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## Psychometric evaluation of the Sport Disengagement Questionnaire

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*West Virginia University*

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Psychometric Evaluation of the Sport Disengagement Questionnaire

Heather R. Deaner, M.A.

Dissertation submitted to  
the School of Physical Education  
at West Virginia University  
in partial fulfillment of the requirements for the degree of

Doctor of Education  
in  
Sport Psychology

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Morgantown, West Virginia  
2002

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## ABSTRACT

### Psychometric Evaluation of the Sport Disengagement Questionnaire

Heather R. Deaner

The present study assessed the construct validity of the Sport Disengagement Questionnaire (SDQ) through a series of factor analyses and examined demographic variables in relation to total SDQ scores. The overall sample was comprised of 400 collegiate athletes representing five National Collegiate Athletic Association (NCAA) Division I universities and one NCAA Division II university across a total of 17 varsity sports. The participants completed either a pencil/paper ( $n = 253$ ) or an online ( $n = 147$ ) version of the 36-item SDQ and a demographic sheet. Three separate reliability analyses, interfactor correlation analyses, and factor analyses were conducted: one for the pencil/paper sample, one for the online sample, and one for the combined pencil/paper and online samples. It was hypothesized that the SDQ contained six factors named Career/Future Planning, Achievement Satisfaction, Personal Investment, Social Dynamics, Athletic Identity, and Health/Fitness. The resulting factor structures were analyzed, and although slightly different, were deemed to be similar enough for overall conclusions regarding the factor structure of the SDQ to be formulated. Overall, support for five SDQ factors and 25 items was found. These factors were Health/Fitness, Career/Future Planning, Achievement Satisfaction, Athletic Identity, and Investment. Follow-up reliability and interfactor correlation analyses were conducted utilizing these final items. In addition, several analyses utilizing demographic variables were also performed. A MANOVA indicated that there were differences on several of the SDQ factor scores on the basis of gender and class standing. Males perceived less difficulty in adjusting to sport disengagement on the Health/Fitness factor while females perceived less difficulty in adjusting to sport disengagement on the Career/Future Planning and Achievement Satisfaction factors. In addition, older student athletes perceived less difficulty in adjusting to sport disengagement on the Career/Future Planning, Athletic Identity, and Investment factors compared to younger student athletes. A *t*-test revealed differences in satisfaction scores between the pencil/paper and online samples. The online sample reported greater satisfaction with the convenience of completing the study materials compared to the pencil/paper sample. Recommendations for future psychometric work on the SDQ are addressed.

## DEDICATION

To my family for their constant encouragement, support, and prayers. Thank you for helping to guide me through the dissertation and doctoral experiences.

I love you Mom, Dad, and Jason.

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## Introduction

In recent years, several prominent athletes such as John Elway, Wayne Gretzky, and Michael Jordan have disengaged from competitive sport. The media and society in general devoted considerable attention to these events. Questions such as “Why now?,” “What will you do?,” and “How do you feel?” were commonly asked of these individuals as they decided to hang up their pads, skates, and athletic shoes. However, the reality for many athletes, whether it is at the scholastic, collegiate, Olympic, or professional level of sport is that the end of their playing days is marked by little or no fanfare or recognition. How does the athlete cope with his/her sport disengagement? The answers to this question are as variable as the athletes are themselves.

Why do some athletes experience a positive transition, while others perceive their transition out of sport to be negative? Which factors influence the disengagement process in a positive manner and which impede a smooth transition? Do differences in adjustment exist based on gender, race, sport classification, class standing, and competitive level? Are interventions effective in improving the athlete’s disengagement experience? While some of these questions have been examined in the sport psychology literature (Orlick, 1986; Pearson & Petitpas, 1990; Sinclair & Orlick, 1993), several questions such as those pertaining to gender, race, sport classification, class standing, and competitive level remain virtually unexplored.

### *Sport Disengagement: Conceptual Framework*

The majority of research that has been conducted in the area of sport disengagement to date has focused primarily on theories of sport disengagement, variables that positively and negatively impact the sport disengagement process, and actual sport disengagement experiences. In order to fully understand the process of sport disengagement, researchers have attempted to

match this process to a theoretical framework. Two theories to which sport disengagement has been compared are the social gerontology theory and the thanatology theory (Blinde & Greendorfer, 1985; Sinclair & Orlick, 1994). The social gerontology theory compares sport retirement to the more traditional form of occupational retirement. In both instances, age is often a precipitating factor that forces one to leave his/her occupation or sport. The thanatology theory compares sport retirement to a form of “social death” that results from the athlete experiencing a loss in status. Neither theory was originally developed to examine sport disengagement and thus they possess some inherent flaws and limitations when applied to the study of sport disengagement. For example, an athlete typically retires at a much younger age than does the traditional employee, and the athlete does not always view sport retirement as a negative event.

In comparison to the social gerontology and thanatology theories highlighted above, there are a number of models that more aptly lend themselves to the study of sport disengagement. For example, many researchers agree that the framework used to assess sport disengagement should account for individual differences in the transition process as does Schlossberg’s (1981) model of transitions which considers the person by environment interaction that occurs. As such, the nature of an individual’s transition (e.g., smooth or difficult) is dependent upon one’s own unique circumstances and characteristics which can positively or negatively influence the process. Another model which can be used in the assessment of sport disengagement was developed specifically for athletes (Taylor & Ogilvie, 1998). This conceptual model indicates the importance of assessing several variables that can impact the nature of the athlete’s career termination. Specifically, the causes of the athlete’s termination, factors that affect the athlete’s ability to adapt, and the resources the athlete possesses should be examined.

A variety of variables have been identified as having the potential to positively or negatively impact an athlete's sport disengagement. Perhaps the most important variable impacting the athlete's disengagement is whether disengagement is volitional. Specifically, Ogilvie (1987) stated that athletes can choose to disengage from competitive sport or be forced to disengage. Those who are forced to disengage often experience a more difficult transition than those who can choose a time that is appropriate for them. Other influential variables include the athlete's age at the time of disengagement, the extent to which the athlete's identity is tied or connected to his/her sport, the athlete's level of sport achievement, the social support systems of the athlete, and the presence of options and interests outside of sport (Murphy, 1995; Ogilvie, 1987; Pearson & Petitpas, 1990; Sinclair & Orlick, 1993).

Athletes' sport disengagement experiences are variable which has led to a debate among researchers regarding the exact nature of this transition. Some researchers maintain that sport disengagement is a relatively positive, smooth transition for most athletes (Allison & Meyer, 1988; Coakley, 1983; Curtis & Ennis, 1988; Sinclair & Orlick, 1993), while other researchers maintain that sport disengagement is an inherently negative transition for the majority of athletes (Mihovilovic, 1968; Parker, 1994; Svoboda & Vanek, 1982; Werthner & Orlick, 1986). However, the manner in which research studies are interpreted can vary from one researcher to the next. Thus, it is important that caution is used in making sweeping conclusions and generalizations regarding the nature of athletes' sport disengagement experiences. Interestingly, there is a dearth of studies focusing on collegiate athletes' disengagement experiences despite the large number of collegiate athletes who disengage each year.

*Sport Disengagement: Assessment*

While the importance of assisting the athlete through the disengagement process has been recognized (Bragonier, 1999; Howerton, 1994; Petitpas, Danish, McKelvain, & Murphy, 1992), there has been little attention placed on developing a valid and reliable measure of those variables impacting the sport disengagement process. Lantz (1995) developed the Life Transitions Inventory for Athletes (LTI-A), which assesses the readiness of collegiate athletes to retire. However, psychometric testing of this instrument did not yield a clear factor structure. Several other instruments were designed to assess life adjustment events that athletes experience as a result of their sport participation. For example, Lysens, Auweele, and Ostyn (1986) developed the Life Events Questionnaire (LEQ) and Templer and Daus (1979) developed the Athlete Adjustment Prediction Scale (AAPS). However, while these instruments assess various areas of life adjustment, very few instruments have been designed to systematically examine life adjustment changes during the disengagement process from sport. The value of such an instrument would lie in its ability to screen, evaluate potential concerns, and measure the effectiveness of interventions employed to assist athletes through their transition out of sport.

The present researcher developed an instrument entitled the Sport Disengagement Questionnaire (SDQ) (Deaner, 2000). This questionnaire measures collegiate athletes' perceptions of psychological adjustment to sport disengagement and is hypothesized to contain six factors: 1) career/future planning, 2) achievement satisfaction, 3) personal investment, 4) social dynamics, 5) athletic identity, and 6) health/fitness. The career/future planning factor targets those concerns related to the disengaged athlete's primary new focus (i.e., his/her career or higher education) and the planning and experiences associated with it. The achievement satisfaction factor assesses the athlete's concerns with his/her athletic achievements and level of

satisfaction. The personal investment factor focuses on the athlete's personal investment in his/her sport and concerns associated with losing and replacing that source of investment (i.e., his/her sport). The social dynamics factor taps into concerns associated with a disengaged athlete's new social environment (e.g., friends). The athletic identity factor focuses on concerns associated with how the athlete will perceive himself/herself following sport disengagement as well as how the athlete perceives he/she will be viewed by others. Lastly, the health/fitness factor assesses concerns associated with health and fitness following disengagement given that the athlete will no longer be part of a highly structured and competitive athletic environment that places a premium on fitness. Exploratory factor analysis of the SDQ yielded a five-factor solution accounting for all of the hypothesized factors except athletic identity. Overall, this exploratory research study provided an important initial step in developing a questionnaire with reasonably good factor structure and internal consistency.

While the development and testing of the SDQ was an important step, it was in need of further psychometric assessment for at least two reasons. First, the initial assessment of the SDQ was conducted with a relatively small, homogenous sample ( $N = 74$ ). Second, in order to develop a valid and reliable instrument in any area, it is paramount that the instrument's psychometric properties are thoroughly evaluated. Today, a number of ways to conduct these evaluations exist.

Given the technological advancements that have been made and society's increased use of this technology, researchers have begun exploring new methods by which to conduct research. The newest amongst these methods is the Internet. The Internet and its associated capabilities (e.g., World Wide Web and electronic mail) are viewed as potential research tools for recruiting participants, administering assessments, and conducting interventions (Childress & Asamen,

1998). While the viability of the Internet as a research tool is still being explored, the results to date have been promising in a variety of areas.

One area which shows promise is the administration of online assessments. Several studies have found that the results obtained from computerized assessments were similar to those obtained from their pencil/paper counterparts (King & Miles, 1995; Lukin, Dowd, Plake, & Kraft, 1985; Smith & Leigh, 1997). Furthermore, there are a number of advantages associated with online assessments. Compared to pencil/paper assessments, online assessments defray the costs associated with traveling (Smith & Leigh, 1997) and mailing and photocopying materials (Hewson, Laurent, & Vogel, 1996). In addition, the researcher can save valuable time by utilizing the automatic scoring capabilities associated with some computer programs and by eliminating the meetings that are often required to administer pencil/paper assessments (Hewson et al.). Thus, given the promising results obtained from computerized assessments, the potential benefits associated with the use of online assessments, and society's shift toward utilization of the Internet, this study evaluated an online version of the SDQ, both in terms of psychometric integrity and participant satisfaction, in addition to the traditional pencil/paper format.

