit the criteria, a few coaches forwarded the questionnaire link on to their middle distance runners.

Instrumentation

The instrument that was used in this study was a questionnaire (see Appendix A) comprised of forty-four questions developed to measure distance runners' perceptions of training program satisfaction, race performance, and race performance satisfaction. The forty-four response questionnaire consisted of a combination of the following components: frequency, type, and volume questions specific to distance runner training protocols, satisfaction with training and instruction questions, absolute performance questions based on time, improvement, and regional qualifying measures, and satisfaction with performance questions. Each of these component areas was assessed by the participants based on their perceptions of (a) the overall 2010 outdoor track training program and performance experience and (b) the level that training, instruction, and performance were satisfying. Furthermore, each question was constructed in a manner that best elicited responses reflective of the distance runners' satisfaction with their training and instruction protocols and race performance.

In order to investigate the specific research questions and purposes of the present study, the 2010 Track Distance Athlete Satisfaction and Performance Questionnaire was developed by the researcher through literature review, personal long distance running coaching and participation reflections, and through discussions with past and present college distance runners. In general, the questionnaire was designed and modified based off Riemer and Chelladurai's 1998 Athlete Satisfaction Questionnaire (ASQ) model with constructs that are specific and applicable to the sport of distance running. Although the questionnaire was designed with

Riemer and Chelladurai's Athlete Satisfaction Questionnaire in mind, none of the questions from the ASQ were utilized in the 2010 Track Distance Athlete Satisfaction and Performance Questionnaire. The questionnaire also included questions derived from the 2006 National Standards for Sport Coaches: Quality Coaches, Quality Sports (NASPE, 2006).

The 2010 Track Distance Athlete Satisfaction and Performance Questionnaire's format and specificity made it unique when compared to the comprehensive Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998). The ASQ is a 56- item questionnaire that contains 15 dimensions of athlete satisfaction that encompass the entire athletic experience. However, for the purposes of the present study, only two dimensions from the ASQ were identified to be pertinent. These two specific subscales included individual performance and training and instruction, which were measured in terms of satisfaction levels and outcomes were provided for the coach-controlled training program. In general, these two dimensions were utilized to help determine the relationship between collegiate distance runners' satisfaction and coaches' training and instruction protocols and the relationship between collegiate distance runners' overall training program satisfaction and performance. The remaining dimensions within the ASQ were not utilized because the researcher felt that they were not factors related directly to the physical training program that the coach had control of designing and implementing.

In order to analyze the two dimensions of training and instruction and individual performance, the 2010 Track Distance Athlete Satisfaction and Performance Questionnaire was comprised of the following four sections: training (satisfaction), instruction (satisfaction), performance (satisfaction), and demographic information. Within the four sections, there were sixteen training behavior questions, sixteen instruction behavior questions, seven performance questions, and five demographic questions to include a total of forty-four questions. For the

training protocols (satisfaction) section, questions 1-10 required the participants to respond to a two-part question. The questions evaluated included the following individual training variables: mileage (volume), short and long speed workouts (type and frequency), recovery (frequency), two-a-day runs (frequency), long run (volume), weight/resistance training exercises (type), additional drills (type), stretching routine (type), and cross-training (frequency). The level that each of these long distance runner training variables is utilized (frequency, type, and volume) in either a typical week's training or a 2-3 week training cycle was measured. After each training protocol utilization question, participants then assessed their level of satisfaction using a five point Likert scale ranging from (1= *very dissatisfied* to 5= *very satisfied*). At the end of the training protocols (satisfaction) section, questions 11-16 required Likert scale responses to assess the distance runners' level of satisfaction with the post-workout cool-down routine, post-race cool-down routine, stretching routine, and the overall, individualized, and effectiveness of their physical training program.

For the instruction protocols (satisfaction) section, all sixteen questions required the participants to reflect on their level of satisfaction with the instruction received during their outdoor track training experience. The questions that participants evaluated using a five point Likert scale for responses ranging from (1= *very dissatisfied* to 5= *very satisfied*) included the following components of instruction: goal or purpose for doing workouts, goal setting and accomplishment, teaching of tactics, post-race feedback, mental toughness development, open communication, mental skills training, confidence building, motivation techniques, willingness to back off training program, nutritional guidance, responsibility to lead teammates, and overall technical and tactical instruction.

In the performance (satisfaction) section of the questionnaire, there were seven questions combined between absolute performance and level of satisfaction measures of performance. This performance (satisfaction) section required the participants to reflect on their outdoor track racing experience. In order to simplify performance reflection and assessment, in question 1, participants chose their best long distance performance event among the 3k steeple, 5k, and 10k. Next, the distance runners chose their best time range of their greatest long distance performance event. For the second part of question 2, the participants' level of satisfaction was then assessed utilizing a five point Likert scale ranging from (1= *very dissatisfied* to 5= *very satisfied*) for their best time range in their greatest event. For the performance time questions, the starting point for determining time ranges per event (3k steeple, 5k, and 10k) was determined by utilizing regional qualifying time standards from 2009. Among these three performance time questions, participants only answered one of the three questions based off their best performance event response in question 1 and gender. Once a distance runner qualifies for regionals with a specified time, to further advance to nationals they must finish in the top 12 places in their regional event. Often, the times that qualify the athletes for nationals are faster than the regional qualifying times. This justified using the regional time in the second categorical range and advancing to one faster and three slower ranges.

Of the remaining five performance questions, questions 3 and 5 were responded to in regard to the participants' best performance event. These questions pertained to the level of absolute performance and were measured through a *"yes" or "no"* response format by assessing the athletes' best performance event time range for the 2010 outdoor track season. For the remaining performance questions (4, 6, and 7), level of satisfaction utilizing a five point Likert

scale ranging from (1= *very dissatisfied* to 5= *very satisfied*) was assessed to evaluate the following components of performance: goals, improvement, time and overall performance.

The demographic section incorporated the following items: gender, age, year in college, injury history, and next year's plans to compete in distance running. The gender, age, and year in college information helped assess the relationship between distance runner satisfaction with the overall training program and gender or academic level. In regard to injury history, most distance runners have small and persistent aches and pains that are present but not severe enough to require time off from training and racing. For those participants with an injury history of longer than a week that is severe enough to require time off from training and competition, it is important to identify those distance runners. Prolonged injuries that require time off from training and racing could have a negative influence on distance runners' perceptions of satisfaction with their overall training program and performance. Last, it was important to have the distance runners indicate whether or not they enjoyed their training and racing experience enough to continue competing in distance running the following year. Retention of distance runners is a priority of coaches and can say a lot about their training and instruction and overall training program. Overall, this study utilized the internet in order to administer the web-based questionnaire to a large number of distance runners over a broad geographical area.

Procedures

Distance coaches of the 140 track and field teams comprised of the six major NCAA Division I Conferences were informed of the study via a pre-notification e-mail two weeks prior to the regional championship meet. In order to increase response rates for web-based questionnaires, Dillman (2000) recommends the inclusion of a pre-notification e-mail message that should be sent two to three days prior to the survey administration date. Pre-notification

messages in particular have been shown to increase response rates among a sample of intercollegiate head coaches (Kent & Turner, 2002). E-mail addresses for the coaches were obtained from their college or university's athletics website.

Three days after the pre-notification message was sent, an electronic mail message was sent to the coaches asking them to encourage and facilitate distance runner participation. The letter sent to the coaches by electronic mail message included a summary of the risks and benefits of participation, the four eligibility requirements to participate in the study, and directions to complete the questionnaire at a secure website. The coaches were asked to forward the electronic message to only their respective long distance runners and carbon copy ("CC") the message to the primary investigator's e- mail address. Receipt of the carbon copied message allowed the primary investigator to determine the number of athletes who received invitations to participate in the questionnaire. Follow-up reminders were sent to the coaches each week for a total of four weeks over the last month of the Spring track season.

There are positives and negatives to sending the distance runners the questionnaire that late in the Spring competition season. In track and field, the end of the competition season for each student-athlete can be different depending on whether or not the distance runner meets qualification time and place standards to move onto further rounds of competition. The ultimate goal for most Division I outdoor track and field athletes is to qualify from the regional meet at the end of May to the national competition that is held at the beginning of June. In order to achieve this goal, the distance runner must first qualify to compete at the regional meet during one of the regular season Spring outdoor track competitions by posting a top 48 place in their event in the region. Overall, the last four weeks of the outdoor season are where the most important meets are positioned on the competition schedule. Therefore, distance runners can

either be highly satisfied if they perform well or very disappointed if they do not meet their performance goals.

The questionnaire was conducted in an online format in an attempt to maximize distance runner convenience, secure response confidentiality, and minimize necessary paper. The questionnaire was administered through a third-party company entitled StudentVoice (http://www.studentvoice.com). This service allows for the administration of online questionnaires through existing or created templates. Furthermore, the data was collected and stored in a database spreadsheet format, allowing for an expedient transfer of data into SPSS statistical analysis program.

Data Analysis

The data analysis procedures required a calculation of descriptive statistics for each of the demographic variables. In order to analyze the two dimensions of training and instruction and individual performance, the 2010 Track Distance Athlete Satisfaction and Performance Questionnaire was comprised of the following four sections: training (satisfaction), instruction (satisfaction), performance (satisfaction), and demographic information. For the training (satisfaction) section, the participants responded to a two part question. The first part included individual training variables and the level that each of these long distance runner training variables is utilized (frequency, type, volume). The second part assessed the participant's level of satisfaction with each training protocol utilization. For the instruction (satisfaction) section, the participants assessed their level of satisfaction with each instruction protocol. After running descriptive statistics on the training and instruction protocol utilization questions, frequency percentages were determined. Once frequencies of these training and instruction protocol utilization behaviors were determined, Pearson Product-Moment Correlation Coefficient

analyses and Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized to demonstrate the relationships among training and instruction protocols satisfaction and overall training satisfaction. These are two basic statistical methods that are utilized to analyze the relationships between two variables. Throughout the data analysis, the Pearson's correlation results were statistically significant at a probability (*p*-value) less than .01. Due to the principle investigator predicting that there would be many low significant relationships among satisfaction and the training and instruction protocols, a .01 significance level was utilized versus a .05 significance level. Throughout the data analysis, the Mantel-Haenszel Chi-Square results confirmed statistically significant relationships at a probability (*p*-value) less than .05. Based on the results of these analyses, statistically significant relationships among the training protocol utilization groups and their satisfaction measures were determined.

Next, by analyzing independent distance runner satisfaction with the training program in relation to performance and performance satisfaction, the correlation between satisfaction and performance was determined. To indicate distance runner satisfaction with overall training program satisfaction in relation to absolute performance (time, improvement, and goals), Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized. To determine the relationship between training program satisfaction and performance satisfaction, both Pearson Product-Moment Correlation Coefficient analyses and Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized. In order to examine the relationship between overall training program satisfaction and gender or class level, both Pearson Product-Moment Correlation Coefficient analyses and Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized. Overall, all of the data collected from the present study was analyzed with SPSS statistical analysis software.

Pilot Study

A pilot test of the questionnaire (see Appendix A) used in this study was performed in order to provide feedback in regard to the readability and suitability of the instrument as well as the time required to complete it. The test was conducted with 8 former Division I college distance runners who were one year removed from training and competing due to graduation at a southeastern United States university. The surveys were administered over a period of two to three days through an electronic mailing to the participants directly from the primary investigator. In the electronic mailing, there was specific information outlining the purpose and feedback requests of the study, directions for completing the questionnaire, information detailing anonymity with the study, a request for cooperation, and the attached questionnaire. After completing the web-based questionnaire, each participant answered the following questions:

- Did you fully understand the purpose and instructions of all four sections of the questionnaire?
- Did you fully understand the meaning and clarity of the questions that were provided in all four sections of the questionnaire?
- Approximately, how much time was required to complete the questionnaire?

Through electronic email responses back to the primary investigator, each participant responded that they fully understood both the purpose and the instructions. Three of the eight participants had issues with the wording and understanding of a few questions located within two of the four sections of the questionnaire. These initial questions were modified based on the feedback of the participants. All eight participants also responded that the questionnaire took approximately 10 minutes to complete.

The information received from the pilot study confirmed the appropriateness of the proposed methodology. Based on the positive outcome of the pilot study, the questionnaire in its complete format was utilized for investigating the dual purpose of the study. This pilot study was important because it provided an initial assessment of participants' perceptions to the instrument.

Chapter 4

RESULTS

The present study was designed to achieve a dual purpose. The primary purpose of this study was to examine the relationship between collegiate distance runners' satisfaction and training protocols. The secondary purpose of this study was to determine the relationship between collegiate distance runners' training program satisfaction and performance. In an effort to further investigate whether there are specific aspects of the coaches' prescribed training protocols that influence the level of athlete satisfaction and race performance, four research questions were developed:

1. What are the specific training protocols of a college distance runner's training program that tend to make them satisfied?
2. Does distance runner satisfaction with the training program correlate with performance?
3. Does distance runner satisfaction with the training program correlate with performance satisfaction?
4. Is there a relationship between distance runner satisfaction with the training program and gender or academic level?

The purpose of this chapter is to report the results of this study. The chapter is presented in six sections which include: (a) Demographic Variables; (b) Scale Reliabilities; (c) Relationship Between Training and Instruction Protocols and Satisfaction; (d) Relationship Between Training Program Satisfaction and Performance; (e) Relationship Between Training Program Satisfaction and Performance Satisfaction; and (f) Relationship Between Training Program Satisfaction and Gender or Academic Level.