Therefore, the purposes of this research study were to further assess the psychometric properties of the SDQ and to compare the results of two forms of SDQ administration, pencil/paper and online. Specifically, this study was designed to assess the reliability and construct validity of two versions of the SDQ by obtaining Cronbach alpha scores and conducting exploratory factor analyses on a large sample of NCAA Division I and Division II collegiate athletes. Furthermore, this study attempted to assess whether there were differences in collegiate athletes' perceptions of adjustment to sport disengagement as a function of the mediating variables of gender, race, sport classification, class standing, and competitive level. It



was hypothesized that male athletes would perceive more difficulty than female athletes, African American athletes would perceive more difficulty than Caucasian athletes, revenue producing sport athletes (i.e., football and basketball athletes) would perceive more difficulty than Olympic status sport athletes (i.e., non football and basketball athletes), senior student athletes would perceive more difficulty than sophomore student athletes, and NCAA Division I student athletes would perceive more difficulty than NCAA Division II student athletes with respect to sport disengagement. Lastly, this study assessed the participants' satisfaction with the convenience of completing the SDQ and the Personal Information Sheet and their satisfaction with the time it took to complete these materials in order to make comparisons between the pencil/paper and online forms of administration.

## Methodology

### *Participants & Recruitment*

The overall sample for this study included 400 male and female collegiate athletes representing five NCAA Division I universities and one NCAA Division II university in the Northeast, Southeast, and Great Lakes regions of the United States. The participants were of freshmen, sophomore, junior, senior, and graduate class standing and represented 17 revenue and Olympic status sports. The sample of 400 participants was comprised of two sub-samples representing the two forms of administration that were utilized. Of the 400 participants, 253 completed the pencil/paper version of the SDQ and the Personal Information Sheet while 147 completed the online version of these materials. With respect to the online version of the study, approximately 2100 student-athletes were contacted via four NCAA Division I universities' student athlete List Serves. However, it is important to remember that not all athletes utilize email, and that some may utilize an email account not assigned by their university. The data for

an additional 47 participants (i.e., 25 pencil/paper and 22 online) was eliminated because these individuals failed to appropriately answer the screening questions, skipped entire pages of the SDQ when responding, had questionable response patterns (e.g., responded with all “3’s”, etc.), or reported prior participation in a sport disengagement program/course.

A convenience sampling procedure was utilized in order to attempt to enhance the sample size. While this procedure limits external population validity, it afforded the researcher the greatest opportunity to obtain a sufficient number of participants to conduct the proposed data analyses. After obtaining Institutional Review Board approval (see Appendix A) as well as meeting the necessary approval requirements of the participating universities, the participants were recruited during the spring semester of the 2002 academic school year from their coaches or from athletic administrators at their respective universities.

### *Research Design*

This study utilized a correlational descriptive research design. The independent variables included gender, race, sport classification, class standing, competitive level, and administrative version (i.e., pencil/paper and online). The dependent variables included the participants’ total scores on the SDQ, their scores on each of the SDQ factors (i.e., career/future planning, achievement satisfaction, personal investment, social dynamics, athletic identity, and health/fitness), and their satisfaction scores. The psychometric properties of the two versions of the SDQ (i.e., pencil/paper and online) were compared by visually examining the factor structures, Cronbach’s alphas, and the inter correlation coefficients between the subscales. In addition, the interrelationships of the independent and dependent variables were contrasted for the two samples (i.e., pencil/paper and online).

### *Instrumentation*

The instrumentation for this study included the SDQ and the Personal Information Sheet (see Appendices B, C, and D). The SDQ assesses collegiate athletes' perceptions about disengaging from sport. In Appendix B, the items of the SDQ are presented and grouped according to their hypothesized factors. In Appendix C, the SDQ and the Personal Information Sheet that were administered to participants in the pencil/paper sample is presented in a randomized format without factor labels. Appendix D contains the online version of the SDQ and the Personal Information Sheet that was administered to participants in the online sample.

*Personal Information Sheet.* The Personal Information Sheet is comprised of demographic questions pertaining to variables such as gender, race, sport, and academic year as well as questions regarding the athlete's impending disengagement from sport (e.g., "Have you participated in a program to prepare for your sport disengagement?"). The inclusion of these variables allowed the researcher to make comparisons between participants' perceptions of adjustment to sport disengagement on the basis of demographic information. In addition, the inclusion of these variables enabled the researcher to compare the two samples (i.e., pencil/paper and online) on demographic characteristics. The Personal Information Sheet also asked the participant to rate the quality of the environment in which he/she completed the study materials (i.e., quiet and free of distractions), his/her satisfaction with the convenience of completing the materials, and his/her satisfaction with the length of time it took to complete the materials.

*Sport Disengagement Questionnaire.* The SDQ was initially developed by the investigator as part of a master's thesis (Deaner, 2000). A variety of items related to sport disengagement were developed by the researcher and the chair of her thesis committee to represent six hypothesized factors (i.e., career/future planning, achievement satisfaction, personal

investment, social dynamics, athletic identity, and health/fitness). The individual items as well as the hypothesized factors were generated based on related research in the field as well as on an intuitive basis. Specifically, the factors of career future planning, achievement satisfaction, social dynamics, and athletic identity are comprised of variables that are supported in the literature as important aspects associated with the sport disengagement process. The remaining two factors, personal investment and health/fitness, were hypothesized by the researchers to be important variables in the sport disengagement process. Following numerous revisions of these items to establish clear and consistent wording and to ensure each item's uniqueness, six items were chosen for each of the six factors. Six items were selected because this number is considered acceptable for instrument construction. These items were then presented to a panel of two sport psychology professionals and four sport psychology graduate students to ensure that the questions were phrased clearly and concisely and that the items were conceptually related to the factor they were hypothesized to represent.

The original SDQ consisted of 36 items and was developed to assess collegiate athletes' perceptions of the areas that may be most troubling or difficult upon disengaging from sport. For example, an item hypothesized to measure the social dynamics factor asks, "Upon graduation, I believe it will be difficult for me to become involved in social activities not related to sport?" Each item of the SDQ is answered on a five-point Likert scale with the response options *strongly disagree*, *disagree*, *neutral*, *agree*, and *strongly agree*. The highest possible total score on the original SDQ is 180 points (i.e., 30 points per factor) and the lowest possible total score is 36 (i.e., six points per factor). The higher the respondent's overall SDQ score is and the higher the subscale scores are, the greater his/her level of perceived difficulty in adjusting to sport disengagement. Thirteen of the original SDQ items are reverse scored.

*Preliminary validation of the SDQ.* Principal components analysis with varimax rotation was performed on the 36 items of the SDQ among a sample of 74 collegiate athletes (Deaner, 2000). This analysis yielded a five-factor solution (oblique rotation) which accounted for 53.79% of the variance. The oblique rotation was used as opposed to the orthogonal rotation because the oblique rotation resulted in a clearer factor structure. Table 1 provides the labels of the factors, the eigenvalues, the percent of variance each factor contributed, and the factor loadings obtained from the principal components analysis. The presence of a factor was determined using two criteria. First, the strength of the loadings was examined with only those loadings greater than .50 or less than -.50 considered. This guideline was based upon the work of Smith, Smoll, Schutz, and Ptacek (1995). Second, the presence of cross loads was analyzed such that items that loaded greater than .50 or less than -.50 on two or more factors were further examined to see if the cross loads strongly favored one factor over the other. If there was a considerable difference between the loadings, the item with the higher loading was retained. Eleven items of the SDQ were dropped from further analysis following the principal components analysis because they failed to load significantly on any factor or because they failed to load with at least two other items. Five of the eliminated items represented the athletic identity subscale, three represented the career and future planning subscale, and three represented the social dynamics subscale.

*Reliability.* Cronbach's alpha analysis was conducted on the 25 items of the SDQ that comprised the final factor structure and each remaining subscale of the SDQ (i.e., the hypothesized subscale of athletic identity did not emerge) in order to assess internal consistency. Alpha levels above .60 are acceptable for exploratory research and indicate that the subscale is potentially reliable (Gall, Gall, & Borg, 1999). Cronbach's alpha for the 25 items of the SDQ that comprised the final factor structure was .84. Cronbach's alpha for each of the five factors

and their associated subscales was as follows: Factor 1-Health/Fitness = .91, Factor 2-Social Dynamics = .81, Factor 3-Personal Investment = .82, Factor 4-Achievement Satisfaction = .74, and Factor 5-Career/Future Planning = .73.

*Interfactor correlation analysis.* An interfactor correlation analysis was run to examine the relationships between the subscales (i.e., factors) of the SDQ. Only those items that were retained from the factor analysis were included. Pearson product moment correlation coefficients are presented in Table 2. As can be seen from the table, correlations between the subscales ranged from low to moderate suggesting future factor analytic research on the SDQ should invoke both orthogonal and oblique rotations.

*Changes to the SDQ.* Overall, two item changes were made to the original SDQ for inclusion in the present study. First, upon the recommendation of an Assistant Athletic Director, the wording of one item related to the health/fitness construct was changed. Second, the hypothesis that one item was measuring social dynamics was changed so that this item is now hypothesized to measure athletic identity based on the results obtained from a pilot study. In addition to these item changes, the original response option of “*unsure*” was changed to “*neutral*.”

The SDQ utilized in this study consisted of the 36 items that comprised the original SDQ with the exceptions noted above. Although the initial assessment and validation of the SDQ resulted in eleven items being eliminated from further analysis, all of these items were retained for assessment in the present study. The original assessment of the SDQ was limited by a small, homogenous sample and, as a result, it was believed that the elimination of the eleven items was not warranted at this time.

In order to expand upon the initial assessment of the SDQ, the present study assessed the psychometric properties of two versions of the SDQ. The first version was a pencil/paper version while the second version was an online/internet version that was specifically created for this study. Thus, the present study assessed two forms of SDQ administration. However, while the forms of administration differed, the online version of the SDQ was the same as the pencil/paper version with the exception of slightly modified directions.

### *Procedure*

*Pencil/Paper administration.* Two universities were represented in the pencil/paper administration sample, one NCAA Division I university and one NCAA Division II university. At the Division I university, the researcher met with each participating team individually after obtaining the coach's approval. Meetings were scheduled at times that were conducive to the coaches' schedules. At this meeting, the researcher explained the purpose of the study as well as directions for completing the study materials. Each athlete was provided an introductory letter (see Appendix E), two Human Subject Consent Forms (see Appendix F), and the SDQ and the Personal Information Sheet. Participants were asked to retain the introductory letter and one copy of the Human Subject Consent Form for their records and to return their signed Human Subject Consent Form and completed SDQ and Personal Information Sheet to the researcher. Meetings with the athletic teams lasted approximately 15 minutes.

At the Division II university, athletes also completed the pencil/paper form of the materials. However, due to logistical constraints surrounding travel and time, the researcher did not meet with these athletes in person. Instead, the researcher spoke individually with the coaches of the participating teams in order to request their participation and to provide them with verbal and written instructions for administering the materials (see Appendix G). These coaches

were then provided with the necessary study materials and were given directions for returning the completed forms to the researcher.

*Online administration.* Individuals in charge of their university's student-athlete List Serve were contacted to inquire about the possibility of posting a message on the List Serve. Four NCAA Division I universities agreed to the request and posted a brief message written by the researcher which explained the purpose of the study and provided a web address for accessing the study materials. This web site contained an introduction similar to the introductory letter written for the pencil/paper version of the SDQ, a consent form, and the SDQ and the Personal Information Sheet. Because the athletes received notice of the study while checking their email, they were free to complete the materials at a time of their choosing. In order to reduce the risk of non-athletes completing the SDQ and participants completing the study multiple times, two screening questions were posed. Specifically, each participant was asked if he/she was an athlete and if he/she had previously completed the questionnaire. Participants' responses to the study materials were automatically sent to the email accounts of the researcher and one doctoral committee member upon submission.

#### Results – Phase I

Prior to conducting the statistical analyses, the data from both the sample who completed the pencil/paper version of the SDQ and the data from the sample who completed the online version of the SDQ were screened to ensure there were no inappropriate values (i.e., values below the lowest possible score or exceeding the highest possible score) for the 36 items of the instrument. In addition, the skewness and kurtosis of the 36 SDQ items were assessed. This assessment indicated that the data was normally distributed.



### *Demographic Information*

Demographic data was collected and assessed for both the pencil/paper and online versions of administration. One NCAA Division I university and one NCAA Division II university comprised the pencil/paper sample. The Division I university had 197 participants while the Division II university had 55 participants. One participant did not report where he/she attended college. A total of 11 sports, two revenue producing and nine Olympic status, were represented in the pencil/paper sample.

The online sample was comprised of 147 participants representing four NCAA Division I universities. A total of 16 sports, two revenue producing and 14 Olympic status, were represented in the online sample. Additional demographic data pertaining to gender, race, sport classification, class standing, competitive level, and age for both the pencil/paper and online samples can be located in Table 3. Furthermore, Table 3 provides information concerning the amount of time it took participants to complete the SDQ and the Personal Information Sheet.

### *Results for Pencil/Paper Administration of the SDQ*

*Descriptive statistics.* Descriptive information for each of the hypothesized SDQ subscales (i.e., career/future planning, achievement satisfaction, personal investment, social dynamics, athletic identity, and health/fitness) was computed for each participant prior to conducting the factor analyses. Means, standard deviations, and minimum and maximum scores for each subscale are presented in Table 4.

*Reliability.* Cronbach's alpha was calculated for the 36 items of the SDQ and for each of the hypothesized subscales prior to conducting the factor analyses. Alpha levels above .60 are acceptable for exploratory research and indicate that the subscale is potentially reliable (Gall et al., 1999). Cronbach's alpha for the 36 items of the SDQ was .86. Cronbach's alpha for each of

the hypothesized subscales was as follows: Career/Future Planning = .75, Achievement Satisfaction = .54, Personal Investment = .79, Social Dynamics = .56, Athletic Identity = .71, and Health/Fitness = .89.

*Interfactor correlation analysis.* An intercorrelation subscale matrix was computed prior to conducting the factor analyses to determine the relationships between the hypothesized subscales of the SDQ. Pearson product moment correlations for the participants' responses to the subscales are presented in Table 5. Correlation coefficients ranged from low to moderate indicating both an orthogonal and rotated solution (i.e., varimax) should be assessed when conducting factor analysis.

*Exploratory factor analysis.* Principal components analysis was performed on the 36 items of the SDQ for a sample of 253 collegiate athletes who completed the pencil/paper version of the SDQ. Both orthogonal and varimax rotations were assessed, but the varimax rotation resulted in a clearer factor structure. The component matrix was assessed using a loading criteria of greater than .40 or less than -.40. In order for a factor to be identified a minimum of three items had to load on that factor. In addition, cross loads were assessed by examining the difference between the loadings. Eight factors emerged utilizing the criteria noted. However, due to the presence of three cross loads (i.e., two on Factor 7 and one on Factor 8) Factors 7 and 8 were eliminated from further consideration. The cross loads had weaker loadings on these factors and the elimination of these items resulted in the failure of Factors 7 and 8 to load a sufficient number of items (i.e., three items). As such, the factor analysis resulted in a six-factor solution accounting for 46.76% of the variance. Factor loadings, eigenvalues, and the percent of variance each factor contributed is located in Table 6 (the eight factors that emerged are shown so that the reader can observe the cross loading items).

Overall, clear support (i.e., no mixing of hypothesized items) was evident for three of the hypothesized factors. Six items loaded on Factor 1, all of which were hypothesized to measure the construct of health/fitness. Four items loaded on Factor 4, all of which were hypothesized to measure the construct of career/future planning. Lastly, four items loaded on Factor 6, all of which were hypothesized to measure the construct of athletic identity. However, the proportion of variance accounted for by these three factors was low with the exception of Factor 1 which assessed health/fitness. While support for the remaining factors is not as evident due to the mixture of hypothesized items which loaded on them, further interpretations of these factors and a rationale for suspecting the presence of more than the three supported factors outlined above is presented here.

*Interpretations of the factor analysis.* As previously indicated, eight factors emerged from the pencil/paper factor analysis according to the established criteria. However, Factors 7 and 8 were eliminated because the presence of items that cross loaded (i.e., items 5 and 31 on Factor 7 and item 14 on Factor 8) resulted in the failure of these factors to load a sufficient number of items. On the remaining six-factor solution, there was one additional item (i.e., item 26) which cross loaded and was dropped from Factor 3 and retained on Factor 2. This decision was based upon the item possessing a stronger loading on Factor 2 and its congruence with the conceptual nature of the other items on Factor 2. There were eight items (i.e., items 3, 6, 7, 10, 11, 19, 20, and 23) which failed to load on a factor or did not load with at least two other items and as a result were eliminated from further analyses. Along with these items, the researcher opted to eliminate two additional items (i.e., item 29 from Factor 2 and item 8 from Factor 5) because they did not conceptually relate to the other items which loaded on their respective factors. While assigning labels to factors which load a mixture of items is challenging, following

the interpretations outlined above, the items on each of the six factors were conceptually linked. As a result the factors were labeled as follows: Factor 1 = Health/Fitness, Factor 2 = Personal & Social Investment, Factor 3 = Ability to See Oneself Outside of Sport, Factor 4 = Career/Future Planning, Factor 5 = Achievement Satisfaction, and Factor 6 = Athletic Identity.

#### *Results for Online Administration of the SDQ*

*Descriptive statistics.* Descriptive information for each of the hypothesized SDQ subscales (i.e., career/future planning, achievement satisfaction, personal investment, social dynamics, athletic identity, and health/fitness) was computed for each participant prior to conducting the factor analyses. Means, standard deviations, and minimum and maximum scores for each subscale are presented in Table 7.

*Reliability.* Cronbach's alpha was calculated for the 36 items of the SDQ and for each of the hypothesized subscales prior to conducting the factor analyses. Cronbach's alpha for the 36 items of the SDQ was .88. Cronbach's alpha for each of the hypothesized subscales was as follows: Career/Future Planning = .76, Achievement Satisfaction = .60, Personal Investment = .82, Social Dynamics = .68, Athletic Identity = .73, and Health/Fitness = .90.

*Interfactor correlation analysis.* An intercorrelation subscale matrix was computed prior to conducting the factor analyses to determine the relationships between the hypothesized subscales of the SDQ. Pearson product moment correlations for the participants' responses to the subscales are presented in Table 8. Correlation coefficients ranged from low to moderate indicating both an orthogonal and rotated solution (i.e., varimax) should be assessed when conducting factor analysis.

*Exploratory factor analysis.* Principal components analysis was performed on the 36 items of the SDQ for a sample of 147 collegiate athletes who completed the online version of the

SDQ. Both orthogonal and varimax rotations were assessed, but the varimax rotation resulted in a clearer factor structure. The component matrix was assessed using a loading criteria of greater than .40 or less than -.40. In order for a factor to be identified a minimum of three items had to load on that factor. In addition, cross loads were assessed by examining the difference between the loadings. This analysis resulted in a seven-factor solution accounting for 54.60% of the variance. Factor loadings, eigenvalues, and the percent of variance each factor contributed can be found in Table 9.

Overall, clear support (i.e., no mixing of hypothesized items) was evident for four of the hypothesized factors. Six items loaded on Factor 1, all of which were hypothesized to measure the construct of health/fitness. Five items loaded on Factor 2, all of which were hypothesized to measure the construct of career/future planning. Five items loaded on Factor 3, all of which were hypothesized to measure the construct of personal investment. Lastly, three items loaded on Factor 7, all of which were hypothesized to measure the construct of achievement satisfaction. While support for the remaining factors is not as evident due to the mixture of hypothesized items which loaded on them, further interpretations of these factors and a rationale for suspecting the presence of more than the four supported factors highlighted above will be presented here.

*Interpretations of the factor analysis.* The seven-factor solution identified for the online factor analysis resulted in one item (i.e., item 6) being dropped from Factor 5 due to a cross loading. The item was dropped from Factor 5 and retained on Factor 3 because the item possessed a stronger loading on Factor 3 and was developed to measure the same construct as the other items on Factor 3. There were five items (i.e., items 3, 8, 9, 12, and 15) which failed to load or did not load with at least two other items and as a result were eliminated from further analyses. Along with these items, the researcher opted to eliminate two additional items (i.e.,

item 14 from Factor 4 and item 34 from Factor 6) because they did not conceptually related to the other items which loaded on their respective factors. In addition, these two items had weak loadings compared to the other items on their factors. Because the remaining items on each factor were conceptually linked, the factors were labeled as follows: Factor 1 = Health/Fitness, Factor 2 = Career/Future Planning, Factor 3 = Personal Investment, Factor 4 = Social Dynamics, Factor 5 = Athletic Identity (Self), Factor 6 = Athletic Identity (Others), and Factor 7 = Achievement Satisfaction. The descriptor of “Self” was added to the label of Factor 5 because its items are related to how the athlete perceives him/herself while the descriptor of “Others” was added to the label of Factor 6 because its items relate to how the athlete is perceived by others.

*Results for Combined Pencil/Paper & Online Administration of the SDQ*

*Descriptive statistics.* Descriptive information for each of the hypothesized SDQ subscales (i.e., career/future planning, achievement satisfaction, personal investment, social dynamics, athletic identity, and health/fitness) was computed for each participant prior to conducting the factor analyses. Means, standard deviations, and minimum and maximum scores for each subscale are presented in Table 10.

*Reliability.* Cronbach’s alpha was calculated for the 36 items of the SDQ and for each of the hypothesized subscales prior to conducting the factor analyses. Cronbach’s alpha for the 36 items of the SDQ was .86. Cronbach’s alpha for each of the hypothesized subscales was as follows: Career/Future Planning = .75, Achievement Satisfaction = .56, Personal Investment = .80, Social Dynamics = .61, Athletic Identity = .72, and Health/Fitness = .90.

*Interfactor correlation analysis.* An intercorrelation subscale matrix was computed prior to conducting the factor analyses to determine the relationships between the hypothesized subscales of the SDQ. Pearson product moment correlations for the participants’ responses to the

subscales are presented in Table 11. Correlation coefficients ranged from low to moderate indicating both an orthogonal and rotated solution (i.e., varimax) should be assessed when conducting factor analysis.