Demographic Variables

The results of the descriptive statistics calculated for the demographic variables are as follows. The sample (N = 130) of collegiate long distance runners was comprised of a total of 53 (41%) males and 77 (59%) females. From the 161 male and female respondents who met the four qualification criteria to participate in the questionnaire (first question of the questionnaire), 130 completed the survey. Age of the overall participant sample ranged from 18 to 23+ years with the most participants of 39 (30%) being 21 years of age. The majority 43 (33%) of the sample were juniors in academic status, followed by 33 (25%) sophomores, 29 (22%) seniors, with only 12 (9%) freshman, 7 (5%) 5^{th}-6^{th} year seniors, and 6 (4%) graduate students. All respondents were long distance runners who competed for a NCAA Division I college or university track team from one of the following six conferences: Atlantic Coast Conference (ACC), Big East Conference (Big East), Southeastern Conference (SEC), Big Ten Conference (Big 10), Big 12 Conference (Big 12), and Pacific-10 Conference (Pac 10). There were 25 coaches represented from all six conferences and 24 different colleges and universities who forwarded the survey link on to their team of distance runners. One college had separate male and female head distance track coaches who both forwarded on the questionnaire. Although the survey was forwarded on to distance runners from 24 schools and six conferences, it does not necessarily indicate that all of these schools and conferences were represented in the study group.

Injury rates among the sample, to the degree that participants had to take more than a week off of training during the 2010 outdoor track season, were low with 27 (21%) distance runners. Injuries can affect an athlete's perception of satisfaction in regard to his or her training program and performance but in this study injuries were not an influential factor. Enjoyment of

racing and training to the degree that the participants planned to continue competing in distance running the following year was very high with 118 (91%) respondents. This is an important result as it suggests that the majority of the sample had a positive attitude about their college distance running training and racing experience.

Scale Reliabilities

Alpha Cronbach coefficients were calculated for the components of each measurement scale to confirm internal consistency. The internal consistency result for all of the athlete satisfaction scales of training protocol satisfaction, instruction protocol satisfaction, and performance satisfaction combined was $\alpha = .92$. The overall reliability estimate for the scale is displayed in Appendix B. The Cronbach alpha levels of all subscales exceeded the value of .70 suggested as adequate by Nunnally and Bernstein (1994). As a result of their excellent reliability, all subscales were used for further analysis.

Relationship Between Training and Instruction Protocols and Satisfaction

Participants evaluated their training protocols satisfaction for the following variables: mileage (volume), short and long speed workouts (type and frequency), recovery days (frequency), two-a-day runs (frequency), long run (volume), weight/resistance training exercises (type), additional drills (type), post-workout cool-down (type), post-race cool-down (type), stretching routine (type), and cross-training (frequency). Based on participants' assessment of their level of training protocol satisfaction using a five point Likert scale ranging from (1= *very dissatisfied* to 5= *very satisfied*), the three highest mean satisfaction responses were for post-workout cool-down ($M = 3.91$), post-race cool-down ($M = 3.81$), and type of long speed workouts ($M = 3.81$). The three lowest mean satisfaction responses were for cross training ($M = 3.08$), stretching routine ($M = 3.28$), and additional drills ($M = 3.50$). Overall, there were no

mean responses of either "dissatisfied" or "very dissatisfied" for any of the training protocol satisfaction variables. When the participants were asked to indicate their level of satisfaction with the overall, individualized, and the effectiveness of their physical training program, the mean responses were $M = 3.87$, $M = 3.66$, $M = 3.69$, respectively. The majority (89%) of the distance runners were satisfied with the overall training program they received from their coach during the 2010 Outdoor Track season. Conversely, only 4% of the distance runners were dissatisfied with their overall training program. All of the mean training protocol satisfaction responses are displayed in Appendix B.

Participants evaluated their instruction protocols satisfaction for the following variables: long and short speed workout goal or purpose, goal setting and accomplishment, teaching of race tactics, post-race feedback, post-workout feedback, mental toughness development, open communication about training, open communication about racing, mental skills training, guidance on confidence-building, motivation techniques, flexibility with training when fatigued or over-trained, nutritional guidance, responsibility in leading teammates, and guidance on how to lead teammates. Based on participants' assessment of their level of instruction protocol satisfaction using a five point Likert scale ranging from (1= *very dissatisfied* to 5= *very satisfied*), the three highest mean satisfaction responses were for long and short speed workout goal or purpose ($M = 3.65$), responsibility in leading teammates ($M = 3.63$), and flexibility with training when fatigued or over-trained ($M = 3.61$). The three lowest mean satisfaction responses were for motivation techniques ($M = 2.98$), mental skills training ($M = 3.00$), and mental toughness development ($M = 3.21$). Overall, there were no mean responses of either "dissatisfied" or "very dissatisfied" for any of the instruction protocol satisfaction variables. When the participants were asked to indicate their level of satisfaction with overall instruction,

the mean response was $M = 3.57$. Two-thirds (66%) of the distance runners were satisfied with the overall instruction they received from their coach during the 2010 Outdoor Track season. Conversely, only 10% of the distance runners were dissatisfied with their overall instruction. All of the mean instruction protocol satisfaction responses are displayed in Appendix B.

Pearson Product-Moment Correlation Coefficient analyses were utilized to determine the relationship between each training protocol satisfaction and the overall training program satisfaction. The Pearson's correlation results were statistically significant at a probability (p-value) less than .01. The most significant correlation was between type of long speed workout satisfaction and overall training program satisfaction, r (136) = .49, $p < .001$. Higher overall training program satisfaction was positively associated with the type of long speed workout satisfaction. Another significant relationship was between the number of long and short speed workout satisfaction in a training week and the overall training program satisfaction, r (136) = .42, $p < .001$. There was a positive correlation with higher overall training program satisfaction and the number of long and short speed workout satisfaction. A third significant association was between the number of two-a-day satisfaction and overall training program satisfaction, r (136) = .35, $p < .001$. Overall, there was a positive correlation between two-a-day satisfaction and overall training program satisfaction. Increases in the overall training program satisfaction were linked with increases in two-a-day satisfaction. The final significant correlation was between number of recovery days satisfaction and overall training program satisfaction, r (136) = .30, $p < .001$. Higher overall training program satisfaction was positively related with the number of recovery days satisfaction between long speed and short speed workouts. The training protocols correlation matrix summarized the results in Appendix C.

Pearson's Correlation was also utilized to determine the relationship between each instruction protocol satisfaction and the overall instruction satisfaction. The most significant correlation was between teaching of race tactics satisfaction and overall instruction satisfaction, r (136) = .59, $p < .001$. Higher overall instruction satisfaction was positively associated with increases in teaching of the race tactics satisfaction. Another significant relationship was between instruction on mental toughness development satisfaction and the overall instruction satisfaction, r (136) = .59, $p < .001$. There was a positive correlation with higher overall instruction satisfaction and the instruction on mental toughness development satisfaction. A third significant association was between open communication on aspects of training satisfaction and overall instruction satisfaction, r (136) = .56, $p < .001$. Overall, there was a positive correlation between open communication with training satisfaction and overall instruction satisfaction. Increases in the overall instruction satisfaction were correlated with increases in open communication satisfaction between the coaches and distance runners about aspects of their training. Another positive correlation was between open communication on aspects of racing satisfaction and overall instruction satisfaction, r (136) = .56, $p < .001$. As a result of increased satisfaction with communication between the coaches and athletes in regard to racing aspects, overall instruction satisfaction was significantly increased.

Three more instruction satisfaction protocols that were found to have a positive correlation with distance runners being more satisfied with the overall instruction they receive from their coach include: instruction on leadership, r (136) = .54, $p < .001$, instruction on nutritional guidance, r (136) = .52, $p < .001$, and instruction on goal setting, r (136) = .51, $p < .001$. Although there is less statistical significance, there is enough support to confirm a significant relationship between the increase in overall instruction satisfaction and the following

instruction satisfaction protocols: leadership responsibility, r (136) = .49, p < .001, mental skills training, r (136) = .44, p < .001, purpose for doing long and short speed workouts, r (136) = .43, p < .001, self-confidence in ability to run fast, r (136) = .43, p < .001, flexibility with physical training program, r (136) = .42, p < .001, post-workout feedback, r (136) = .41, p < .001, and motivation techniques to train effectively and race faster, r (136) = .35, p < .001. The instruction protocols correlation matrix summarized the results in Appendix C.

Additionally, Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized to determine the relationships among training and instruction protocols satisfaction and overall training and instruction satisfaction. The Mantel-Haenszel Chi-Square results confirmed statistically significant differences at a probability (p-value) less than .05. There were no instruction satisfaction protocols that were statistically significant when compared to overall instruction satisfaction. Conversely, there were three training satisfaction protocols that indicated a statistically significant relationship between overall training satisfaction. The first statistically significant finding was the relationship between the type of long speed workout satisfaction and overall training satisfaction, X^2 (1, N = 136) = 32.57, p < .001. Higher satisfaction with long speed workouts was associated with higher overall training satisfaction. Through further analysis of the Crosstabs, these results indicate that the majority (79%) of the distance runner sample who were satisfied with their type of long speed workouts were also satisfied with their overall training program.

Another statistically significant finding was the relationship between the number of short and long speed workouts satisfaction and overall training satisfaction, X^2 (1, N = 136) = 23.78, p < .001. Higher satisfaction with the number of long and short speed workouts completed in a week was associated with higher overall training satisfaction. Through additional analysis of the

Crosstabs, these results indicated that the majority (77%) of the overall sample who were satisfied with their number of short and long speed workouts were also satisfied with their overall training program. The third statistically significant finding was the relationship between the number of recovery days satisfaction between short and long speed workouts and overall training satisfaction, X^2 (1, N = 136) = 11.93, p = .001. Higher satisfaction with the number recovery days between short and long speed workouts was linked with higher overall training satisfaction. Results of the frequencies cross tabulated indicated that the majority (73%) of the distance runner sample who were satisfied with their number of recovery days between short and long speed workouts were also satisfied with their overall training program. The Crosstabs and Mantel-Haenszel Chi-Square results detailing the relationship between the three training protocols satisfaction and overall training satisfaction are displayed in Appendix D.

Crosstabs and the Mantel-Haenszel Chi-Square analyses were also utilized to determine the relationships among training protocol variables and their satisfaction levels. The first statistically significant finding was the relationship between number of short and long speed workouts completed in a week and level of satisfaction, X^2 (1, N = 146) = 6.71, p = .01. A high level of satisfaction was associated with distance runners who completed either two or three short and long speed workouts each week. The two and three short and long speed workout groups made up a majority (90%) of the overall distance runner sample. Through additional analysis of the Crosstabs, these results indicated that 113 (86%) of the 131 distance runners that do two or three workouts per week were satisfied.

Another statistically significant finding was the relationship among number of recovery days between short and long speed workouts and level of satisfaction, X^2 (1, N = 141) = 17.10, p <.001. The highest frequency of recovery days was the two days group with 80 runners. Among

those 80 distance runners, 71 (88%) were satisfied. In regard to the distance runner sample, the majority (88%) either received one or two days of recovery between short and long speed workouts. Furthermore, a high level of satisfaction was associated with distance runners who had one or two recovery days between their short and long workouts. Through additional analysis of the Crosstabs, these results indicated that 100 (81%) of the 124 distance runners that have one or two days of recovery between their short and long workouts were satisfied.

The third statistically significant training protocol finding was the relationship between number of two-a-days completed in a week and level of satisfaction. The sample included 35 respondents who did zero two-a-days, 12 who completed one two-a-day, 51 who completed two two-a-days, 34 who completed three two-a-days, and 9 who completed four or more two-a-days a week. These frequencies were significantly different, X^2 (1, N = 141) = 7.24, p = .007. Specifically, two and three days a week of two-a-day runs were associated with high levels of satisfaction. The results indicated that over half (60%) of the participants do either two or three days a week of two-a-day training runs and among those two groups 62 (73%) distance runners were satisfied. Conversely, although the zero days a week two-a-days group represented a quarter (25%) of the overall sample, it did not have a significant association with satisfaction. Only 51% of the zero two-a-days group responded that they were satisfied.

Another statistically significant finding was the relationship among weekly long run distance and level of satisfaction. The sample included 19 respondents who ran 10 or fewer miles for their weekly long run, 58 who ran 11-12 miles, 32 who ran 13-14 miles, 23 who ran 15-16 miles, and 8 who ran 17 miles or more. These frequencies were significantly different, X^2 (1, N = 140) = 4.40, p = .036. The largest weekly long run 11-12 miles group comprised 41% of the sample and among the 58 distance runners, 53 (91%) were satisfied. Not only was this group the

largest, they also had the highest percent of respondents satisfied. Conversely, the 10 miles or fewer group with the second smallest number of distance runners had the lowest percent of respondents satisfied at 42%. Through additional analysis of the Crosstabs, these results indicated that the majority (82%) of the sample were satisfied with the distance of their weekly long. Although not statistically significant, it is important to indicate that as the weekly long run increased in distance, there was a positive relationship with increased distance runner satisfaction, with the exception of the 11-12 miles group.

The last statistically significant relationship between the training protocols and their satisfaction levels was found with the number of cross training days in a week. The sample included 87 respondents who did zero cross training days, 29 who completed one cross training day, 16 who completed two cross training days, 5 who completed three cross training days, and 1 who completed four or more cross training days. These frequencies were significantly different, X^2 (1, N = 138) = 10.40, p = .001. The majority (84%) of the distance runners either completed zero or one day of cross training a week. With over half (63%) of the sample being comprised of the zero days a week cross training group, only 40 (46%) were satisfied. Among the respondents in the one, two, three, and four or more cross training groups, the percentage of participants that were satisfied was 72%, 69%, 80%, and 100%, respectively. Furthermore, a high level of satisfaction was associated with distance runners who completed one or two cross training days a week. There were not enough respondents in the three and four or more cross training groups to consider these frequencies significant. Through additional analysis of the Crosstabs, these results indicated that over half (56%) of the sample were satisfied with their number of weekly cross training days completed. The Crosstabs and Mantel-Haenszel Chi-Square results detailing the

relationship between the five significant training protocols and their satisfaction levels are displayed in Appendix D.

Among the remaining training protocol variables, the results indicated there were no statistically significant relationships between athlete satisfaction and mileage (volume), short and long speed workouts (type), weight/resistance training exercises (type), and additional drills (type). Overall satisfaction levels were high for type of short (78%) and long (83%) speed workouts and type of weight/resistance training exercises (73%), but due to small cell counts Crosstabs and Mantel-Haenszel analysis did not discover any significant findings. Although there were no statistically significant relationships to report among these training protocols, some results need to be illustrated based on their importance for coaches. One important training protocol that distance running coaches are most often concerned about is weekly training mileage. As indicated by the frequencies for female and male weekly mileage cross tabulated in Appendix D, there is not a significant relationship between mileage and satisfaction, X^2 (1, N = 82) = 2.82, $p > .05$ and X^2 (1, N = 64) = .002, $p > .05$, respectively.

Among the females in the sample group, the highest weekly mileage range included 41 respondents in the 55 or fewer mileage group. This group was the lowest mileage range and comprised half (50%) of the female distance runner sample. The second highest reported number of females was 32 in the 56 to 65 mileage range group. This group included 39% of the female distance runner sample. Both of these weekly mileage range groups had a large percentage of females who reported being satisfied at 71% and 81%, respectively. Only two females reported training in the highest mileage range group of 86 or more miles, and both were satisfied with their volume of mileage.

Among the males in the sample group, the highest weekly mileage range included 23 respondents in the 76-85 mileage group. This group comprised less than half (36%) of the male distance runner sample. The second highest reported number of males was 18 in the 66-75 mileage range group. This group included 28% of the male distance runner sample. Similar to the females, both of these weekly mileage range groups had a large percentage of males who reported being satisfied at 74% and 78%, respectively. Disparate to the female sample, the lowest mileage range group for the males of 65 or fewer miles included the third highest number of males at 17. Only one male indicated training in the highest mileage range group of 96 or more miles, and he reported being satisfied with the volume of his weekly mileage.

Relationship Between Training Program Satisfaction and Performance

Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized to determine the relationships between overall training program satisfaction and performance. The Mantel-Haenszel Chi-Square results confirm statistically significant relationships at a probability (*p*-value) less than .05. After initial analysis of the Chi-Square results, it is important to indicate that overall training program satisfaction and the relationship to male and female 3k steeple, 5k, and 10k best time performances were not utilized to show statistically significant relationships due to many low cell frequencies. Chi-Square has the stipulation that 20% or less of the expected counts in an analysis must be under five, and if there are more than 20%, the test is invalid. After the first Chi-Square analysis, suitable variables were aggregated to make the groups smaller increasing the likelihood of obtaining cell counts above five. This proved to make little difference because after recoding the variables for the second analysis, the Chi-Square results continued to have too many low cell frequencies. Since the cell counts were too low, conclusive

evidence cannot be utilized to predict statistically significant behavior trends in the distance runner population. Furthermore, even after the first and second analysis of the Chi-Square results, despite the low cell frequencies, it was found that no male or female 3k steeple, 5k, and 10k best time performances were significantly related to satisfaction with the overall training program.

Relationship Between Training Program Satisfaction and Performance Satisfaction

The participants indicated their level of satisfaction with the overall, individual, and effectiveness of their training program. Based on respondents' perceptions of satisfaction using a five point Likert scale ranging from (1= *very dissatisfied* to 5= *very satisfied*), the three mean satisfaction scores for overall, individual, and effectiveness of their training program were M = 3.87, M = 3.66, M = 3.69, respectively. The majority (89%) of distance runners were satisfied with the overall training program they received from their coach during the 2010 Outdoor Track season. The sample also included 75 % who were satisfied with their individual training program and 76% of the respondents were satisfied with the effectiveness of their overall training program. Low frequencies for dissatisfaction were found for all three questions, with the lowest number of dissatisfied comprised of six distance runners for the overall training program question.

The participants also indicated their level of satisfaction with each of the performance satisfaction variables. Based on participants' responses using a five point Likert scale ranging from (1= *very dissatisfied* to 5= *very satisfied*), the three most significant mean scores were performance goal satisfaction (M = 2.87), performance improvement satisfaction (M = 3.24), and overall performance satisfaction (M = 3.18). It is important to indicate that performance goal satisfaction had the lowest mean satisfaction score on the entire questionnaire. Almost half

(45%) of the respondents were dissatisfied with their race performance goal achievement. Consequently, only 32% of the participants were satisfied. In general, distance runners did not feel satisfied with their achievement of their race performance goals during the 2010 outdoor track season.

Conversely, over half (54%) of the respondents were satisfied with the improvement made in their race times. Further, nearly half (48%) of the sample were satisfied with their overall performance (time, goals, and improvement). Through analysis of the male and female 3k steeple, 5k, and 10k satisfaction levels with their race times, a higher percentage of participants were found to be dissatisfied than satisfied with their race times in following events: male 3k steeple (50% dissatisfied vs. 42% satisfied), female 3k steeple (43% dissatisfied vs. 29% satisfied), male 5k (57% dissatisfied vs. 25% satisfied), and female 5k (45% dissatisfied vs. 37% satisfied). In regard to race times, male and female 10k runners were slightly more satisfied than dissatisfied.

Pearson Product-Moment Correlation Coefficient analyses were utilized to determine the relationship between each performance satisfaction response and the overall, individual, and effectiveness of the training program satisfaction. The Pearson's correlation results were statistically significant at a probability (p-value) less than .01. The correlation results detailing the relationship between the overall training satisfaction, individual training satisfaction, and effectiveness of training satisfaction with the performance satisfaction responses are displayed in the three matrixes in Appendix E. The overall training program satisfaction and the individual training program satisfaction matrixes were not found to be correlated with any of the performance satisfaction variables. Specifically, there was not a significant correlation between overall training satisfaction and overall performance satisfaction, r (130) = .11, p > .01, or

between individual training satisfaction and overall performance satisfaction r (130) = .20, p > .01.

Conversely, there were significant correlations in the third matrix between effectiveness of training program satisfaction and performance goal satisfaction, performance improvement satisfaction, and overall performance satisfaction. The two variables most correlated were between effectiveness of training program satisfaction and overall performance satisfaction, r (130) = .34, p < .001. Higher effectiveness of training program satisfaction was positively associated with overall performance satisfaction. Another significant relationship was between effectiveness of training program satisfaction and race time improvement satisfaction, r (101) = .31, p < .01. There was a positive correlation with higher effectiveness of training program satisfaction and race time improvement. The third significant association was between effectiveness of training program satisfaction and performance goal satisfaction, r (130) = .30, p < .001. Overall, there was a positive correlation between effectiveness of training program satisfaction and performance goal satisfaction. Increases in effectiveness of training program satisfaction were correlated with increases in race performance goal achievement satisfaction.

In addition, Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized to determine the relationship between overall training program satisfaction and performance goal satisfaction, performance improvement satisfaction, and overall performance satisfaction. The Mantel-Haenszel Chi-Square results confirm statistically significant relationships at a probability (p-value) less than .05. Based on the results, there were no statistically significant relationships among overall training program satisfaction and performance goal satisfaction, performance improvement satisfaction, and overall performance satisfaction. Specifically, there was not a significant relationship between overall training satisfaction and performance goal satisfaction,

X^2 (1, N = 130) = 1.24, p > .05, or between overall training satisfaction and performance improvement satisfaction, X^2 (1, N = 101) = 1.71, p > .05. As can be seen by the frequencies cross tabulated in Appendix F, there is not a significant relationship between overall training satisfaction and overall performance satisfaction, X^2 (1, N = 130) = 1.68, p > .05. The Crosstabs and Mantel-Haenszel Chi-Square results detailing the relationships between the three performance satisfaction variables and overall training satisfaction are displayed in Appendix F.

Relationship Between Training Program Satisfaction and Gender or Academic Level

The participant sample was comprised of a total of 53 (41%) males and 77 (59%) females. The majority, 43 (33%) distance runners were juniors in academic status, followed by 33 (25%) sophomores, 29 (22%) seniors, 12 (9%) freshman, 7 (5%) 5^{th}-6^{th} year seniors, and 6 (4%) graduate students. As mentioned earlier, the participants indicated their level of satisfaction with the overall training program and the mean satisfaction score was M = 3.87. Overall, the majority (89%) of distance runners were satisfied with the overall training program they received from their coach during the 2010 Outdoor Track season.

Pearson Product-Moment Correlation Coefficient analyses were utilized to determine the relationship between overall training program satisfaction and gender or academic level. The Pearson's correlation results were statistically significant at a probability (p-value) less than .01. There was no correlation between overall training program satisfaction and gender or academic level. Specifically, there was not a significant correlation between overall training program satisfaction and gender, r (136) = .001, p > .01, or between overall training program satisfaction and academic level, r (130) = -.03, p > .01. The correlation results detailing the relationship between overall training program satisfaction and gender or academic level are displayed in Appendix G.

Additionally, Crosstabs and the Mantel-Haenszel Chi-Square analyses were utilized to determine the relationship between overall training program satisfaction and gender or academic level. The Mantel-Haenszel Chi-Square results did not confirm statistically significant relationships among the variables. Specifically, there was not a significant connection between overall training program satisfaction and gender, X^2 (1, N = 136) = .00, p > .05, or between overall training program satisfaction and academic level, X^2 (1, N = 130) = .13, p > .05. The Crosstabs and Mantel-Haenszel Chi-Square results detailing the relationships between overall training program satisfaction and gender or academic level are displayed in Appendix H.

Although there were no statistically significant relationships to report among overall training program satisfaction and gender or academic level, it is relevant to report some basic frequencies. Overall, males were slightly more satisfied with their overall training program as compared to females. Approximately 90% of the male distance runners were satisfied, while 88% of the females were satisfied. In regard to academic level, graduate students were slightly more satisfied with the overall training program as compared to the other five groups. With graduate students, 100% were satisfied followed by 92% freshman, 91% sophomores, 88% juniors, 86% 5^{th}-6^{th} year seniors, and 83% seniors.

Chapter 5

DISCUSSION AND CONCLUSIONS

The purpose of this chapter is to discuss the findings, conclusions, and implications of this study. The chapter is presented in four sections which include: (a) Summary of the Study; (b) Discussion of Research Findings; (c) Conclusions; (d) Recommendations for Future Research.

Summary of the Study

When distance runners are recruited or walk-on to participate on their college track teams, they have two main goals in mind. First, they want to have a satisfying individual and team experience. Second, they have a desire to win and be the best. The outcomes of these goals are most directly influenced by their coach, who plans, develops, implements and controls the mental and physical aspects of the athletes' training protocols. In the coaches' and athletes' pursuit to win and perform at the highest level, the emphasis on the process of how to best achieve the first goal is often can be overlooked. Wins and losses can be measured on the track but an adequate interpretation of distance runners' satisfaction with their athletic experience is not often or easily assessed. This raises some important questions. As a coach, how do you know if your distance runners are satisfied with their overall training program, what parts of the training and instructional program contribute to satisfaction or dissatisfaction, and is there a link between more satisfied distance runners and higher performing ones?

Traditionally, the Multidimensional Model of Leadership has been utilized to link coaching behaviors (required, perceived, and preferred) with athlete satisfaction and performance. Through the utilization of assessment scales (i.e., Leadership Scale for Sports, Revised Leadership Scale for Sports, and Athlete Satisfaction Questionnaire), congruency among

coaching behaviors, athlete satisfaction, and performance have been successfully studied for coaching effectiveness specific to the quality of the coach-athlete relationship. Through a comprehensive review of the literature, numerous studies within the sport and exercise domains have found a positive relationship between effective coaching behaviors and athlete satisfaction and performance. Specifically, a couple of major studies in sport have established that coaches who displayed more democratic behaviors, training and instruction, social support, and positive feedback had more satisfied athletes (Riemer & Chelladurai, 1995; Weiss & Friedrichs, 1986). Furthermore, another important and reoccurring conclusion from many of these studies was that coaches who utilize effective training and instruction behaviors can expect to increase athlete satisfaction. Consequently, even though many of these studies suggest training and instruction is one of the most preferred and perceived behaviors of athletes, there has been limited focus on specific training behaviors that influence athlete satisfaction.

Over the past few decades, it is important to note however that although the relationship between coaching behaviors and athlete satisfaction has been examined extensively, the relationship between coaching behaviors and athletic performance has received less attention. There have been only a few significant studies that have shown a positive relationship between effective coaching behaviors and performance. Specific studies by Gordon, 1986, Serpa, Pataco, & Santos, 1991, and Weiss & Friedrichs, 1986, all conclude that there is a significant link between coaching behavior congruency and athletic performance. Unfortunately, even though many acknowledge there is a correlation between athlete satisfaction and performance, these past studies have not clearly addressed this relationship. The existing literature has been more focused on finding congruent coaching behaviors that are important contributors to optimal sport performance.