*Exploratory factor analysis.* Principal components analysis was performed on the 36 items of the SDQ for the combined sample of 400 collegiate athletes who completed either the pencil/paper version or the online version of the SDQ. Both orthogonal and varimax rotations were assessed, but the varimax rotation resulted in a clearer factor structure. The component matrix was assessed using a loading criteria of greater than .40 or less than -.40. In order for a factor to be identified a minimum of three items had to load on that factor. In addition, cross loads were assessed by examining the difference between the loadings. This analysis resulted in an eight-factor solution accounting for 56.37% of the variance. Factor loadings, eigenvalues, and the percent of variance each factor contributed can be found in Table 12.

Overall, clear support (i.e., no mixing of hypothesized items) was evident for four of the hypothesized factors. Six items loaded on Factor 1, all of which were hypothesized to measure the construct of health/fitness. Three items loaded on Factor 5, all of which were hypothesized to measure the construct of career/future planning. Three items loaded on Factor 6, all of which were hypothesized to measure the construct of achievement satisfaction. Lastly, three items loaded on Factor 8, all of which were hypothesized to measure the construct of athletic identity. However, the proportion of variance accounted for by these four factors was low with the exception of Factor 1 which assessed health/fitness. While support for the remaining factors is not as evident due to the mixture of hypothesized items which loaded on them, further interpretations of these factors and a rationale for suspecting the presence of more than the four supported factors highlighted above will be presented here.

*Interpretations of the factor analysis.* The eight-factor solution identified for the combined factor analysis resulted in two items (i.e., items 29 and 35) being dropped from Factor 2 and three items (i.e., items 6, 7, and 33) being dropped from Factor 4 due to cross loadings. The items were dropped from these factors because they contained the weaker loadings. There were two items (i.e., items 3 and 8) which failed to load or did not load with at least two other items and as a result were eliminated from further analyses. Along with these items, the researcher opted to eliminate three additional items (i.e., items 23 and 31 from Factor 3 and item 14 from Factor 7) because they did not conceptually relate to the other items which loaded on their respective factors. The items that remained on each factor following these interpretations were conceptually linked and as a result the factors were labeled as follows: Factor 1 = Health/Fitness, Factor 2 = Personal & Social Investment, Factor 3 = Ability to See Oneself Outside of Sport, Factor 4 = Athletic Identity (Self), Factor 5 = Career/Future Planning, Factor 6 = Achievement Satisfaction, Factor 7 = Social Dynamics, and Factor 8 = Athletic Identity (Others). The athletic identity descriptors, Self and Others, were added to make the same distinction highlighted in the online factor analysis.

## Results – Phase II

To this point, interpretations of the factor analyses have been provided for each sample separately (i.e., pencil/paper, online, and combined). While not identical, the factor structures for the three samples were similar suggesting that the online administration of the questionnaire did not differ from the pencil/paper administration. As such, overall conclusions based on all three factor analyses (i.e., pencil/paper, online, and combined) will be offered outlining the factors of the SDQ that are strongly supported and the items that comprise them. In order for a factor to be



identified, it had to load a minimum of three items at the .40 level and these items had to be present on at least two of the three factor analyses.

#### *Overall Conclusions on the SDQ*

*Factor structure.* Based on the overall examination of the three factor analyses, support for five SDQ factors currently exists. These factors are Health/Fitness, Career/Future Planning, Achievement Satisfaction, Athletic Identity, and Investment. A sixth factor, Social Dynamics, also emerged, but was eliminated because of the low variance it accounted for on one of the component matrices. The items that comprised these overall factors are listed in Table 13. This resulting factor structure accounted for five of the six hypothesized factors and 25 of the original 36 items. In addition, the name of one of the proposed factors was changed from Personal Investment to Investment because it appears the items that loaded on this factor may represent not only personal investment, but social investment as well.

*Reliability.* Cronbach's alpha was calculated for the 25 items of the SDQ and for each of the factors that comprised the final factor structure. Cronbach's alpha for the 25 items of the SDQ was .81. Cronbach's alpha for each of the hypothesized subscales was as follows: Health/Fitness = .90, Career/Future Planning = .77, Achievement Satisfaction = .73, Athletic Identity = .68, and Investment = .79.

*Interfactor correlation analysis.* An intercorrelation subscale matrix was computed to determine the relationships between the factors comprising the overall factor structure of the SDQ. Pearson product moment correlations for the participants' responses to the factors are presented in Table 14. Correlation coefficients were low with the exception of one moderate correlation.

### *Regression Analysis*

A multiple linear regression analysis ( $N = 400$ ) was conducted (see Table 15) on the predictor variables of gender, race, sport classification, class standing, and competitive level using total scores on the SDQ as the criterion. Total SDQ scores were comprised by summing the items retained from the overall examination of the three factor analyses (i.e., pencil/paper, online, and combined). These items and their associated factors are displayed in Table 13. It was found that gender, race, sport classification, class standing, and competitive level did not significantly predict SDQ scores,  $F(5, 328) = 1.41, p = .220$ . The sample multiple correlation coefficient was .145 indicating that the five predictor variables accounted for only 2.1% of the variance. Individual significance levels for the predictor variables were as follows: gender = .788, race = .712, sport classification = .683, class standing = .001, and competitive level = .765.

### *MANOVA*

A 2 (Gender) X 2 (Class Standing) multivariate analysis of variance (MANOVA) ( $N = 400$ ) was conducted (see Table 16) to determine the relationship of these independent variables on the five overall SDQ factors that emerged following the examination of the three factor analyses (i.e., pencil/paper, online, and combined). However, the original hypothesis which compared sophomore and senior student athletes was modified in order to conduct the analysis. Specifically, cell sizes were maximized and leveled by grouping freshmen and sophomores together and by grouping juniors, seniors, 5<sup>th</sup> year seniors, and graduate students together. A significant multivariate main effect was found for gender [Wilks's Lambda = .918,  $F(5, 356) = 6.39, p = .001$ ] and for class standing [Wilks's Lambda = .960,  $F(5, 356) = 2.99, p = .012$ ]. With respect to gender, significant differences were found on the factors of Health/Fitness ( $p < .001$ ), Career/Future Planning ( $p < .02$ ), and Achievement Satisfaction

( $p < .01$ ). Males perceived less difficulty in adjusting to sport disengagement on Health/Fitness while females perceived less difficulty in adjusting to sport disengagement on Career/Future Planning and Achievement Satisfaction. With respect to class standing, significant differences were found on the factors of Career/Future Planning ( $p < .01$ ), Athletic Identity ( $p < .03$ ), and Investment ( $p < .03$ ). Juniors, seniors, 5<sup>th</sup> year seniors, and graduate students perceived less difficulty in adjusting to sport disengagement on each of these factors. However, the gender X class standing interaction was not significant [Wilks's Lambda = .989,  $F(5, 356) = .788$ ,  $p = .559$ ]. MANOVA's were not conducted on the independent variables of race and sport classification because the cell sizes for these variables were not sufficient across the two forms of administration.

#### *Participant Satisfaction Scores*

Participant satisfaction scores were obtained by asking participants how satisfied they were with the amount of time it took to complete the SDQ and the Personal Information Sheet and how satisfied they were with the convenience of completing these materials. Two independent  $t$ -tests ( $N = 400$ ) were conducted to evaluate whether differences existed on these satisfaction variables when comparing those participants who completed the pencil/paper version of administration and those participants who completed the online version of administration. The  $t$ -test was not statistically significant for participants' satisfaction with time,  $t(329.87) = -1.08$ ,  $p = .283$ . However, the test was significant for participants' satisfaction with convenience,  $t(301.05) = -2.18$ ,  $p = .030$  indicating that participants who completed the materials online ( $M = 4.11$ ,  $SD = .85$ ) were on the average more satisfied with the convenience of completing the SDQ and the Personal Information Sheet than those participants who completed the pencil/paper version ( $M = 3.91$ ,  $SD = .86$ ).

## Discussion

Overall, this study provided further support for the psychometric properties of the SDQ. Three separate factor analyses were conducted, one for the pencil/paper administration, one for the online administration, and one which combined the participants of the pencil/paper and online administration formats. Given that the factor structures of these three analyses were similar, overall conclusions regarding the SDQ were made by simultaneously considering the results of each of them. As such, support was obtained for five factors of the SDQ and 25 of the original 36 items. The five factors are Health/Fitness, Career/Future Planning, Achievement Satisfaction, Athletic Identity, and Investment. These five factors had moderate to high reliability. The only hypothesized factor which failed to emerge is Social Dynamics. Minimal support was obtained for this factor, but because it accounted for a low percentage of variance it was not identified in the final factor structure.

### *Comparisons of Pencil/Paper & Online Administration*

Due to the nature of the statistical analyses conducted, it was not possible to make statistical comparisons between the two versions (i.e., pencil/paper and online) of the SDQ. However, based on visual comparisons a few differences emerged. First, the online factor structure was clearer than that of the pencil/paper indicating that it more accurately aligned with the researcher's hypothesized factor structure. This finding was opposite of what was expected based on sample size. Given that the sample size of the pencil/paper administration was larger, it was initially suspected that its factor structure would be clearer. A potential reason for this counter intuitive finding is the nature of the participants. While all participants in this study voluntarily completed the SDQ and the Personal Information Sheet, those participants completing the pencil/paper version of these materials may not have done so in a true willing

fashion. They met in a group setting with the researcher present and perhaps felt compelled to complete the materials because of the participation of their teammates or the presence of their coach and the researcher. On the other hand, the researcher, coaches, and teammates of those contacted for participation in the online version of the study were not aware of who did and did not participate. In addition, participants who completed the online version did so on their own personal time as opposed to the team's time (e.g., before or after practice). As such, these participants may have more accurately fit the description of a true volunteer participant. If this were the case, it is possible that the participants who completed the online form of administration more accurately and honestly responded to the questions on the SDQ which could have influenced the resulting factor structure.

In addition to the potential reason outlined above, sampling differences also may have influenced the resulting factor structures. The online sample was more homogenous in that it was comprised of only NCAA Division I athletes while the pencil/paper sample was comprised of NCAA Division I and II athletes. It is possible that Division II athletes view sport disengagement differently and as a result the pencil/paper factor structure was not as clear. However, a follow-up 2 (Gender) X 2 (Competitive Level) ( $N = 400$ ) MANOVA indicated that there was no significant main effect for competitive level and no interaction between gender and competitive level. As such, the clearer factor structure obtained for the online sample can not be attributed to sampling effects.

Another difference which emerged between the two forms of administration (i.e., pencil/paper and online) pertained to satisfaction scores. Specifically, it was found that participants who completed the materials online were, on the average, more satisfied with the convenience of completing the SDQ and the Personal Information Sheet than those participants

who completed the pencil/paper version. Numerous reasons may exist for this difference including several highlighted in a study by Lukin et al. (1985). Lukin et al. found that participants who completed both pencil/paper and computer inventories preferred the computer version. A number of reasons were reported for this finding including the computer format was “more fun” and “different” and the pencil/paper format was “too much like school work” or “taking a test.” Additional reasons for the difference in satisfaction scores obtained in the present study may be due to the ease of completing the materials online or may reflect the issue of being a true volunteer as addressed above. In either case, this result provides further support for the growing literature base, which advocates the use of the Internet in conducting research.