While it is important to recognize sport leadership studies that have been discussed in the classical sense, the present study had a goal to evaluate and develop an understanding of effective training protocols for satisfaction and performance in collegiate distance runners. Recently, Horn (2008) suggested "we can no longer assume one set of coaching behaviors will be effective for all athletes in all sports situations. Rather, we should recognize that effective coaching behaviors will vary as a function of the athlete and sport context" (p. 244).

Given the limited literature and minimal scientific study of athlete satisfaction with the coach-controlled training protocols and the relationship to performance, specifically with collegiate distance runners, the present study was designed to achieve a dual purpose. The primary purpose of this study was to examine the relationship between collegiate distance runners' satisfaction and training protocols. The secondary purpose of this study was to determine the relationship between collegiate distance runners' training program satisfaction and performance. In an effort to investigate the specific aspects of the coaches' prescribed training protocols that influence the level of athlete satisfaction and race performance, four research questions were investigated:

1. What are the specific training protocols of a college distance runner's training program that tend to make them satisfied?
2. Does distance runner satisfaction with the training program correlate with performance?
3. Does distance runner satisfaction with the training program correlate with performance satisfaction?
4. Is there a relationship between distance runner satisfaction with the training program and gender or academic level?

To investigate the specific research questions and purposes of the present study, the 2010 Track Distance Athlete Satisfaction and Performance Questionnaire was developed by the study's primary investigator. Specific questions on the survey were designed based on an extensive literature review, personal long distance running coaching and participation reflections, and through discussions with past and present college distance runners. In general, the questionnaire was designed and modified based off Riemer and Chelladurai's 1998 Athlete Satisfaction Questionnaire (ASQ) model with constructs that are specific and applicable to the sport of distance running. Although the questionnaire was designed with Riemer and Chelladurai's Athlete Satisfaction Questionnaire in mind, none of the questions from the ASQ were utilized for this questionnaire. The questionnaire also included questions derived from the 2006 National Standards for Sport Coaches: Quality Coaches, Quality Sports (NASPE, 2006).

In the following section, many important findings are discussed based on the distance runners' results of the Athlete Satisfaction Questionnaires. As a coach, if you are concerned about athlete satisfaction this study has discovered some valuable training protocols information and coaching education strategies. This study is also important because for the coaches who are not concerned about athlete satisfaction there are numerous significant results that can encourage these coaches to understand the value of athlete satisfaction.

Discussion of Research Findings

Relationship Between Training and Instruction Protocols and Satisfaction

As described in Null Hypothesis 1, there will be no relationship between training protocols of a collegiate distance runner's training program and satisfaction. Based on participants' results of their level of training protocol satisfaction, the three highest mean satisfaction responses were for post-workout cool-down (M = 3.91), post-race cool-down (M =

3.81), and type of long speed workouts (*M* = 3.81). The high post-workout cool-down and post-race cool-down means are most likely due to distance runners not being too concerned about these basic training protocols. Therefore, they are the most highly satisfied with these training tasks because they are the easiest to accomplish. With the type of long speed workouts high satisfaction mean, this indicates that the Division I coaches are choosing their long speed workouts with careful consideration for their effectiveness and with their athletes in mind. Among the distance runners, the two most highly utilized long speed workouts were intervals/repeats (800-5000 meters) and steady state/tempo runs at 86% and 82%, respectively. Historically, these have been two staple workouts completed weekly by successful long distance running programs, so it an important finding that collegiate coaches are utilizing these appropriate long speed workouts.

The three lowest mean satisfaction training protocol responses were for cross training (*M* = 3.08), stretching routine (*M* = 3.28), and additional drills (*M* = 3.50). Although these means still indicated "neutral" to "satisfied" on the satisfaction continuum, it is not surprising that these training protocols were the lowest. In general, distance runners do not often perceive supplementary training (e.g., cross training, stretching, and additional drills) outside of standard running training as satisfying or important because it adds additional time and stress to a long training day. As a coach, it is imperative to have these supplementary training methods structured into the athletes' overall training program. Supplementary training assists distance runners in maintaining or improving cardiovascular fitness and it helps prevents injuries and running form technique issues.

Overall, the findings show that there were no mean responses of either "dissatisfied" or "very dissatisfied" for any of the training protocol satisfaction variables. This indicates that these

collegiate distance runners are satisfied with their training protocols. Therefore, this trend demonstrates that collegiate Division I distance coaches are designing, prescribing, and administering satisfying and deliberate training protocols. In addition, these results are similar to those found in a study by Park et al (1999) on satisfaction levels of factors related to elite South Korean track and field athletes' experiences. South Korean elite track and field athletes were found to be satisfied with their head coaches' technical ability and training methods. This is a very important finding because distance runners who "believe in" and are satisfied with the coaches' training protocols are more likely to have a satisfying overall training experience.

These next results illustrate this previous point perfectly. When the participants were asked to indicate their level of satisfaction with the overall, individualized, and the effectiveness of their physical training program, the mean responses were $M = 3.87$, $M = 3.66$, $M = 3.69$, respectively. Approximately nine out of 10 distance runners were satisfied with the overall training program they received from their coach during the 2010 Outdoor Track season. This is an important finding because in order to be satisfied with the overall training program athletes must be satisfied with a majority of the individual training protocols and have coaches who are perceived by their athletes to exhibit higher levels of training and instruction behaviors. This finding corresponds with the results of a couple of studies that indicated when more training and instruction is displayed by the coach; higher levels of overall athlete satisfaction are produced. Specifically, in an early study by Dwyer and Fischer (1990), they found that collegiate wrestlers were more satisfied with their training program if higher levels of training and instruction were displayed by their coaches. Recently, Andrew (2009) analyzed collegiate tennis players' preferences and perceived coaching behaviors and discovered that coaches' training and instruction behaviors tend to be an important predictor of athlete satisfaction when higher levels

of these behaviors are exhibited. These results are also highly meaningful as they demonstrate that the distance runners have "bought into" the coaches' overall training program. Coaches who have athletes that trust and are satisfied with their overall, effectiveness, and individualized training program is one of the most important goals coaches can accomplish.

Based on participants' results of their level of instruction protocol satisfaction, the three highest mean satisfaction responses were for long and short speed workout goal or purpose (M = 3.65), responsibility in leading teammates (M = 3.63), and flexibility with training when fatigued or over-trained (M = 3.61). The high mean instruction response for goal or purpose of doing specific types of long and short speed workouts is an important finding. Since distance runners are satisfied with this variable, it illustrates that coaches are frequently using this key instruction protocol to explain to their runners "why" they are doing specific workouts. This explanation helps distance runners understand the importance of the specific long and short speed workouts utilized in each training session. The responsibility in leading teammates high satisfaction mean suggests that Division I coaches are focused on their athletes' leadership skills acquisition. This result is meaningful because it confirms that coaches are concerned about their distance runners' lives beyond athletics. Another integral result found that distance runners were satisfied with the flexibility their coaches displayed in allowing them to back off the structured physical training program when they start to feel too fatigued or over-trained. This finding is important because it can help prevent results like those found in a study by Cohn (1990). In Cohn's study, it was discovered that high school golfers were more likely to be at the highest risk of burning out when they experienced the following frequent sources of stress: participate in too much training and competition, lacked enjoyment while practicing their sport, and experienced too much self-or-other induced pressure. A priority of distance coaches should be to prevent athlete overtraining

syndrome, which is a serious problem characterized by decreased performance, increased fatigue, persistent muscle soreness, mood disturbances, and the feeling of being 'burnt out' or 'stale'. Ultimately, a distance runner's track season is over when they develop the signs and symptoms of overtraining syndrome.

The three lowest mean satisfaction instruction protocol responses were for motivation techniques (M = 2.98), mental skills training (M = 3.00), and mental toughness development (M = 3.21). Although these means still indicate a neutral level of satisfaction, it is not unexpected that these instruction protocols were the lowest. Dissimilar to the three highest mean satisfaction instruction protocols (i.e., long and short speed workout purpose, responsibility in leading teammates, and flexibility with training when fatigued), mental toughness development, mental skills training, and motivation techniques are not easy skills for coaches to instill in their distance runners. Consequently, it is likely that many coaches overlook these instruction protocols altogether when prioritizing instruction protocols into their overall training program.

It is an interesting finding that distance runners perceive motivation techniques as the lowest mean satisfaction score when concurrently 91% of them enjoyed racing and training to the level that they planned to continue competing in distance running the following year. It appears that although distance runners are neither satisfied nor dissatisfied with their coaches' motivation strategies, it is not significant enough to have an effect on their return to the team. When distance runners at the Division I level are not satisfied with their coaches' motivation techniques, one likely indicator is that they are not being offered a partial or full scholarships. In general, there are few scholarships to offer in comparison to the 48 member track and field team. If Division I level track and field teams are fully funded, there are 12.6 full scholarships to share among the whole team comprised of sprinters, throwers, jumpers, vaulters, and distance runners.

Distance coaches are fortunate if they have two-to-three scholarships to distribute among their 15 runners. Often, these two-to-three scholarships are distributed as partial scholarships to recruited distance runners or returners that are high performers. As a coach, if a partial scholarship is not an option for your runners, it is imperative to offer some other type of extrinsic reward (e.g., apparel, shoes, travel) for great training, performance results, and goal accomplishment. To emphasize the importance of rewards, Weiss and Friedrichs (1986) conducted a study on collegiate basketball players and found that coaches who engage in frequent rewarding behavior increased athletes' satisfaction.

In regard to the lower mean satisfaction results with the development of mental toughness and mental skills (e.g., goal setting, imagery, energy management, self-talk, anxiety control, emotion control, concentration), it has been found that distance runners do not perceive their coaches to display these behaviors because of a lack of knowledge and time. In a study by Creasy (2005), it was discovered that when coaches were asked for their reasons why they do not develop mental toughness in their athletes, 100% responded that it was due to a lack of knowledge and time. Due to coaches' time and knowledge constraints, it has resulted in mental skills training and mental toughness as being underdeveloped instruction behaviors in collegiate distance runners. In support of mental toughness and mental skills development, Crust and Azadi (2009) found that coaches working with mentally tough athletes should consider emphasizing training and instructive behaviors as they were the most significantly related preferred and perceived coaches' behaviors by the athletes. In conclusion, teaching mental skills and mental toughness components takes knowledge and time, but as a coach it is imperative to learn how to integrate and budget these crucial psychological skills into the team's training program. Without

the development of mental skills training and mental toughness in distance running, it is difficult to maximize performance and satisfaction.

Overall, the findings illustrate that there were no mean responses of either "dissatisfied" or "very dissatisfied" for any of the instruction protocol satisfaction variables. The results indicate that two-thirds (66%) of collegiate distance runners were satisfied with the overall instruction they received from their coach during the 2010 Outdoor Track Season. In comparison to the training protocol variables where 89% of collegiate distance runners were satisfied, the instruction protocols results indicated a 23% lower mean satisfaction response. The difference in satisfaction levels between training and instruction is likely due to limited time, large teams, and the difficulty some coaches have in expressing through instruction the important components of the overall training and instruction program. In general, this result is not unexpected because coaches' priorities are focused on administering the training protocols, so their athletes can become fit and perform better. It takes more coaching education and time to be knowledgeable and accomplish the more difficult instructional part of the of the overall distance runners' program. Although athletes perceive satisfaction of their coaches' instruction behaviors to be lower than their training behaviors, both are still important because of their relatively high overall satisfaction levels. This evidence further demonstrates that collegiate Division I distance coaches are designing, prescribing, and administering satisfying and purposeful training and instruction protocols.

Now that the important training and instruction protocol means and the overall, individualized, and the effectiveness of distance runners' physical training program responses have been discussed, it is relevant to consider distance runners' specific training and instruction protocols that tend to make them satisfied with the overall training and instruction program.

According to the findings, the following training and instruction protocols all reported to be significantly correlated to overall athlete satisfaction: type of long speed workouts, number of long and short speed workouts, number of two-a-days, number of recovery days satisfaction between long speed and short speed workouts, teaching of race tactics, instruction on mental toughness development, open communication on aspects of training, open communication on aspects of racing, instruction on leadership, instruction on nutritional guidance, instruction on goal setting, leadership responsibility, mental skills training, purpose for doing long and short speed workouts, self-confidence in ability to run fast, flexibility with physical training program, post-workout feedback, and motivation techniques to train effectively and race faster. Among these training and instruction protocols, the physical training protocols that were associated with higher overall training program satisfaction were: type of long speed workouts, number of long and short speed workouts, number of two-a-days, and number of recovery days between long speed and short speed workouts. These results are important because these training protocols have traditionally been integral components of a comprehensive training program completed weekly by successful long distance running programs. In order for distance runners to be satisfied with the number of recovery days, long and short speed workouts, two-a-days, and type of long speed workouts, indicates that coaches are structuring well-planned training protocols in their athletes' overall training programs. Without coaches' attention and focus on these fundamental training principles, athlete satisfaction levels with the overall training program could be decreased. Overall, it is important to learn that Division I distance running coaches frequently utilize these appropriate training protocols for increased athlete satisfaction.