#### *Regression Analysis*

The regression analysis indicated that the predictor variables of gender, race, sport classification, class standing, and competitive level did not significantly predict total SDQ scores. In fact, together these variables only accounted for 2.1% of the variance. However, predictability may have been enhanced by utilizing multiple criterion variables (i.e., scores on each of the five factors) as opposed to the single criterion variable used (i.e., total SDQ scores). While the influence of these and other demographic variables on the sport disengagement process should continue to be assessed, the results of the present study indicate that these variables may not be important predictors of athletes’ total SDQ scores. While this result was surprising to the researcher, it is gratifying to note that those variables over which we have no control (e.g., gender, race, etc.) do not greatly impact an athlete’s perception of sport disengagement. Furthermore, this result gives rise to further questions. If gender, race, and other demographic variables are of little importance in how athletes’ perceive their sport

disengagement, what variables are important? Perhaps, controllable variables such as psychological skills play an important role.

### *MANOVA*

The MANOVA that was conducted on the variables of gender and class standing resulted in significant main effects for those variables, but no significant interaction. This analysis also shed some light on two of the hypotheses that were proposed. First, it was hypothesized that males would perceive more difficulty in adjusting to sport disengagement than would females. Mixed results were found for this hypothesis as it was found that males perceived more difficulty on the Career/Future Planning and Achievement Satisfaction factors while females perceived more difficulty on the Health/Fitness factor. However, given the fact that females, in general, have more issues with the appearance of their bodies may help to explain why they perceived more difficulty on the Health/Fitness factor. Second, it was hypothesized that senior student athletes would perceive more difficulty in adjusting to sport disengagement than would sophomore student athletes. As indicated earlier, this hypothesis was adjusted in order to accommodate the MANOVA by grouping freshmen and sophomores together and juniors, seniors, 5<sup>th</sup> year seniors, and graduate students together. Support for this hypothesis was not obtained as the younger athletes (i.e., freshmen and sophomores) perceived more difficulty on the Career/Future Planning, Athletic Identity, and Investment factors compared to the older athletes (i.e., juniors, seniors, 5<sup>th</sup> year seniors, and graduate students). A number of possibilities exist to explain why this hypothesis was not supported. While the athletes who participated in this study had not taken part in a program/course designed to assist them with making the transition out of sport, it is possible that the older athletes had done some preparation work on their own to ease their sport disengagement. In addition, the older athletes may have been more

accepting of leaving sport behind and moving on to new pursuits given they had been involved in their sport for several years. In contrast, the younger athletes were at the beginning of their collegiate sport careers and had yet to experience many aspects of collegiate sport. As a result, they may have been less capable of seeing themselves outside of collegiate sport.

#### *Future Work on the SDQ*

Overall, this study provided reasonable support for the construct validity of the SDQ through the utilization and assessment of factor analysis. Of the five factors that emerged, the health/fitness factor was the most robust in that it emerged in simple factor form with all six hypothesized health/fitness items loading on it. In addition, it accounted for a significant amount of variance. The athletic identity and investment factors were also relatively strong with six items loading on each. However, although the reliability of the athletic identity factor was sufficient (i.e., .68), it could be enhanced. Furthermore, the achievement satisfaction and career/future planning factors are in need of further examination and item construction given that these factors contain only three and four items respectively. In addition, while the hypothesized social dynamics factor was not accounted for in the final factor structure, it too should continue to be examined and its items modified as there was minimal support for its presence. Clearly, the development and refinement of the SDQ is an ongoing process.

An important component of improving the factor structure of the SDQ, includes not only an examination of what factors emerged and what items loaded, but also an examination of those items that failed to load. The final factor structure of the SDQ was comprised of only 25 of the original 36 items. Of the 11 items which failed to load on the final factor structure, three (i.e., items 8, 19, and 29) also failed to load in earlier SDQ factor analytic work conducted as part of the researcher's thesis. The 11 items which did not load on the final factor structure in this study



must be further examined and a decision made as to whether these items should be reworded or deleted for future analysis. It is difficult to state why these items did not load across the various factor analyses conducted, but their failure to do so is indicative of their problematic nature. Upon perusal, their content appears to match their hypothesized factors, yet the factor analyses indicated otherwise. As a result, it may be most beneficial to eliminate these items and develop new ones based upon the analysis of those items which did load on the final factor structure. However, the elimination of the 11 items does not indicate that some of the themes underlying these items should be eliminated. These themes may be appropriate for use in the construction of new items. In addition, in order to construct new items for the SDQ as well as identify other factors that may influence collegiate athletes' perceptions of sport disengagement, interviews with collegiate athletes could play a meaningful role.

In addition to further assessing the content and construct validity of the SDQ, it is important that other forms of validity are established as well. Concurrent validity, predictive validity, discriminant validity, and experimental manipulation are all essential measures of validity that should be established when developing a questionnaire. As a result, follow-up studies are still needed in order to advance the SDQ as a psychometrically sound questionnaire. For example, it would be interesting to evaluate the sensitivity of the SDQ in assessing changes in perceptions of the sport disengagement process after an educational intervention designed to assist athletes in coping with this transition was introduced. In addition to further establishing the validity of the SDQ, as noted earlier, it is important to continue assessing those variables that may mediate the sport disengagement process as they may provide clues for who is more likely to encounter difficulty.

Another important consideration for future work with the SDQ is the provision of feedback to the participants. The feedback could be presented in a couple of ways depending upon the resources of the investigator. Specifically, a general feedback form could be provided to all of the participants highlighting the key findings of the study or an individualized feedback form could be provided to each participant highlighting his/her personal results. Feedback could be provided in paper format or utilizing electronic mediums as well. The value in providing feedback to participants is multifaceted; it provides beneficial and practical information for the participants and can assist the researcher in enhancing response rates.

It is also important to note the success of the online version of the SDQ utilized in this study with respect to its resulting factor structure. While there was no initial evidence to suggest that the online SDQ would be psychometrically different than the pencil/paper SDQ, it was necessary to evaluate participants' responses to the two versions separately until this assumption could be confirmed. As suspected, the results of the online SDQ were similar to those of the pencil/paper SDQ indicating that online administration of the SDQ is a viable option. As such, future work on the SDQ should continue to use this medium as it affords several advantages. While these advantages have previously been documented, this study highlighted a new advantage which may have been overlooked. Contacting potential participants via email List Serves as opposed to in-person group settings may better ensure that those who participate are doing so with greater interest and commitment.

While considerable work is still necessary to establish the psychometric properties of the SDQ, to ensure its practicality for both collegiate athletes and researchers, and to establish multiple mediums for its administration, there are a number of contexts in which the SDQ could be utilized now as well as in the future. The SDQ could be used in academic counseling and

individual counseling settings to identify athletes' concerns, develop appropriate interventions, and assess improvement. In addition, the SDQ could be an important tool in programs and courses that are designed to assist collegiate athletes in preparing for their sport disengagement. In addition to administering it to athletes in these programs/courses, its items could also serve as vehicles of meaningful discussion for the class. Overall, the SDQ is a practical assessment that has the potential to be utilized in a variety of applied settings.

## References

- Allison, M. T., & Meyer, C. (1988). Career problems and retirement among elite athletes: The female tennis professional. *Sociology of Sport Journal*, 5, 212-222.
- Blinde, E. M., & Greendorfer, S. L. (1985). A reconceptualization of the process of leaving the role of competitive athlete. *International Review for the Sociology of Sport*, 20, 87-94.
- Bragonier, J. (1999, October 9). Making the transition. *Ohio State Game Day Program*, pp. 91, 104.
- Childress, C. A., & Asamen, J. K. (1998). The emerging relationship of psychology and the Internet: Proposed guidelines for conducting Internet intervention research. *Ethics and Behavior*, 8, 19-35.
- Coakley, J. J. (1983). Leaving competitive sport: Retirement or rebirth? *Quest*, 35, 1-11.
- Curtis, J., & Ennis, R. (1988). Negative consequences of leaving competitive sport? Comparative findings for former elite-level hockey players. *Sociology of Sport Journal*, 5, 87-106.
- Deaner, H. R. (2000). *An exploratory factor analysis of collegiate athletes' perceptions of psychological adjustment to sport disengagement*. Unpublished master's thesis, University of North Carolina-Chapel Hill.
- Gall, J. P., Gall, M. D., & Borg, W. R. (1999). *Applying educational research* (4th ed.). Reading, MA: Longman.
- Hewson, C. M., Laurent, D., & Vogel, C. M. (1996). Proper methodologies for psychological and sociological studies conducted via the Internet. *Behavior Research Methods, Instruments, and Computers*, 28, 186-191.
- Howerton, D. (1994). When the cheering stops: PACE Sports educates players on life after sports. *Sport*, 85, 92.

- King, W. C., & Miles, E. W. (1995). A quasi-experimental assessment of the effect of computerizing noncognitive paper-and-pencil measurements: A test of measurement equivalence. *Journal of Applied Psychology, 80*, 643-651.
- Lantz, C. D. (1995). Validation of a conceptual model characterizing college student-athletes' readiness to retire from competitive sport participation (Doctoral dissertation, West Virginia University, 1995). *Dissertation Abstracts International, 56*, 3049.
- Lukin, M. E., Dowd, E. T., Plake, B. S., & Kraft, R. G. (1985). Comparing computerized versus traditional psychological assessment. *Computers in Human Behavior, 1*, 49-58.
- Lysens, R., Vanden Auweele, Y., & Ostyn, M. (1986). The relationship between psychosocial factors and athletic injuries. *Journal of Sports Medicine and Physical Fitness, 26*, 77-89.
- Mihovilovic, M. A. (1968). The status of former sportsmen. *International Review of Sport Sociology, 3*, 73-96.
- Murphy, S. M. (1995). Transitions in competitive sport: Maximizing individual potential. In S. M. Murphy (Ed.), *Sport psychology: The psychological health of the athlete* (pp. 331-346). Champaign, IL: Human Kinetics.
- Ogilvie, B. C. (1987). Counseling for sports career termination. In J. R. May & M. J. Asken (Eds.), *Sport psychology: The psychological health of the athlete* (pp. 213-230). New York: PMA Publishing Corp.
- Orlick, T. (1986). Life after sport. In L. A. Bump (Ed.), *Psyching for sport: Mental training for athletes* (pp. 169-176). Champaign, IL: Leisure Press.
- Parker, K. (1994). "Has beens" and "wanna bes": Transition experiences of former major college football players. *The Sport Psychologist, 8*, 287-304.

- Pearson, R. E., & Petitpas, A. J. (1990). Transitions of athletes: Developmental and preventive perspectives. *Journal of Counseling and Development, 69*, 7-10.
- Petitpas, A., Danish, S., McKelvain, R., & Murphy, S. (1992). A career assistance program for elite athletes. *Journal of Counseling & Development, 70*, 383-386.
- Schlossberg, N. K. (1981). A model for analyzing human adaptation to transition. *The Counseling Psychologist, 9*, 2-18.
- Sinclair, D. A., & Orlick, T. (1993). Positive transitions from high-performance sport. *The Sport Psychologist, 7*, 138-150.
- Sinclair, D. A., & Orlick, T. (1994). The effects of transition on high performance sport. In D. Hackfort (Ed.), *Psycho-social issues and interventions in elite sports* (pp. 29-55). Frankfurt: Lang.
- Smith, M. A., & Leigh, B. (1997). Virtual subjects: Using the Internet as an alternative source of subjects and research environment. *Behavior Research Methods, Instruments, and Computers, 29*, 496-505.
- Smith, R., Smoll, F., Schutz, R., & Ptacek, J. (1995). Development and validation of a multidimensional nature of sport specific psychological skills: The Athletic Coping Skills Inventory. *Journal of Sport and Exercise Psychology, 17*, 379-398.
- Svoboda, B., & Vanek, M. (1982). Retirement from high level competition. In T. Orlick, J. Partington, & J. Salmela (Eds.), *Mental training: For coaches and athletes* (pp. 166-175). Ottawa: Coaching Association of Canada and Sport in Perspective Inc.
- Taylor, J., & Ogilvie, B. (1998). Career transition among elite athletes: Is there life after sports? In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (pp. 429-444). Mountain View, CA: Mayfield Publishing Company.