Among these training and instruction protocols, the instruction protocols that were connected with higher overall instruction satisfaction were: teaching of race tactics, instruction

on mental toughness development, open communication on aspects of training and racing, instruction on leadership, instruction on nutritional guidance, instruction on goal setting, leadership responsibility, mental skills training, purpose for doing long and short speed workouts, self-confidence in ability to run fast, flexibility with physical training program, post-workout feedback, and motivation techniques to train effectively and race faster. Based on the 15 instruction protocols on the questionnaire, it is pleasing to learn that coaches are utilizing 13 to have a noteworthy impact on overall distance runner satisfaction. The only two instruction protocols not being well-utilized are: instruction on leading teammates and post-race feedback. These results support other studies that have been found to correlate specific instruction protocols with increased athlete satisfaction. In particular, similar results between communication and athlete satisfaction were discovered in a study by Sullivan and Gee (2007). In their research, they found that team sport athletes tend to associate coaches who utilize frequent and clear communication with athlete satisfaction. Athletes who receive frequent, clear, and positive instructions/guidance with respect to their competitive responsibilities are more likely to perceive their athletic experience as satisfying. In general, such a finding is imperative because athlete satisfaction and coach-athlete communication can influence team and individual performance. Another study by Lorimer and Jowett (2009) explored the coach-athlete dyads of 120 coaches and athletes from individual and team sports, including track and field. Similar to the present study, the results indicated that athletes who trust, gain self-confidence, and are committed to their coaches are more likely to be satisfied. Studies by Dwyer and Fischer (1990) and Summers (1983) found that wrestlers and lacrosse players were more satisfied if higher levels of positive feedback by their coaches were displayed. As illustrated in the present study, these results also validate the importance of coaches' positive feedback if overall athlete

satisfaction is going to be increased. Overall, these findings support the conclusion that athletes who are instructed on how to gain self-confidence, have open communication, and receive positive feedback from their coaches are more likely to be satisfied with their overall training and instruction program.

Next, it is important to discuss the key findings of distance runners' specific training protocols that tend to make them satisfied. Contrary to previous discussions where training and instruction protocols were correlated with overall distance runner satisfaction, these discussions include only the relationships among specific training protocols and their satisfaction levels. According to the findings, the following training protocols all reported to have a significant relationship with satisfaction: number of long and short speed workouts, number of recovery days between short and long speed workouts, number of two-a-days, weekly long run distance, and number of cross training days. In regard to the relationship between number of short and long speed workouts completed in a week and level of satisfaction, it was discovered that a high level of satisfaction was associated with distance runners who completed either two or three short and long speed workouts each week. The two and three short and long speed workout groups made up a majority (90%) of the overall distance runner sample. Although two to three short and long speed workouts each week is the most common among collegiate distance running coaches, the result still has important implications for coaches because 86% of the distance runners in this study were satisfied with two to three workouts a week. As a coach, this means if you are having success with your distance runners who are doing two to three workouts, this is likely due to them being satisfied with this training protocol, and it would be practical to continue this training pattern.

Another significant finding to discuss was the relationship among number of recovery days between short and long speed workouts and level of satisfaction. The results indicated that a high level of satisfaction was linked with distance runners who received either one or two days of recovery between short and long speed workouts. The majority (88%) of the distance runners either received one or two days of recovery between short and long speed workouts and 81% of them were satisfied. This is a key finding because many coaches feel recovery is possibly the most important training principle to consider when designing a weekly training plan, so it is imperative to learn that distance runners are satisfied with this training protocol. Overall, this result also proves most coaches are compliant with the at least one day of recovery rule between every fast workout.

The third significant training protocol finding to discuss was the relationship between number of two-a-days completed in a week and level of satisfaction. Specifically, two and three days a week of two-a-day runs were related with high levels of satisfaction. The results indicate that over half (60%) of the participants do either two or three days a week of two-a-day training runs and among those two groups 73% of the distance runners were satisfied. Among distance running coaches, there is always debate over whether or not collegiate distance runners should do two-a-day runs for recovery issues, etc, but it is important to learn from the present study that the majority of distance runners who do two-a-days were satisfied with this protocol. The fourth significant finding to discuss that also contributes to total weekly mileage volume was the relationship among weekly long run distance and level of satisfaction. The largest weekly long run 11-12 miles group comprised 41% of the distance runners and among the group 91% were satisfied. Not only was this group the largest, it also had the highest percent of respondents satisfied. This is an interesting finding because many distance running coaches believe in

progressing up to more mileage on their long run, although the distance runners' perception of this training protocol is that they are doing lesser mileage on the long run continuum. Overall, the results indicate that 82% of the distance runners are satisfied with the distance of their weekly long. Conversely, although number of two-a-days and weekly long run mileage proved to have a connection with satisfaction, weekly mileage did not have a significant relationship with satisfaction. This finding is important to indicate because both training protocols help comprise the total volume of weekly training mileage. It is interesting to learn that the two training protocols are correlated with satisfaction while total weekly mileage range is not. With mileage comprising such a valuable part of the training program, coaches need to be concerned with this result because if athletes are not satisfied with their weekly mileage this can directly affect fitness levels and performance. It would benefit coaches to frequently assess how their distance runners feel about the total volume of mileage they are completing throughout the season.

The last significant relationship to discuss between the training protocols and their satisfaction levels was found with the number of cross training days in a week. The majority (84%) of the distance runners either completed zero or one day of cross training a week. With over half (63%) of the sample being comprised of the zero days a week cross training group, only 46% were satisfied. Furthermore, a high level of satisfaction was associated with distance runners who completed one or two cross training days a week. Based on these findings, it is important to indicate to coaches that they need to structure at least one day of cross training into their distance runners' weekly training program in order to have satisfied distance runners with this protocol. As noted earlier, cross training is considered supplementary training that athletes believe takes up their valuable time and is only important when they are injured or feel the initial stages of an injury. Therefore, it is imperative for coaches to understand that cross training is a

way of accumulating supplementary training into their distance runners' weekly training program to help improve fitness levels, recovery, and performance without adding additional injury stress.

According to the findings, the following training protocols all reported to have no significant relationship with satisfaction: mileage (volume), short and long speed workouts (type), weight/resistance training exercises (type), and additional drills (type). With higher satisfaction levels for type of short and long speed workouts and type of weight/resistance training exercises, it is likely that these training protocols would have been found to have significant satisfaction levels, but due to small cell counts no significant relationships were discovered. Although there were no significant relationships to report among these training protocols, it is relevant to indicate some implications for coaches. Too often, distance running coaches adopt a "one size fits all" approach in prescribing the same weekly mileage and type of short and long speed workouts to all their distance runners. In the present study, due to a lack of individualization with these training protocols, this could help explain why there was not a significant relationship among distance runners' satisfaction and these two training protocols. As noted earlier, when designing weekly distance running training programs, coaches benefit from communicating with their distance runners and getting feedback on how they feel and are responding to the weekly mileage. Due to each athlete having individual characteristics and training needs, there is no one set mileage range that will produce the optimal training effects and performances for all distance runners. Rather, it is imperative to take into consideration each distance runner's training history and progressively build on each distance runner's mileage. The focus throughout the season should be to utilize mileage to construct a solid aerobic foundation that helps prepare the athlete for faster workouts. With these ideas considered, it is realistic for

collegiate distance running coaches to strive to have their athletes all satisfied with their weekly mileage. Particularly, since the coach should be asking the athlete for feedback on how they feel their weekly mileage is progressing.

Similarly, coaches have to be cautious with the training protocols of type of short and long speed workouts that they do not apply the "one size fits all" principle as often is done with weekly mileage. There are no magical short and long speed workouts that are going to produce the same desired effects in every distance runner. Conversely, there are general short and long speed workouts that are used weekly by almost all coaches. Typically, strides and shorter track repeats and longer intervals (VO2 max) and tempo runs are utilized to produce the desired training effects for the physiological demands of long distance running. As a coach, the key is to learn how to utilize these traditional short and long speed workouts, but manipulate the variables of recovery, intensity, and time for the individual athletes in regard to the training cycle and time of the season. Overall, coaches should get to know each of their athletes and what short and long speed workouts work the best for each athlete to ensure satisfaction with the training protocol.

Finally, type of weight/resistance training exercises and type of additional drills had two different overall satisfaction levels and neither proved to have significant satisfactions levels. With type of weight/resistance training exercises, it is likely that this training protocol would have been found to have significant satisfaction levels, but due to small cell counts no significant relationships were discovered. Approximately 73% of the distance runners were satisfied with their type of weight/resistance training exercises, while only 59% were satisfied with the type of additional drills. Both of these training protocols are often classified as supplementary training. As discussed earlier, distance runners do not often perceive supplementary training (e.g., cross training, stretching, additional drills, and weight/resistance training) outside of standard running

training as satisfying or valuable because it adds additional time and stress to a long training day. Although weight/resistance training was not found to be significantly related to satisfaction, it is appealing to find weight/resistance training with a high satisfaction level. In the past, coaches and athletes had bought into the idea that distance runners did not need to resistance train, but it is now illustrated that there has been a shift in their priorities. This shift can be attributed to more knowledgeable and trained distance running coaches on the value that weight/resistance training offers an athlete. Weight training/resistance training exercises are now a frequently utilized and integral part of the overall training program. Both coaches and athletes are beginning to understand the importance of weight/resistance training for assistance in injury prevention and running economy improvement.

In summary, distance runners were significantly satisfied with five of 13 training protocols and 13 of 15 instruction protocols that were connected to higher overall instruction satisfaction. The training protocols included: number of long and short speed workouts, number of recovery days between short and long speed workouts, number of two-a-days, weekly long run distance, and number of cross training days. The instruction protocols included: teaching of race tactics, instruction on mental toughness development, open communication on aspects of training and racing, instruction on leadership, instruction on nutritional guidance, instruction on goal setting, leadership responsibility, mental skills training, purpose for doing long and short speed workouts, self-confidence in ability to run fast, flexibility with physical training program, post-workout feedback, and motivation techniques to train effectively and race faster. Furthermore, the results indicated that the majority (89%) of collegiate distance runners were satisfied with the overall training and two-thirds (66%) of the participants were satisfied with the overall instruction they received from their coach during the 2010 Outdoor Track Season.

Overall, the findings also illustrated that there were no mean responses of either "dissatisfied" or "very dissatisfied" for any of the training and instruction protocols. These are important findings because they help confirm that in order to be satisfied with the overall training program athletes must be satisfied with a majority of the individual training protocols and have coaches who are perceived by their athletes to exhibit higher levels of training and instruction behaviors. Therefore, due to the large number of coaches' training and instructive protocols that distance runners reported satisfaction with, we can conclude that collegiate Division I distance coaches are knowledgeable and skilled at designing, prescribing, and administering satisfying and purposeful training programs.

Relationship Between Training Program Satisfaction and Performance

For Null Hypothesis 2, there will be no relationship between distance runner satisfaction with the training program and performance. Based on distance runners' findings, it was discovered that male and female 3k steeple, 5k, and 10k best time performances were not significantly related to satisfaction with the overall training program. It is important to indicate that these results are likely due to many low cell frequencies resulting in no relationships found between distance runner satisfaction with the training program and performance. With the low cell counts, conclusive evidence cannot be utilized to predict significant satisfaction and performance behavior trends in the distance runner population.

The present study's findings contradicted the results of one study that found a significant connection between satisfaction with the coaches' overall training and instructive behaviors and performance. In particular, a study by Greenleaf, Gould, and Dieffenback (2001) discovered specific training and instruction protocols of Olympic athletes from the 1996 Summer Games that were important predictors of performance. According to the results, those Olympic athletes

who did not perform as well as expected felt that conflict with the coach, receiving inaccurate technical information, the coach's inability to handle selection controversy, and lack of focus on team climate played significant roles in lower-level performance. Conversely, trust, friendship, and feedback from the coach had a positive impact on the performances of athletes who met or exceeded expectations. Although the present study does not support these findings, it is important to note that its results do suggest that more investigation needs to be done to contribute to the limited body of research on finding a link between training program satisfaction and performance.

Relationship Between Training Program Satisfaction and Performance Satisfaction

Null Hypothesis 3 predicted that there will be no correlation between distance runner satisfaction with the training program and performance satisfaction. Based on distance runners' findings, it was discovered that 89% were satisfied with the overall training program, 75% were satisfied with their individual training program, and 76% were satisfied with the effectiveness of their overall training program they received from their coach during the 2010 Outdoor Track season. Based on participants' results on their level of satisfaction with each of the performance satisfaction variables, it is important to indicate that only 32% were satisfied with performance goal satisfaction, 54% were satisfied with the improvement made in their race times, and 48% were satisfied with their overall performance (time, goals, and improvement). In addition, through analysis of the male and female 3k steeple, 5k, and 10k satisfaction levels with their race time performances, it was found that a low percentage of participants were satisfied with their race times. It is important to note the low participant satisfaction levels for all of the following distance running events: 42% of male 3k steeple was satisfied, 29% of female 3k steeple was

satisfied, 25% of male 5k was satisfied, 37% of female 5k was satisfied, 38% of male 10k was satisfied, and 39% of female 10k was satisfied.

In comparing the percent of distance runners satisfied with their overall training program in relation to their overall performance, it is likely that the large difference (41%) exists for a few important reasons. First, it has been established that Division I coaches are doing a satisfactory job of designing, implementing, and administering quality training programs to make their distance runners satisfied with many training and instruction protocols and the overall training program. This finding explains the high overall training program satisfaction rating. Next, it is important to note that due to the intense nature of Division I distance running it is not likely that a competitive athlete will be easily satisfied with his or her performances. When distance runners are training and competing at a high level in order to earn a scholarship or maintain their scholarship, qualify for nationals, and become All-American it is difficult to be truly satisfied until all these goals are achieved. Even if all their goals are achieved, to many high level performing athletes the belief is often that satisfaction equals complacency. High level distance runners are not interested in being complacent because not only do they need to perform in order to maintain their spot on the team, but they also need to continually perform at a higher level in their effort to be the best.