Templer, D. I., & Daus, A. T. (1979). An athlete adjustment prediction scale. *The Journal of Sports Medicine and Physical Fitness, 19*, 413-416.

Werthner, P., & Orlick, T. (1986). Retirement experiences of successful Olympic athletes. *International Journal of Sport Psychology, 17*, 337-363.

Table 1

Principal Components Analysis with Varimax Rotation ( $N = 74$ ) of the SDQ (Thesis)

Item <sup>a</sup>	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
HF 3	.707				
HF 19	.842				
HF 22	.880				
HF 23	.919				
HF 26	.590				
HF 31	.893				
SD 4		.666			
SD 21		-.612			
SD 27		-.560			
AS 10		.526			
AS 35		.563			
AI 15		-.760			
PI 7			.675		
PI 8			.684		
PI 16			.705		
PI 28			.522		
PI 29			.541		
PI 36			.726		
AS 11			-.524		
AS 2				.846	
AS 5				.640	
AS 25				.798	
CFP 24					-.715
CFP 32					.849
CFP 33					.602
A <sup>b</sup>	8.21	4.09	3.07	2.20	1.81
B <sup>c</sup>	22.79%	11.37%	8.52%	6.11%	5.01%

Note. Following interpretations of the factor analysis, the factors were labeled as follows:

Factor 1 = Health/Fitness, Factor 2 = Social Dynamics, Factor 3 = Personal Investment,

Factor 4 = Achievement Satisfaction, Factor 5 = Career/Future Planning.



<sup>a</sup>HF = Health/Fitness, SD = Social Dynamics, PI = Personal Investment, AS = Achievement Satisfaction, CFP = Career/Future Planning, AI = Athletic Identity.

<sup>b</sup>A = Eigenvalues.

<sup>c</sup>B = % Variance explained.

Table 2

Interfactor (Interscale) Correlations for the SDQ (Thesis)

Subscale <sup>a</sup>	HF	SD	PI	AS	CFP
HF	----	.25*	.14	-.03	.12
SD	----	----	.58**	-.05	.33**
PI	----	----	----	.08	.34**
AS	----	----	----	----	.18
CFP	----	----	----	----	----

<sup>a</sup>HF = Health/Fitness, SD = Social Dynamics, PI = Personal Investment, AS = Achievement Satisfaction, CFP = Career/Future Planning.

\* $p < .05$ . \*\*  $p < .01$ .

Table 3

Demographic Data of the Pencil/Paper & Online Samples

	Pencil/Paper Sample ( <i>n</i> = 253)			Online Sample ( <i>n</i> = 147)		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Gender						
Males	142			56		
Females	109			90		
Race						
Caucasian	172			127		
African American	56			6		
Other	16			6		
Sport Classification						
Revenue Producing	107			14		
Olympic Status	145			127		
Class Standing						
Freshmen	41			30		
Sophomores	85			37		
Juniors	63			42		
Seniors	45			30		
5 <sup>th</sup> Year Seniors	9			7		
Grad Students	2					
Competitive Level						
Division I	197			147		
Division II	55					
Age		20.20	1.45		20.15	1.18
Time to Complete (Min.)		8.50	3.08		9.26	4.71

Note. Totals across demographic variables differ due to incomplete responses.

Table 4

Descriptive Data of Participants' Responses to the Subscales of the Pencil/Paper SDQ

<u>Subscale<sup>a</sup></u>	<u><i>n</i></u>	<u><i>M</i></u>	<u><i>SD</i></u>	<u><i>Min.</i></u>	<u><i>Max.</i></u>
CFP	250	13.80	3.86	6	25
AS	251	15.80	3.57	6	26
PI	252	18.22	4.48	6	29
SD	253	12.64	2.99	5	21
AI	252	20.67	4.58	7	33
HF	252	14.50	5.05	6	28

<sup>a</sup>CFP = Career/Future Planning, AS = Achievement Satisfaction, PI = Personal Investment,

SD = Social Dynamics, AI = Athletic Identity, HF = Health/Fitness.

Table 5

Intercorrelation Subscale Matrix for the Pencil/Paper Version of the SDQ

Subscale <sup>a</sup>	CFP	AS	PI	SD	AI	HF
CFP	----	.35**	.23**	.25**	.12	.14*
AS	----	----	.20**	.21**	.07	.22**
PI	----	----	----	.56**	.62**	.22**
SD	----	----	----	----	.51**	.20**
AI	----	----	----	----	----	.17**
HF	----	----	----	----	----	----

<sup>a</sup>CFP = Career/Future Planning, AS = Achievement Satisfaction, PI = Personal Investment,

SD = Social Dynamics, AI = Athletic Identity, HF = Health/Fitness.

\* $p < .05$ . \*\*  $p < .01$ .

Table 6

Principal Components Analysis with Varimax Rotation of Participants' ( $n = 253$ ) Responses to the Pencil/Paper Version of the SDQ

Scale <sup>a</sup>	F1	F2	F3	F4	F5	F6	F7	F8
HF 2	.644							
HF 18	.699							
HF 21	.905							
HF 22	.894							
HF 25	.744							
HF 30	.845							
SD 3								
SD 12		.603						
SD 19								.653
SD 20								.745
SD 26		.442	.406					
PI 6							.616	
PI 7							.697	
PI 15			.473					
PI 27		.733						
PI 28		.744						
PI 35			.652					
CFP 8					.430			
CFP 16				.823				
CFP 17				.836				
CFP 23								
CFP 31				.502			-.416	
CFP 32				.721				
AS 1					.833			
AS 4					.666			
AS 9			.490					
AS 10								
AS 24					.836			
AS 34			.636					
AI 5						.622	.421	
AI 11								
AI 13						.406		
AI 14			.520					.419
AI 33						.701		
AI 36						.613		
AI 29		.577						

A <sup>b</sup>	6.96	3.75	3.15	1.73	1.67	1.30	1.27	1.20
B <sup>c</sup>	19.34%	10.42%	8.75%	4.80%	4.64%	3.61%	3.53%	3.33%

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Note. Following interpretations of the factor analysis, the factors were labeled as follows:

Factor 1 = Health/Fitness, Factor 2 = Personal & Social Investment, Factor 3 = Ability to See Oneself Outside of Sport, Factor 4 = Career/Future Planning, Factor 5 = Achievement Satisfaction, Factor 6 = Athletic Identity.

<sup>a</sup>HF = Health/Fitness, SD = Social Dynamics, PI = Personal Investment, CFP = Career/Future Planning, AS = Achievement Satisfaction, AI = Athletic Identity.

<sup>b</sup>A = Eigenvalues.

<sup>c</sup>B = % Variance explained.

Table 7

Descriptive Data of Participants' Responses to the Subscales of the Online SDQ

<u>Subscale<sup>a</sup></u>	<u><i>n</i></u>	<u><i>M</i></u>	<u><i>SD</i></u>	<u><i>Min.</i></u>	<u><i>Max.</i></u>
CFP	142	13.15	4.01	6	27
AS	134	15.34	3.65	8	27
PI	144	17.40	4.50	8	27
SD	142	13.08	3.37	6	22
AI	143	19.55	4.50	10	34
HF	144	17.17	5.51	7	30

<sup>a</sup>CFP = Career/Future Planning, AS = Achievement Satisfaction, PI = Personal Investment,

SD = Social Dynamics, AI = Athletic Identity, HF = Health/Fitness.



Table 8

Intercorrelation Subscale Matrix for the Online Version of the SDQ

Subscale <sup>a</sup>	CFP	AS	PI	SD	AI	HF
CFP	----	.24**	.33**	.21*	.21*	.06
AS	----	----	.41**	.33**	.40**	.20*
PI	----	----	----	.58**	.64**	.22**
SD	----	----	----	----	.51**	.23**
AI	----	----	----	----	----	.21*
HF	----	----	----	----	----	----

<sup>a</sup>CFP = Career/Future Planning, AS = Achievement Satisfaction, PI = Personal Investment,

SD = Social Dynamics, AI = Athletic Identity, HF = Health/Fitness.

\* $p < .05$ . \*\*  $p < .01$ .



A <sup>b</sup>	7.82	3.97	2.58	2.13	1.77	1.53	1.32
B <sup>c</sup>	21.73%	11.03%	7.18%	5.92%	4.92%	4.25%	3.66%

---

Note. Following interpretations of the factor analysis, the factors were labeled as follows:

Factor 1 = Health/Fitness, Factor 2 = Career/Future Planning, Factor 3 = Personal Investment, Factor 4 = Social Dynamics, Factor 5 = Athletic Identity (Self), Factor 6 = Athletic Identity (Others), Factor 7 = Achievement Satisfaction.

<sup>a</sup>HF = Health/Fitness, SD = Social Dynamics, PI = Personal Investment, CFP = Career/Future Planning, AS = Achievement Satisfaction, AI = Athletic Identity.

<sup>b</sup>A = Eigenvalues.

<sup>c</sup>B = % Variance explained.

Table 10

Descriptive Data of Participants' Responses to the Subscales of the SDQ for the Combined Sample (Pencil/Paper & Online)

<u>Subscale<sup>a</sup></u>	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Min.</u>	<u>Max.</u>
CFP	392	13.57	3.93	6	27
AS	385	15.64	3.60	6	27
PI	396	17.92	4.50	6	29
SD	395	12.80	3.14	5	22
AI	395	20.26	4.57	7	34
HF	396	15.47	5.37	6	30

<sup>a</sup>CFP = Career/Future Planning, AS = Achievement Satisfaction, PI = Personal Investment, SD = Social Dynamics, AI = Athletic Identity, HF = Health/Fitness.

Table 11

Intercorrelation Subscale Matrix of the SDQ for the Combined Sample  
(Pencil/Paper & Online)

Subscale <sup>a</sup>	CFP	AS	PI	SD	AI	HF
CFP	----	.31**	.27**	.22**	.16**	.09
AS	----	----	.28**	.25**	.19**	.19**
PI	----	----	----	.56**	.63**	.19**
SD	----	----	----	----	.50**	.22**
AI	----	----	----	----	----	.15**
HF	----	----	----	----	----	----

<sup>a</sup>CFP = Career/Future Planning, AS = Achievement Satisfaction, PI = Personal Investment,

SD = Social Dynamics, AI = Athletic Identity, HF = Health/Fitness.

\* $p < .05$ . \*\*  $p < .01$ .