Another reason that could help explain the low distance runner performance satisfaction levels is that it was relatively late in the distance runners' racing season when the questionnaire was administered. The questionnaire was distributed throughout the last month of the distance runners' competitive season. All six of the conferences that made up the distance runner sample had already completed their conference meet and were competing in or preparing to compete in regionals and nationals when the questionnaire was being administered. Often, after the

conference, regional, and national meets, depending on how well distance runners perform, they will lose focus on the process of their performance when the end results are already determined. Distance runners tend to forget about how they improved and achieved their goals during their training and racing progression if the final event performance time(s) are not as fast as they originally preferred. At the end of the Spring season, to assist distance runners with their performance feelings of dissatisfaction and failure, it is important for coaches to have their runners reflect back on the positives of their whole season's training and performances. In future research, it would be interesting to find out if similar or different satisfaction findings result if the questionnaire was distributed earlier in the distance runners' track season.

According to the findings, overall training program satisfaction and individual training program satisfaction were not correlated with any of the performance satisfaction questions. Specifically, there was not a significant correlation between overall training satisfaction and overall performance satisfaction or between individual training satisfaction and overall performance satisfaction. This is an interesting finding because one would believe that as distance runners' overall training program satisfaction and individual training program satisfaction increase, there would be an associated increase in overall performance satisfaction. Conversely, there were significant correlations between effectiveness of training program satisfaction and performance goal satisfaction, performance improvement satisfaction, and overall performance satisfaction. This is also interesting to find that even though overall and individual training program satisfaction did not have a connection to overall performance satisfaction, increases in effectiveness of training program satisfaction was linked with increases in overall performance satisfaction. These results are similar to those illustrated in a study by Andrew (2009), who found that collegiate tennis players' preferred and perceived coaches'

training and instruction behaviors influence their satisfaction with task performance (e.g., absolute performance, improvements in performance, and goal achievement).

These findings are important because they indicate that distance runners who perceive their training program to be effective will also have a higher likelihood of being satisfied with their performance. Although this is a positive finding, it also important for coaches to recognize there is discrepancy in distance runner individual and overall training program satisfaction and performance satisfaction. As we have recognized earlier, it is difficult for many high level distance runners to be satisfied with their performance due to the competitive nature of Division I athletics, but there is evidence now to suggest that distance running coaches need to make steps in working to bridge the gap between their athletes' training program satisfaction and performance satisfaction. With such low distance runner performance satisfaction levels, it should be concerning to a coach because most likely this finding means their runners are not performing in congruence with the high level they are training. With the present study, this is the case as the majority of the sample said they were satisfied with the effectiveness and overall training program, but only 25% of the high level performing distance runners from the top six major Division I conferences had qualified for regionals. In collegiate Division I distance running, the major performance goal of most athletes is to qualify for regionals. In order to qualify for nationals the athlete must first qualify and advance out of the regional track meet. Therefore, high level performance and satisfaction with performance are not likely outcomes when a low percentage of distance runners qualify for regionals. For coaches, it is imperative to help their distance runners utilize and apply the skills, strategies, and confidence they are acquiring from their effective training programs to translate into faster, improved, and satisfying performance. Overall, there is conclusive evidence to support a connection between effectiveness

of the overall training program and overall performance, but more work needs to be done between the coaches and athletes before we can predict an association between overall and individual training program satisfaction and performance satisfaction.

Relationship Between Training Program Satisfaction and Gender or Academic Level

As noted in Null Hypothesis 4, there will be no relationship between distance runner satisfaction with the training program and gender or academic level. Based on distance runners' findings, it was discovered that there was no relationship between overall training program satisfaction and gender or academic level. Specifically, there was not a significant correlation between overall training satisfaction and gender or between overall training satisfaction and academic level. It is important to indicate that these results were not unexpected due to nine out of 10 distance runners being satisfied with their overall training program. With such high overall training program satisfaction levels among the distance runner sample, it was unlikely that significant differences among gender or academic level would be found.

Although there are no similar studies to date to support the results of the present study, these findings are important because they indicate that Division I coaches are doing an excellent job of assisting all their distance runners to become satisfied with their overall training program, regardless of gender or academic level. As a coach, it is imperative to have freshmen that are equally as satisfied as seniors and males that are equally as satisfied as females in regard to the overall training program. Overall, this finding illustrates that distance running coaches are providing equal attention to all of their distance runners.

In summary, the discussion of the findings from the present study helps provide support for coaches' learning about their distance runners' training and racing experience. Although important implications have been established, it is essential that further investigation is done to

contribute to the limited body of research on the relationship between satisfaction of the distance runners' training program and performance.

Conclusions

It is evident from the findings that Division I collegiate distance running coaches are utilizing satisfying and purposeful training and instruction protocols. Based on their mean values, 18 of 28 training and instruction protocols were found to make distance runners satisfied. In addition, the majority (89%) of the collegiate distance runners indicated that they were satisfied with the overall training and two-thirds (66%) of the participants were satisfied with the overall instruction they received from their coach during the 2010 Outdoor Track Season. These important findings help confirm that in order to be satisfied with the overall training program athletes must be satisfied with a majority of the individual training protocols and have coaches who are perceived by their athletes to exhibit higher levels of training and instruction behaviors. Based on these findings, it is apparent coaches are doing a commendable job of designing quality training and instruction protocols while continuing to strive to further their education from quality resources. Some great online resources coaches utilize to learn more about the sport of track and field and distance running include: LetsRun.com, Flotrack.org, RunnerSpace.com, USATF.org, USTFCCCA.org, McMillanRunning.com, and SportsScientists.com. Currently, athletic directors and track and field directors are recommending, if not requiring, that Division I distance coaches acquire either their USA Track and Field or U.S. Track and Field and Cross Country Coaches Association coaching education certification. These certifications educate and familiarize the coaches with the knowledge, skills, and language needed to be a successful and proficient track and field coach. For another formal avenue of coaching education acquisition, some coaches are utilizing onsite or online master's degree programs in Coaching Education.

Malete and Feltz (2000) studied the effect of completion of coaching education programs on the level of coaching effectiveness and found that coaching education increased coaching effectiveness, and that it could be formal (e.g., coaching education certifications) or informal (e.g., courses, clinics, coaching manuals, books, online websites, and assistant coaching experience). The present study's findings support these results and suggest it is imperative for coaches to continue to seek more knowledge and skills based training, so that they can continue to design and apply satisfying and purposeful training and instruction protocols.

The findings also indicate that overall training program satisfaction is not associated with absolute performance. This finding supports the null hypothesis that athlete satisfaction with the overall training program does not have an influence on race performance times. Furthermore, as a coach, just because you have a distance runner who is satisfied with the majority of their training and instruction protocols and their overall training regimen this does not indicate that they will have faster performance times in the 3k steeple, 5k, and 10k distance events. There are many factors that can directly contribute to fast performance times. At the present time, it can be recognized that distance runner satisfaction with their training is not one of those factors. Although this finding does not provide support for the congruency hypothesis of the Multidimensional Model of Leadership for the outcome of satisfaction and performance, it is important to indicate that these results are likely due to a smaller sample size. The sample size was only small for the performance times questions because the participants chose their best event, which spread the distance runner population over the three distance events. In future research, it is recommended that a larger participant sample be utilized to better predict the relationship between training program satisfaction and absolute performance among the distance runner population.

It is also apparent from the findings that there is limited evidence to provide support for the relationship between overall training program satisfaction and performance satisfaction. Although it was found that distance runners who perceive their training program to be effective are more likely to be satisfied with their overall performance, there was not a connection between overall training satisfaction and overall performance satisfaction. This finding supported the null hypothesis, which is that athlete satisfaction with the overall training program does not have an influence on overall performance satisfaction. Furthermore, coaches should not assume that because their distance runners are satisfied with their overall training program, they will also be satisfied with their overall performances (time, goals, and improvement). It is important for a coach to recognize that distance runners are competitive and that it is difficult for them to be satisfied with their performances, especially if overall performance is assessed at the end of the season and their times, improvement, and goals were not achieved. Conversely, these findings also suggest that distance running coaches need to help bridge the gap between their athletes' training program satisfaction and performance satisfaction. It is important for coaches to strive to have their distance runners perform at a level in congruence with the high level they are training because in the present study it was found that only 25% of the distance runners from the six major Division I conferences had qualified for regionals. To achieve higher level performance, coaches must help their distance runners utilize and apply the skills, strategies, and confidence they are acquiring from their effective training programs to translate into faster, improved, and satisfying performance. Coaches should have their distance runners reflect on their performances throughout the whole season and use training cycles to gauge the participants' progress toward satisfaction with performance goal accomplishment, improvement, and times. Finally, the coach

and athlete must learn to trust one another, which can be established through quality training and instruction protocols. A positive coach-athlete relationship can result in increased performance.

Nine out of 10 distance runners among the study participants were satisfied with the overall training program, so it was reasonable to find no relationship between distance runner satisfaction with the training program and gender or academic level. These findings supported the null hypothesis that athlete satisfaction with the overall training program would not be different among gender or academic level. These findings are important because they indicate that Division I coaches are doing an exceptional job of assisting all their distance runners to achieve satisfaction with their overall training program, regardless of gender or academic level. As a coach trying to retain athletes, it is imperative to have freshmen that are equally as satisfied as seniors and males that are equally as satisfied as females in regard to the overall training program. Overall, these findings further illustrate that distance running coaches are providing equivalent attention and focus to all of their distance runners when designing their training programs.

Recommendations for Future Research

Based on the findings of this study, several areas of additional research seem necessary. First, it would be useful to further investigate how to better develop mental skills training and mental toughness development instruction protocols. These are valuable instructional skills, and these two protocols had two of the lowest mean satisfaction scores among all the training and instruction protocols. It is likely that coaches lack the knowledge and time to fully develop these mental skills in their distance runners. It would be interesting to explore simple and quick strategies that coaches could utilize to increase the likelihood that they would improve these behaviors in their distance runners on a more frequent basis.

Second, no research has yet explored a full test (i.e., required, preferred, and perceived) of the MML's congruency hypothesis. The present study only analyzed distance runners' perceived coaching behaviors, so it incorporated single-item measures of satisfaction. In the future, it would be meaningful to follow up the perceived training and instruction protocol satisfaction questions with preferred distance runner questions on the same training and instruction protocols. Coaches need to be made aware of why distance runners are satisfied or dissatisfied with their perceived coaching behaviors. Preferences for training and instruction are important because they can give the coach some more concrete information to use in assessing their athletes' performance and the protocols from the training program that they might need to change for the individual or team.

Third, further investigation is needed into whether the perceptions of satisfaction with the training program and performance differ among collegiate distance runners competing in NCAA Division I, II, and III. As noted in the present study in the discussion of the results, it is difficult to get competitive Division I runners to be satisfied with their performance. It could be even more difficult to achieve satisfaction with their performance depending on the training cycle of the competition season. It would be interesting to investigate the other two divisions to see if this is the case with these levels as well. It would also be useful to compare overall training program satisfaction and training and instruction protocols satisfaction findings to examine if the coaches at Divisions II and III are perceived by the distance runners as skilled at designing, implementing, and administering training programs. By including more Divisions in a future study, it would also increase the likelihood of obtaining more participants; therefore creating increased generalizability among the distance runner populations.

Summary

Overall, based on the findings, NCAA Division I distance runners perceive their coaches' overall training programs and training protocols as satisfying, but further research is needed to continue to fill the gap in the satisfaction and performance literature and to develop a comprehensive understanding of this complex relationship. Based on the advantages that satisfaction with the training protocols can offer the distance runner, it is important to conclude that distance runners who are satisfied with their training program tend to be confident in their training, motivated, trusting of the coach and his or her training program, and enjoy their college racing and training experience. Accordingly, satisfaction also positively affects distance runner retention.

These findings are important because they help confirm that in order to be satisfied with the overall training program, athletes must be satisfied with a majority of the individual training protocols and have coaches who are perceived by their athletes to exhibit higher levels of training and instruction behaviors. Therefore, due to the large number of coaches' training and instruction protocols that distance runners reported satisfaction with, we can conclude that collegiate Division I distance coaches are knowledgeable and skilled at designing, prescribing, and administering satisfying and purposeful training programs.

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APPENDIX A

2010 NCAA Track Distance Athlete Satisfaction and Performance Questionnaire

In order to be eligible to participate in the study, you must qualify for all four (4) of the following guidelines:

a.) currently listed on your team's 2010 Outdoor Track Roster,

b.) have competed in at least one long distance race (i.e., 3k steeple, 5k, 10k) during the 2010 Outdoor Track Season,

c.) primarily train for and race in long distance track events (i.e., 3k steeple, 5k, 10k),

d.) 18 years of age or older.