Table 12

Principal Components Analysis with Varimax Rotation of Participants' (N = 400) Responses to the SDQ for the Combined Sample (Pencil/Paper & Online)

Scale <sup>a</sup>	F1	F2	F3	F4	F5	F6	F7	F8
HF 2	.673							
HF 18	.764							
HF 21	.907							
HF 22	.909							
HF 25	.709							
HF 30	.858							
SD 3								
SD 12		.529						
SD 19							.613	
SD 20							.835	
SD 26							.610	
PI 6		.557		.555				
PI 7		.557		.491				
PI 15			.561					
PI 27		.730						
PI 28		.745						
PI 35		.492	.509					
CFP 8								
CFP 16					.832			
CFP 17					.818			
CFP 23			.576					
CFP 31			.475					
CFP 32					.734			
AS 1						.854		
AS 4						.616		
AS 9			.482					
AS 10				.437				
AS 24						.841		
AS 34			.661					
AI 5				.739				
AI 11				.541				
AI 13				.435				
AI 14							.457	
AI 33				.408				.561
AI 36								.608
AI 29		.421						.621

A <sup>b</sup>	7.07	3.71	3.04	1.77	1.58	1.36	1.18	1.12
B <sup>c</sup>	19.63%	10.33%	8.43%	4.92%	4.39%	3.78%	3.27%	3.10%

---

Note. Following interpretations of the factor analysis, the factors were labeled as follows:

Factor 1 = Health/Fitness, Factor 2 = Personal & Social Investment, Factor 3 = Ability to See Oneself Outside of Sport, Factor 4 = Athletic Identity (Self), Factor 5 = Career/Future Planning, Factor 6 = Achievement Satisfaction, Factor 7 = Social Dynamics, Factor 8 = Athletic Identity (Others).

<sup>a</sup>HF = Health/Fitness, SD = Social Dynamics, PI = Personal Investment, CFP = Career/Future Planning, AS = Achievement Satisfaction, AI = Athletic Identity.

<sup>b</sup>A = Eigenvalues.

<sup>c</sup>B = % Variance explained.

Table 13

Overall SDQ Factors & Items Obtained from Examination of All Three Samples

Factor Name	Items					
Health/Fitness	2	18	21	22	25	30
Career/Future Planning	16	17	31	32		
Achievement Satisfaction	1	4	24			
Athletic Identity	5	11	13	33	36	10 <sup>a</sup>
Investment	6	7	27	28	35	12 <sup>b</sup>

<sup>a</sup>This item was originally hypothesized to measure achievement satisfaction, but loaded on the Athletic Identity Factor on both the online and combined factor analyses. In addition, it was believed that this item was conceptually linked to the Athletic Identity Factor.

<sup>b</sup>This item was originally hypothesized to measure social dynamics, but loaded on the Investment Factor on both the pencil/paper and combined factor analyses. In addition, it was believed that this item was conceptually linked to the Investment Factor.



Table 14

Intercorrelation Subscale Matrix for the Overall Factor Structure of the SDQ

Subscale <sup>a</sup>	HF	CFP	AS	AI	INV
HF	----	.04	.03	.14**	.20**
CFP	----	----	.11*	.13*	.19**
AS	----	----	----	-.13**	-.13**
AI	----	----	----	----	.59**
INV	----	----	----	----	----

<sup>a</sup>HF = Health/Fitness, CFP = Career/Future Planning, AS = Achievement Satisfaction,

AI = Athletic Identity, INV = Investment.

\* $p < .05$ . \*\*  $p < .01$ .

Table 15

Multiple Linear Regression ( $N = 400$ ) Using Total Scores on the SDQ as the Criterion Variable

Variables in Equation	Beta	<i>t</i>	<i>p</i>
Gender	.02	.27	.79
Race	-.02	-.37	.71
Sport Classification	.03	.41	.68
Class Standing	-.14	-2.55	.01
Competitive Level	-.02	-.30	.77

Note.  $F(5, 328) = 1.41, p < 0.22; R^2 = 0.02$ .

Table 16

Gender X Class Standing MANOVA ( $N = 400$ ) Using the Final Five SDQ Factors as the Dependent Variables

Variables	Wilks' Lambda	Hypoth. <i>df</i>	Error <i>df</i>	<i>F</i>	<i>p</i>
Gender	.918	5	356	6.39	.001
Class Standing	.960	5	356	2.99	.012
Interaction	.989	5	356	.79	.559

Note. There was a main effect for gender and for class standing. No interaction was present.



The Institutional Review Board for the Protection of Human Subjects

DATE: December 17, 2001

APPROVAL PERIOD: December 12, 2001 to December 11, 2002

NOTICE OF APPROVAL FOR PROTOCOL: HS #15302

This research will be monitored for re-approval annually.  
This protocol was first approved on December 17, 2001.

TO: Heather Deaner and  
Andrew Ostrow

TITLE: Psychometric Evaluation of the Sport Disengagement  
Questionnaire

AGENCY: N/A

The Institutional Review Board for the Protection of Human Research Subjects (IRB) has approved the project described above. Approval was based on the descriptive material and procedures you submitted for review. Should any changes in your protocol/consent form be necessary, **prior approval must be obtained from the IRB.**

According to the Code of Federal Regulations, Section 312.32, investigators are required to notify the FDA and the study sponsor of any adverse experience associated with the use of an investigational drug that is serious and unexpected. A serious adverse experience is considered any event that is fatal or life-threatening, is permanently disabling, requires inpatient hospitalization, or is a congenital anomaly, cancer, or overdose. An unexpected adverse experience is an event that is not identified in nature, severity, or frequency in the current investigator brochure. Any experience reportable to FDA and the sponsor must also be reported immediately to the IRB.

A consent form\* X is \_\_\_ is not required of each subject.

An assent form \_\_\_ is X is not required of each subject.

A recruitment ad has \_\_\_ has not X been approved.

## APPENDIX B

**The Sport Disengagement Questionnaire (SDQ)**

The following questionnaire is designed to gain information on how athletes perceive the ending of their collegiate sport careers. This process is called sport disengagement. The items below are designed to examine the perceptions you have of your collegiate sport disengagement (retirement). Athletes responding to this questionnaire will experience collegiate sport disengagement in the near future. Please indicate the degree to which each statement accurately reflects your thoughts and feelings. There are no right or wrong answers so please respond as accurately and honestly as possible. Your results will remain confidential. If you have any questions while responding to the questionnaire please feel free to ask the researcher for assistance. Your participation is voluntary and you may terminate the study at any time.

**1 = Strongly Disagree    2 = Disagree    3 = Unsure    4 = Agree    5 = Strongly Agree**

		<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>U</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
CFP1	I have given consideration to how I will plan the first 2-3 years of my career following sport.	1	2	3	4	5
CFP2	I have a clear idea of the steps I will need to take in order to look for and get a job or apply to graduate school following graduation.	1	2	3	4	5
CFP3	I know the type of first job or career opportunity that I am seeking upon my college graduation.	1	2	3	4	5
CFP4	I believe the education that I have received while in college has prepared me to effectively make the transition into the job market or to apply to graduate school.	1	2	3	4	5
CFP5	I believe the career skills and abilities I possess right now will facilitate my transition out of collegiate sport.	1	2	3	4	5
CFP6	Upon graduation, I believe it will be difficult to obtain a job in my desired field.	1	2	3	4	5
		<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>U</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
AS1	At this point in time, I am satisfied with the achievement of the athletic goals I have set for my collegiate career.	1	2	3	4	5
AS2	I am disappointed that my sport career will not advance beyond the collegiate level.	1	2	3	4	5

		<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>U</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
AS3	I obtain satisfaction from participating in my collegiate sport, but I am concerned that I will not achieve that same level of satisfaction in the future after I disengage from collegiate sport.	1	2	3	4	5
AS4	I am satisfied with the personal achievement opportunities I have been provided within the sport that I play.	1	2	3	4	5
AS5	My current athletic achievements satisfy the expectations I had when I entered college as a freshman.	1	2	3	4	5
AS6	I believe it will be difficult to achieve satisfaction in a pursuit outside of my sport.	1	2	3	4	5
		<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>U</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
PI1	Because of all I have invested in my sport, the day my collegiate sport career is over will be one of the toughest days of my life.	1	2	3	4	5
PI2	I have cared and invested a lot in my sport and my collegiate athletic career, but when it is over I will be able to easily move on to other pursuits.	1	2	3	4	5
PI3	Because I have invested so much physically, emotionally, and psychologically in my collegiate athletic career, I know it will be difficult to replace this experience when my college career is over.	1	2	3	4	5
PI4	Because of how much I have invested in my collegiate sport, the discouragement I will experience when it is over will make it difficult to make the transition.	1	2	3	4	5
PI5	Transitioning out of my collegiate sport will be difficult because of how much I have personally invested in my collegiate career.	1	2	3	4	5
PI6	I believe it will be difficult for me to find new pursuits in which I can invest my time and energy following my transition out of collegiate sport.	1	2	3	4	5

		<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>U</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
SD1	Upon graduation, I believe it will be easy for me to develop a new social network.	1	2	3	4	5
SD2	The friends that I have outside of sport will help to make the transition out of collegiate sport easy.	1	2	3	4	5
SD3	Upon graduation, I believe it will be difficult for me to become involved in social activities not related to sport.	1	2	3	4	5
SD4	Separating from my collegiate teammates will make my transition out of collegiate athletics difficult.	1	2	3	4	5
SD5	Because I have social activities outside of sport, my transition out of collegiate sport will be easy.	1	2	3	4	5
		<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>U</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
AI1	I believe that being an athlete is the most important aspect of my life.	1	2	3	4	5
AI2	I believe that others value me mostly for my athletic ability.	1	2	3	4	5
AI3	I feel the best about myself when I practice and play my sport.	1	2	3	4	5
AI4	I can easily view myself having an identity outside of competitive collegiate athletics.	1	2	3	4	5
AI5	Upon graduation, I would find it difficult if others no longer viewed me as an athlete.	1	2	3	4	5
AI6	My collegiate athletic experience has been the major influence in the development of my identity.	1	2	3	4	5
AI7	Upon graduation, it would be difficult if I experienced a loss in the prestige and status that I enjoyed from my peer group while participating in collegiate athletics.	1	2	3	4	5
HF1	A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my fitness.	1	2	3	4	5

		<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>U</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
HF2	A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my physical strength.	1	2	3	4	5
HF3	A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my physical endurance.	1	2	3	4	5
HF4	A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a lean body mass.	1	2	3	4	5
HF5	A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a healthy lifestyle.	1	2	3	4	5
HF6	A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a workout regimen.	1	2	3	4	5

**CFP** = Career/Future Planning      **AS** = Achievement Satisfaction      **PI** = Personal Investment  
**SD** = Social Dynamics                  **AI** = Athletic Identity                  **HF** = Health/Fitness



## APPENDIX C

**The Sport Disengagement Questionnaire (SDQ)**

The following questionnaire is designed to gain information on how athletes perceive the ending of their collegiate sport careers. This process is called sport disengagement. The items below are designed to examine the perceptions you have of your collegiate sport disengagement (retirement). Athletes responding to this questionnaire will experience collegiate sport disengagement in the near future. Please indicate the degree to which each statement accurately reflects your thoughts and feelings. There are no right or wrong answers so please respond as accurately and honestly as possible. Your results will remain confidential. If you have any questions while responding to the questionnaire please feel free to contact the researcher for assistance. Your participation is voluntary and you may terminate the study at any time.