Directions: Read each item carefully. Unless otherwise specified, please check only one response. For satisfaction questions, use the scale below. Please check the number that best describes your degree of satisfaction. Answer each item according to the following scale:

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

Athlete Satisfaction is defined as the extent to which one's athletic experience meets one's personal standards. The larger the difference between the two, the more dissatisfaction one is believed to experience.**

****As you answer these questions, keep in mind that your responses should reflect your 2010 Outdoor Track training program experience.** **

Training (satisfaction):

1. **a.)** In a typical training week, what is your mileage range? (check range according to gender)

Female: (miles)	55 or fewer	56-65	66-75	76-85	86 or more
Male: (miles)	65 or fewer	66-75	76-85	86-95	96 or more

b.) My current degree of satisfaction with my mileage range per week.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

2. **a.)** In a typical training week, how many **short and long** speed workouts do you run? (workouts <u>do not include</u> easy runs, recovery runs, and long runs**)**

1 2 3 4 5 or more

b.) My current degree of satisfaction with the number of short and long speed workouts per week.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

3. **a.)** In a typical 2 to 3 week training cycle, which type of **short** speed workouts do you run? **(check all that apply)**

Intervals/ Repeats (100-600 meters) Cruise Intervals (400-600 meter)

Fartlecks (20 sec.-2 min.) Hill Repeats (100-400 meters) Strides

b.) My current degree of satisfaction with the type of **short** speed workouts that I run per 2 to 3 week training cycle.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

4. **a.)** In a typical 2 to 3 week training cycle, which type of **long** speed workouts do you run? **(check all that apply)**

Intervals/ Repeats (800-5000 meters) Steady State/Tempo

Cruise Intervals (800 meters-1 mile) Fartlecks (3 min. - 10 min.)

Hill Repeats (longer than 400 meters) Progressive (slower to faster)

b.) My current degree of satisfaction with the type of **long** speed workouts that I run per 2 to 3 week training cycle.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

5. **a.)** In a typical training week, how many **recovery days** do you get between your **long** speed workout and **short** speed workout? (workouts <u>do not include</u> easy runs, recovery runs, and long runs**)**

0 1 2 3 4 or more

b.) My current degree of satisfaction with the number of recovery days I get between my **long** speed workout and **short** speed workout.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

6. a.) In a typical training week, how many two-a-day days do you run? (a two-day-run counts as 1)

0 1 2 3 4 or more

b.) My current degree of satisfaction with the number of two-a-day days I run per week.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

7. a.) In a typical training week, how many miles is your long run?

10 miles or fewer 11-12 miles 13-14 miles 15-16 miles 17 miles or more

b.) My current degree of satisfaction with my long run distance per week.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

8. a.) In a typical 2 to 3 week training cycle, which of the following weight/resistance training exercises do you utilize? **(check all that apply)**

Medicine Ball Exercises Body Weight Exercises Dumbbell Exercises

Barbell Exercises Core/Stability Exercises None

b.) My current degree of satisfaction with the weight/resistance training exercises that I utilize per 2 to 3 week training cycle.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

9. a.) In a typical 2 to 3 week training cycle, which of the following additional drills do you utilize? **(check all that apply)**

Form Running Drills	Agility Ladder Drills	Plyometric/Explosive Drills
Hurdle Drills	Medicine Ball Drills	None

b.) My current degree of satisfaction with the additional drills that I utilize per 2 to 3 week training cycle.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

10. My current degree of satisfaction with the post-run, post-workout, and post-race cool down and stretching routine that I do.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

11. a.) In a typical training week, how many training sessions do you cross-train (i.e., swim, aqua jog, bike, etc)?

0 1 2 3 4 or more

b.) My current degree of satisfaction with the number of times I cross train per week.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

12. My current degree of satisfaction with the **overall** physical training program.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

13. My current degree of satisfaction with my **individualized** physical training program.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

14. My current degree of satisfaction with the **effectiveness** of the overall physical training program.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

****<u>As you answer these questions, keep in mind that your responses should reflect the instruction you received during this 2010 Outdoor Track training experience.</u>****

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

<u>Instruction (satisfaction):</u> **1 2 3 4 5**

My degree of Satisfaction with the:

1.) goal or purpose for doing specific types of long and short speed workouts.

2.) goal setting and accomplishment instruction.

3.) teaching of the tactics used during races.

4.) post race and post workout feedback.

5.) instruction on mental toughness development.

6.) open communication with my coach about aspects of my training and racing program.

7.) instruction on mental skills training such as visualization techniques.

8.) guidance on how to be confident and believe in myself that I can run fast.

9.) motivation techniques utilized to get me training more effectively and racing faster. (i.e., rewards-scholarship)

10.) willingness to let me back off the structured physical training program when I am starting to feel too fatigued or overtrained.

11.) nutritional guidelines/guidance.

12.) responsibility and instruction I have been given on leading my teammates in practice and at competitions.

13.) overall instruction on important technical and tactical components needed for distance running success.

****As you answer these questions, keep in mind that your responses should reflect your 2010 Outdoor Track racing experience.****

Performance (satisfaction):

1. Check the **ONE (1)** long distance event that you feel you have run your best performance in during this 2010 Outdoor track season.

_____***3k steeple*** _____***5k*** _____***10k***

Directions: In questions 2-4, respond ONLY to the ONE (1) *event* question that you have checked and gender.

2. **A.)** If you checked **3k steeple** in question #1 and are **male**, choose the range that includes your best 3k steeple time (minutes) of this 2010 outdoor season.

8:57 or faster 8:58-9:07 9:08-9:17 9:18-9:27 9:28 or slower

My current degree of satisfaction with my **3k steeple** time.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

B.) If you checked **3k steeple** in the question #1 and are **female**, choose the range that includes your best 3k steeple time (minutes) of this 2010 outdoor season.

10:40 or faster 10:41-10:50 10:51-11:00 11:01-11:10 11:11 or slower

My current degree of satisfaction with my **3k steeple** time.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

3. **A.)** If you checked **5k** in question #1 and are **male**, choose the range that includes your best 5k time (minutes) of this 2010 outdoor season.

13:52 or faster 13:53-14:12 14:13-14:32 14:33-14:52 14:53 or slower

My current degree of satisfaction with my **5k** time.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

B.) If you checked **5k** in question #1 and are **female**, choose the range that includes your best 5k time (minutes) of this 2010 outdoor season.

16:22 or faster 16:23-16:52 16:53-17:22 17:23-17:52 17:53 or slower

My current degree of satisfaction with my **5k** time.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

4. **A.)** If you checked **10k** in question #1 and are **male**, choose the range that includes your best 10k time (minutes) of this 2010 outdoor season.

28:45 or faster 28:46-29:30 29:31-30:15 30:16-31:00 31:00 or slower

My current degree of satisfaction with my **10k** time.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

B.) If you checked **10k** in question #1 and are **female**, choose the range that includes your best 10k time (minutes) of this 2010 outdoor season.

33:30 or faster 33:31-35:00 35:01-36:30 36:31-38:00 38:01 or slower

My current degree of satisfaction with my **10k** time.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

Directions: Please Respond to all of the Following Performance Questions.

5. In your **best performance** event from **question #1**, do you currently have a top 48 ranked time in the East or West Region that could potentially qualify you for Regionals?

Yes No Not Sure

6. My degree of satisfaction with the extent to which I am achieving my race performance goals this 2010 Outdoor track season.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

7. **a.)** In your **best performance** event from **question #1**, have you seen an improvement in **race time** over the previous outdoor track season? (if you did not race your best performance event in the previous outdoor track season, check NA)

Yes No NA

b.) My current degree of satisfaction with the **improvement** in my **race time** over the previous outdoor track season. (if you checked NA in 7a., skip this question)

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

8. My degree of satisfaction with my **overall performance** (time, goals, and improvement) this 2010 outdoor track season.

1: Very Dissatisfied; 2: Dissatisfied; 3: Neutral; 4: Satisfied; 5: Very Satisfied

9. Have you **enjoyed racing and training** this 2010 outdoor track season to the degree that you plan to continue competing in distance running next year?

Yes No Undecided

Directions: Please Respond to all of the Following (check one)

1.) Gender: _____Male _____Female

2.) Age: ____ 18 ____19 ____ 20 ____ 21____22_____23 or older

3.) Year in College: ____Freshman _____ Sophomore____ Junior_____Senior_____ 5^{th}-6^{th} Year Senior _____ Grad. Student

4.) Have you been **injured during this 2010 Outdoor track season** to the degree that you have had to take more than a week off of training (running) or racing? _____Yes _____ No

APPENDIX B

Internal Consistency Estimates for Scale: All Variables

Reliability Statistics

Cronbach's Alpha	N of Items
.917	34

Item Statistics

	Mean	Std. Deviation	N
Short/Long Satisfaction	3.7723	.52690	101
Mileage Satisfaction	3.6832	.58191	101
Long Speed Satisfaction	3.8119	.46288	101
Recovery Day Satisfaction	3.7327	.54573	101
Two-A-Day Satisfaction	3.5347	.81932	101
Long Run Satisfaction	3.7327	.59818	101
Weight/Resistance Training Satisfaction	3.6634	.66749	101
Additional Drill Satisfaction	3.4950	.70177	101
Post-Workout Cool-Down Satisfaction	3.9109	.31934	101

Post-Race Cool-Down Satisfaction	3.8119	.46288	101
Stretching Satisfaction	3.2772	.83808	101
Cross-Training Satisfaction	3.0792	1.25446	101
Flexibility with Training Satisfaction	3.6139	.84818	101
Goal Setting Satisfaction	3.5347	.80702	101
Short/Long Speed Goal Satisfaction	3.6535	.71324	101
Effectiveness of Training Satisfaction	3.6931	.59569	101
Nutritional Guidance Satisfaction	3.3960	.95999	101
Leadership Responsibility Satisfaction	3.6337	.78387	101
Instruction on Leadership Satisfaction	3.4554	.94366	101
Overall Instruction Satisfaction	3.5743	.75295	101
Overall Training Satisfaction	3.8713	.43962	101
Individual Training Satisfaction	3.6634	.63682	101
Race Tactic Satisfaction	3.3465	.79291	101

Post-Race Feedback Satisfaction	3.3465	.93205	101
Post-Workout Feedback Satisfaction	3.5050	.75662	101
Mental Toughness Satisfaction	3.2079	.91997	101
Open Communication with Training	3.5545	.81823	101
Open Communication with Racing	3.5248	.86711	101
Mental Skills Satisfaction	3.0000	1.02956	101
Guidance on Confidence Satisfaction	3.2178	.91218	101
Motivation Techniques Satisfaction	2.9802	1.09526	101
Performance Goal Satisfaction	2.8713	.85631	101
Improvement Satisfaction	3.2376	.88486	101
Overall Performance Satisfaction	3.1782	.87631	101

APPENDIX C

Correlation Matrices of Training and Instruction Protocols Satisfaction and Overall Training Program Satisfaction

		Overall Training Satisfaction
Overall Training Satisfaction	Pearson Correlation	1
	Sig. (2-tailed)	
	N	136
Mileage Satisfaction	Pearson Correlation	.036
	Sig. (2-tailed)	.676
	N	136
Short/Long Satisfaction	Pearson Correlation	.420**
	Sig. (2-tailed)	.000
	N	136
Short Speed Satisfaction	Pearson Correlation	.184*
	Sig. (2-tailed)	.032
	N	136
Long Speed Satisfaction	Pearson Correlation	.491**
	Sig. (2-tailed)	.000
	N	136
Recovery Day Satisfaction	Pearson Correlation	.297**
	Sig. (2-tailed)	.000
	N	136
Two-A-Day Satisfaction	Pearson Correlation	.346**
	Sig. (2-tailed)	.000
	N	136
Long Run Satisfaction	Pearson Correlation	.081
	Sig. (2-tailed)	.347
	N	136
Weight/Resistance Training Satisfaction	Pearson Correlation	.091
	Sig. (2-tailed)	.293
	N	136
Additional Drill Satisfaction	Pearson Correlation	.172*
	Sig. (2-tailed)	.046
	N	136
Post-Workout Cool-Down Satisfaction	Pearson Correlation	.112
	Sig. (2-tailed)	.195
	N	136
Post-Race Cool-Down Satisfaction	Pearson Correlation	.047
	Sig. (2-tailed)	.589
	N	136
Stretching Satisfaction	Pearson Correlation	.033
	Sig. (2-tailed)	.703
	N	136
Cross-Training Satisfaction	Pearson Correlation	.191*
	Sig. (2-tailed)	.026
	N	136

		Overall Instruction Satisfaction
Overall Instruction Satisfaction	Pearson Correlation	1
	Sig. (2-tailed)	
	N	136
Short/Long Speed Goal Satisfaction	Pearson Correlation	.434**
	Sig. (2-tailed)	.000
	N	136
Goal Setting Satisfaction	Pearson Correlation	.512**
	Sig. (2-tailed)	.000
	N	136
Race Tactic Satisfaction	Pearson Correlation	.594**
	Sig. (2-tailed)	.000
	N	136
Post-Race Feedback Satisfaction	Pearson Correlation	.421**
	Sig. (2-tailed)	.000
	N	136
Post-Workout Feedback Satisfaction	Pearson Correlation	.413**
	Sig. (2-tailed)	.000
	N	136
Mental Toughness Satisfaction	Pearson Correlation	.590**
	Sig. (2-tailed)	.000
	N	136
Open Communication with Training	Pearson Correlation	.558**
	Sig. (2-tailed)	.000
	N	136
Open Communication with Racing	Pearson Correlation	.556**
	Sig. (2-tailed)	.000
	N	136
Mental Skills Satisfaction	Pearson Correlation	.442**
	Sig. (2-tailed)	.000
	N	136
Guidance on Confidence Satisfaction	Pearson Correlation	.429**
	Sig. (2-tailed)	.000
	N	136
Motivation Techniques Satisfaction	Pearson Correlation	.353**
	Sig. (2-tailed)	.000
	N	136
Flexibility with Training Satisfaction	Pearson Correlation	.418**
	Sig. (2-tailed)	.000
	N	136
Nutritional Guidance Satisfaction	Pearson Correlation	.518**
	Sig. (2-tailed)	.000
	N	136
Leadership Responsibility Satisfaction	Pearson Correlation	.489**
	Sig. (2-tailed)	.000
	N	136
Instruction on Leadership Satisfaction	Pearson Correlation	.539**
	Sig. (2-tailed)	.000
	N	136

APPENDIX D

Crosstabulation and Chi-Square Statistics of Training and Instruction Protocols Satisfaction

*Long Speed Satisfaction * Overall Training Satisfaction Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Long Speed Satisfaction	Dissatisfied	2	3	1	6
	Neutral	2	2	12	16
	Satisfied	2	4	108	114
Total		6	9	121	136

*Long Speed Satisfaction * Overall Training Satisfaction*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	39.441[a]	4	.000
Likelihood Ratio	24.283	4	.000
Linear-by-Linear Association	32.566	1	.000
N of Valid Cases	136		

*Short/Long Speed Satisfaction * Overall Training Satisfaction Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Short /Long Satisfaction	Dissatisfied	1	5	2	8
	Neutral	2	2	14	18
	Satisfied	3	2	105	110
Total		6	9	121	136

*Short/Long Speed Satisfaction * Overall Training Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.308[a]	4	.000
Likelihood Ratio	28.181	4	.000
Linear-by-Linear Association	23.783	1	.000
N of Valid Cases	136		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .35.

*Recovery Day Satisfaction * Overall Training Satisfaction Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Recovery Day Satisfaction	Dissatisfied	2	3	4	9
	Neutral	0	3	18	21
	Satisfied	4	3	99	106
Total		6	9	121	136

*Recovery Day Satisfaction * Overall Training Satisfaction*
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.630[a]	4	.000
Likelihood Ratio	17.156	4	.002
Linear-by-Linear Association	11.933	1	.001
N of Valid Cases	136		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .40.

*Short/Long Workouts * Short/Long Workouts Satisfaction Crosstabulation*

Count

		Short/Long Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Short/Long Workouts	1.00	1	3	3	7
	2.00	0	10	78	88
	3.00	4	4	35	43
	4.00	1	1	3	5
	5 or more	2	0	1	3
Total		8	18	120	146

*Short/Long Workouts * Short/Long Workouts Satisfaction*
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.604[a]	8	.000
Likelihood Ratio	26.788	8	.001
Linear-by-Linear Association	6.714	1	.010
N of Valid Cases	146		

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .16.

*Recovery Days * Recovery Days Satisfaction Crosstabulation*

Count

		Recovery Day Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Recovery Days	0 days	2	3	0	5
	1 day	7	8	29	44
	2 days	1	8	71	80
	3 days	0	3	5	8
	4 or more days	0	0	4	4
Total		10	22	109	141

*Recovery Days * Recovery Days Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.808[a]	8	.000
Likelihood Ratio	33.719	8	.000
Linear-by-Linear Association	17.101	1	.000
N of Valid Cases	141		

a. 9 cells (60.0%) have expected count less than 5. The minimum expected count is .28.

*Two-A-Days * Two-A-Days Satisfaction Crosstabulation*

Count

		Two-A-Day Satisfaction				
		.00	Dissatisfied	Neutral	Satisfied	Total
Two-A-Days	.00	2	5	10	18	35
	1.00	0	1	4	7	12
	2.00	0	6	9	36	51
	3.00	0	2	6	26	34
	4 or more	0	1	1	7	9
Total		2	15	30	94	141

*Two-A-Days * Two-A-Days Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.118[a]	12	.436
Likelihood Ratio	11.731	12	.468
Linear-by-Linear Association	7.237	1	.007
N of Valid Cases	141		

a. 11 cells (55.0%) have expected count less than 5. The minimum expected count is .13.

*Long Run Mileage * Long Run Satisfaction Crosstabulation*

Count

		Long Run Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Long Run Mileage	10 miles or fewer	4	7	8	19
	11 - 12 miles	1	4	53	58
	13 - 14 miles	3	2	27	32
	15 - 16 miles	0	3	20	23
	17 miles or more	1	0	7	8
Total		9	16	115	140

*Long Run Mileage * Long Run Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.607[a]	8	.000
Likelihood Ratio	26.390	8	.001
Linear-by-Linear Association	4.403	1	.036
N of Valid Cases	140		

a. 9 cells (60.0%) have expected count less than 5. The minimum expected count is .51.

*Cross-Training Days * Cross-Training Satisfaction Crosstabulation*

Count

		Cross-Training Satisfaction				
		.00	Dissatisfied	Neutral	Satisfied	Total
Cross-Training Days	.00	11	22	14	40	87
	1.00	0	6	2	21	29
	2.00	0	2	3	11	16
	3.00	0	0	1	4	5
	4 or more	0	0	0	1	1
Total		11	30	20	77	138

*Cross-Training Days * Cross-Training Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.952[a]	12	.244
Likelihood Ratio	20.248	12	.063
Linear-by-Linear Association	10.401	1	.001
N of Valid Cases	138		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .08.

*Female Mileage * Female Mileage Satisfaction Crosstabulation*

Count

		Mileage Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Female Mileage	55 or fewer miles	5	7	29	41
	56 - 65 miles	1	5	26	32
	66 - 75 miles	0	1	4	5
	76 - 85 miles	0	0	2	2
	86 or more miles	0	0	2	2
Total		6	13	63	82

*Female Mileage * Female Mileage Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.054[a]	8	.852
Likelihood Ratio	5.309	8	.724
Linear-by-Linear Association	2.819	1	.093
N of Valid Cases	82		

a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .15.

*Male Mileage * Male Mileage Satisfaction Crosstabulation*

Count

		Mileage Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Male Mileage	65 or fewer miles	2	3	12	17
	66 - 75 miles	0	4	14	18
	76 - 85 miles	1	5	17	23
	86 - 95 miles	1	1	3	5
	96 or more miles	0	0	1	1
Total		4	13	47	64

*Male Mileage * Male Mileage Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.263[a]	8	.833
Likelihood Ratio	4.936	8	.764
Linear-by-Linear Association	.002	1	.960
N of Valid Cases	64		

a. 12 cells (80.0%) have expected count less than 5. The minimum expected count is .06.

APPENDIX E

Correlation Matrices of Training Program Satisfaction and Performance Satisfaction

		Overall Training Satisfaction
Overall Training Satisfaction	Pearson Correlation	1
	Sig. (2-tailed)	
	N	136
3K Steeple Male Satisfaction	Pearson Correlation	-.477
	Sig. (2-tailed)	.117
	N	12
3K Steeple Female Satisfaction	Pearson Correlation	.164
	Sig. (2-tailed)	.479
	N	21
5K Satisfaction Male	Pearson Correlation	-.204
	Sig. (2-tailed)	.297
	N	28
5K Satisfaction Female	Pearson Correlation	.151
	Sig. (2-tailed)	.364
	N	38
10K Satisfaction Male	Pearson Correlation	.027
	Sig. (2-tailed)	.931
	N	13
10K Satisfaction Female	Pearson Correlation	.267
	Sig. (2-tailed)	.284
	N	18
Performance Goal Satisfaction	Pearson Correlation	.098
	Sig. (2-tailed)	.267
	N	130
Improvement Satisfaction	Pearson Correlation	.131
	Sig. (2-tailed)	.192
	N	101
Overall Performance Satisfaction	Pearson Correlation	.114
	Sig. (2-tailed)	.197
	N	130

		Individual Training Satisfaction
Individual Training Satisfaction	Pearson Correlation	1
	Sig. (2-tailed)	
	N	136
3K Steeple Male Satisfaction	Pearson Correlation	-.656*
	Sig. (2-tailed)	.021
	N	12
3K Steeple Female Satisfaction	Pearson Correlation	.163
	Sig. (2-tailed)	.481
	N	21
5K Satisfaction Male	Pearson Correlation	-.029
	Sig. (2-tailed)	.884
	N	28
5K Satisfaction Female	Pearson Correlation	.158
	Sig. (2-tailed)	.342
	N	38
10K Satisfaction Male	Pearson Correlation	.271
	Sig. (2-tailed)	.370
	N	13
10K Satisfaction Female	Pearson Correlation	.068
	Sig. (2-tailed)	.788
	N	18
Performance Goal Satisfaction	Pearson Correlation	.190*
	Sig. (2-tailed)	.030
	N	130
Improvement Satisfaction	Pearson Correlation	.090
	Sig. (2-tailed)	.370
	N	101
Overall Performance Satisfaction	Pearson Correlation	.201*
	Sig. (2-tailed)	.022
	N	130

		Effectiveness of Training Satisfaction
Effectiveness of Training Satisfaction	Pearson Correlation	1
	Sig. (2-tailed)	
	N	136
3K Steeple Male Satisfaction	Pearson Correlation	-.515
	Sig. (2-tailed)	.087
	N	12
3K Steeple Female Satisfaction	Pearson Correlation	.433*
	Sig. (2-tailed)	.050
	N	21
5K Satisfaction Male	Pearson Correlation	.202
	Sig. (2-tailed)	.303
	N	28
5K Satisfaction Female	Pearson Correlation	.391*
	Sig. (2-tailed)	.015
	N	38
10K Satisfaction Male	Pearson Correlation	.297
	Sig. (2-tailed)	.325
	N	13
10K Satisfaction Female	Pearson Correlation	.404
	Sig. (2-tailed)	.097
	N	18
Performance Goal Satisfaction	Pearson Correlation	.305**
	Sig. (2-tailed)	.000
	N	130
Improvement Satisfaction	Pearson Correlation	.310**
	Sig. (2-tailed)	.002
	N	101
Overall Performance Satisfaction	Pearson Correlation	.344**
	Sig. (2-tailed)	.000
	N	130

APPENDIX F

Crosstabulation and Chi-Square Statistics of Overall Training Program Satisfaction and Performance Satisfaction

*Performance Goal Satisfaction * Overall Training Satisfaction Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Performance Goal Satisfaction	Dissatisfied	4	4	50	58
	Neutral	1	3	27	31
	Satisfied	1	2	38	41
Total		6	9	115	130

*Performance Goal Satisfaction * Overall Training Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.914[a]	4	.752
Likelihood Ratio	1.921	4	.750
Linear-by-Linear Association	1.243	1	.265
N of Valid Cases	130		

a. 6 cells (66.7%) have expected count less than 5. The minimum expected count is 1.43.

*Improvement Satisfaction * Overall Training Satisfaction Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Improvement Satisfaction	Dissatisfied	2	2	26	30
	Neutral	1	1	15	17
	Satisfied	1	2	51	54
Total		4	5	92	101

*Improvement Satisfaction * Overall Training Satisfaction*
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.844[a]	4	.764
Likelihood Ratio	1.876	4	.759
Linear-by-Linear Association	1.712	1	.191
N of Valid Cases	101		

a. 6 cells (66.7%) have expected count less than 5. The minimum expected count is .67.

*Overall Performance Satisfaction * Overall Training Satisfaction Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Overall Performance Satisfaction	Dissatisfied	2	5	35	42
	Neutral	2	2	22	26
	Satisfied	2	2	58	62
Total		6	9	115	130

*Overall Performance Satisfaction * Overall Training Satisfaction Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.896[a]	4	.420
Likelihood Ratio	3.872	4	.424
Linear-by-Linear Association	1.676	1	.195
N of Valid Cases	130		

a. 6 cells (66.7%) have expected count less than 5. The minimum expected count is 1.20.

APPENDIX G

Correlations Between Overall Training Program Satisfaction and Gender or Academic Level

*Overall Training Satisfaction * Gender Correlation*

		Gender	Overall Training Satisfaction
Gender	Pearson Correlation	1	.001
	Sig. (2-tailed)		.987
	N	161	136
Overall Training Satisfaction	Pearson Correlation	.001	1
	Sig. (2-tailed)	.987	
	N	136	136

*Overall Training Satisfaction * Academic Level Correlation*

		Academic Level	Overall Training Satisfaction
Academic Level	Pearson Correlation	1	-.031
	Sig. (2-tailed)		.724
	N	130	130
Overall Training Satisfaction	Pearson Correlation	-.031	1
	Sig. (2-tailed)	.724	
	N	130	136

APPENDIX H

Crosstabulation and Chi-Square Statistics of Overall Training Program Satisfaction and Gender or Academic Level

*Overall Training Satisfaction * Gender Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Gender	Male	3	3	52	58
	Female	3	6	69	78
Total		6	9	121	136

*Overall Training Satisfaction * Gender Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.457[a]	2	.796
Likelihood Ratio	.464	2	.793
Linear-by-Linear Association	.000	1	.987
N of Valid Cases	136		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 2.56.

*Overall Training Satisfaction * Academic Level Crosstabulation*

Count

		Overall Training Satisfaction			
		Dissatisfied	Neutral	Satisfied	Total
Academic Level	Freshman	0	1	11	12
	Sophomore	2	1	30	33
	Junior	2	3	38	43
	Senior	1	4	24	29
	5th - 6th year senior	1	0	6	7
	Graduate student	0	0	6	6
Total		6	9	115	130

*Overall Training Satisfaction * Academic Level Chi-Square Tests*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.357[a]	10	.784
Likelihood Ratio	7.314	10	.696
Linear-by-Linear Association	.126	1	.723
N of Valid Cases	130		

a. 12 cells (66.7%) have expected count less than 5. The minimum expected count is .28.