Please record the current time (time started): \_\_\_\_\_

**1 = Strongly Disagree    2 = Disagree    3 = Neutral    4 = Agree    5 = Strongly Agree**

	<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>N</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
At this point in time, I am satisfied with the achievement of the athletic goals I have set for my collegiate career.	1	2	3	4	5
A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a healthy weight.	1	2	3	4	5
Upon graduation, I believe it will be difficult for me to become involved in social activities not related to sport.	1	2	3	4	5
I am satisfied with the personal achievement opportunities I have been provided within the sport that I play.	1	2	3	4	5
I believe that being an athlete is the most important aspect of my life.	1	2	3	4	5
	<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>N</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
Because of all I have invested in my sport, the day my collegiate sport career is over will be one of the toughest days of my life.	1	2	3	4	5
Because I have invested so much physically, emotionally, and psychologically in my collegiate athletic career, I know it will be difficult to replace this experience when my college career is over.	1	2	3	4	5

	<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>N</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
I believe the career skills and abilities I possess right now will facilitate my transition out of collegiate sport.	1	2	3	4	5
I obtain satisfaction from participating in my collegiate sport, but I am concerned that I will not achieve that same level of satisfaction in the future after I disengage from collegiate sport.	1	2	3	4	5
I am disappointed that my sport career will not advance beyond the collegiate level.	1	2	3	4	5
I feel the best about myself when I practice and play my sport.	1	2	3	4	5
Separating from my collegiate teammates will make my transition out of collegiate athletics difficult.	1	2	3	4	5
My collegiate athletic experience has been the major influence in the development of my identity.	1	2	3	4	5
	<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>N</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
I can easily view myself having an identity outside of competitive collegiate athletics.	1	2	3	4	5
I believe it will be difficult for me to find new pursuits in which I can invest my time and energy following my transition out of collegiate sport.	1	2	3	4	5
I know the type of first job or career opportunity that I am seeking upon my college graduation.	1	2	3	4	5
I have given consideration to how I will plan the first 2-3 years of my career following sport.	1	2	3	4	5
A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a workout regimen.	1	2	3	4	5
Upon graduation, I believe it will be easy for me to develop a new social network.	1	2	3	4	5
The friends that I have outside of sport will help to make the transition out of collegiate sport easy.	1	2	3	4	5

	<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>N</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my physical endurance.	1	2	3	4	5
A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my fitness.	1	2	3	4	5
Upon graduation, I believe it will be difficult to obtain a job in my desired field.	1	2	3	4	5
My current athletic achievements satisfy the expectations I had when I entered college as a freshman.	1	2	3	4	5
A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a healthy lifestyle.	1	2	3	4	5
Because I have social activities outside of sport, my transition out of collegiate sport will be easy.	1	2	3	4	5
	<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>N</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
Because of how much I have invested in my collegiate sport, the discouragement I will experience when it is over will make it difficult to make the transition.	1	2	3	4	5
Transitioning out of my collegiate sport will be difficult because of how much I have personally invested in my collegiate career.	1	2	3	4	5
Upon graduation, it would be difficult if I experienced a loss in the prestige and status that I enjoyed from my peer group while participating in collegiate athletics.	1	2	3	4	5
A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my physical strength.	1	2	3	4	5
I believe the education that I have received while in college has prepared me to effectively make the transition into the job market or to apply to graduate school.	1	2	3	4	5

	<b><u>SD</u></b>	<b><u>D</u></b>	<b><u>N</u></b>	<b><u>A</u></b>	<b><u>SA</u></b>
I have a clear idea of the steps I will need to take in order to look for and get a job or apply to graduate school following graduation.	1	2	3	4	5
I believe that others value me mostly for my athletic ability.	1	2	3	4	5
I believe it will be difficult to achieve satisfaction in a pursuit outside of my sport.	1	2	3	4	5
I have cared and invested a lot in my sport and my collegiate athletic career, but when it is over I will be able to easily move on to other pursuits.	1	2	3	4	5
Upon graduation, I would find it difficult if others no longer viewed me as an athlete.	1	2	3	4	5

## PERSONAL INFORMATION SHEET

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This form is designed to obtain demographic information from the participants of this study. Please fill in the blank or circle the appropriate response for the following questions. If you are unsure of how to respond, please do not hesitate to contact the researcher.

Date: \_\_\_\_\_ University: \_\_\_\_\_

Age: \_\_\_\_\_ Gender (circle one): Female Male Sport: \_\_\_\_\_

Race: (circle one): African American Caucasian Other \_\_\_\_\_

Academic Year (circle one): Sophomore Junior Senior 5<sup>th</sup> Year Senior

Were you recruited to participate in the sport you have listed (circle one)? Yes No

Have you received a scholarship to participate in this sport (circle one)? Yes No

How many years of eligibility will you have remaining at the end of this academic year (May 2002)? \_\_\_\_\_

Please indicate on the scale below the amount of playing time you received/are receiving during the Fall 2001 to Spring 2002 academic year (circle one).

0%-25%      25%-50%      50%-75%      75%-100%

Are you currently injured (circle one)? Yes No

If you responded "Yes" to the question above, please indicate how long you expect to be out of competition as a result of your injury. \_\_\_\_\_

Do you have goals or intentions of competing in your sport at a higher competitive level after college (circle one)? Yes No

If you responded "Yes" to the question above, please indicate what level (e.g., semi-pro, professional, Olympic). \_\_\_\_\_

Have you participated in a program to prepare for your sport disengagement (circle one)?  
Yes No

If yes: Who provided the program and what was the name/title of it?

When did you participate in the program?

Did you find the program to be beneficial?

Briefly describe what the program entailed in the space below:



# Sport Disengagement Study

Welcome! My name is Heather Deaner and I am the developer of this web page and the researcher of the study in which you are about to take part. I sincerely appreciate your willingness to participate and give of your time. I believe the information collected from this study and your participation will be valuable in assisting collegiate athletes across the country. In addition, the few minutes you will spend completing the questionnaire will be invaluable to me in my research. Too often, the welfare of athletes is ignored as their eligibility expires and too often athletes are unprepared for their transition out of sport and out of college. It is my goal that the information collected from this study will be utilized in the improvement, development, and formation of collegiate sport disengagement programs and resources in the near future. Thus, collegiate athletes such as you and the thousands of others located in Division I and Division II programs across the country will be provided the opportunity to more fully prepare for and cope with the important and at times difficult transition of sport disengagement.

Before completing the form and questionnaire below, it is important that you allow yourself sufficient time (i.e., approx. 15 minutes) during which you will not be interrupted by outside distractions such as other people and/or the telephone. In addition, it is important that you complete this study in a quiet environment. It will take no longer than 15 minutes to complete the information below and many finish much earlier.

Again, I would like to extend my gratitude to you for your participation and wish you success in your academic and athletic pursuits.

## CONSENT and INFORMATION FORM

(online version of administration)

### **Title: Psychometric Evaluation of the Sport Disengagement Questionnaire**

**Introduction.** I have been asked to participate in this research study which has been explained to me by an email from Heather R. Deaner, the principal investigator of this study. This research is being conducted to fulfill the requirements for a doctoral dissertation in sport psychology in the School of Physical Education at West Virginia University.

**Purpose of the Study.** The purpose of this study is to test the psychometric properties of the Sport Disengagement Questionnaire (SDQ) and learn more about collegiate athletes' perceptions of their sport disengagement (i.e., retirement).

**Description of Procedures.** This study involves the completion of a personal information sheet and the Sport Disengagement Questionnaire (SDQ) online and will take approximately 15 minutes for me to complete. Approximately 300-400 athletes are expected to participate in this study. I understand that I do not have to answer all of the questions if I do decide to participate.

**Risks and Discomforts.** There are no known or expected risks from participating in this study, except for the mild frustration associated with completing an educational questionnaire.

**Alternative.** I may choose not to participate in this study.

**Benefits.** I understand that this study is not expected to be of direct benefit to me, but the knowledge gained may be of benefit to others.

**Contact Persons.** For more information about this research, I can contact Heather R. Deaner at (304) 293-3295 ext. 5269 or by email at [hdeaner@wvu.edu](mailto:hdeaner@wvu.edu), or her supervisor, Dr. Andrew Ostrow at (304) 293-3295 ext. 5268. For information regarding my rights as a research participant, I may contact the Executive Secretary of the Institutional Review Board at (304) 293-7073.

**Confidentiality.** I understand that any information about me obtained as a result of my participation in this research will be kept as confidential as legally possible. I understand that the confidentiality of information transmitted over the Internet cannot be guaranteed. Although my name will not appear on any documents, I also understand that the records of this study, just like hospital records, may be subpoenaed by court order or may be inspected by federal regulatory authorities. In any publications that result from this research, neither my name nor any information from which I might be identified will be published without my consent.

**Voluntary Participation.** As a voluntary participant, I understand that I am free to withdraw from the study at any time without penalty or harm. Although my full participation in this study will be appreciated, I do not have to answer every question. Refusal to participate or withdrawal will involve no penalty or loss of benefits and will not affect my class standing, grades, or status on an athletic team. I have been given the opportunity to ask questions about the research and have received answers concerning areas that I did not understand.

By clicking the "I Accept" link below, I willingly AGREE that I have read and consent to participate in this study.

By clicking the "Exit" link below, I am DECLINING to participate in this study.

[I Accept](#)

[Exit](#)



I am an athlete. Yes  No

I have completed this questionnaire before. Yes  No

Please record the current time (time started):

## The Sport Disengagement Questionnaire (SDQ)

The following questionnaire is designed to gain information on how athletes perceive the ending of their collegiate sport careers. This process is called sport disengagement. The items below are designed to examine the perceptions you have of your collegiate sport disengagement (retirement). Athletes responding to this questionnaire will experience collegiate sport disengagement in the near future. Please indicate the degree to which each statement accurately reflects your thoughts and feelings. There are no right or wrong answers so please respond as accurately and honestly as possible. You may choose not to answer a question that you are uncomfortable with, but your willingness to select a response would be greatly appreciated. Your results will remain confidential. If you have any questions while responding to the questionnaire please feel free to contact the researcher for assistance (hdeaner@wvu.edu). Your participation is voluntary and you may terminate the study at any time.

In responding to the questions below, some will ask you to use your keyboard to fill in a text box. To do so, use your mouse to click inside the box and type in your response. For the majority of questions, you will simply need to use your mouse to click on a specific response choice. Be sure to use your mouse as opposed to the arrow keys as the arrow keys will change your desired response as you move on to the next question.

**SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree**

	SD	D	N	A	SA	
1. At this point in time, I am satisfied with the achievement of the athletic goals I have set for my collegiate career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
2. A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a lean body mass.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

**SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree**

	SD	D	N	A	SA	
3. Upon graduation, I believe it will be difficult for me to become involved in social activities not related to sport.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
4. I am satisfied with the personal achievement opportunities I have been provided within the sport that I play.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
5. I believe that being an athlete is the most important aspect of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

	SD	D	N	A	SA	
6. Because of all I have invested in my sport, the day my collegiate sport career is over will be one of the toughest days of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
7. Because I have invested so much physically, emotionally, and psychologically in my collegiate athletic career, I know it will be difficult to replace this experience when my college career is over.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
8. I believe the career skills and abilities I possess right now will facilitate my transition out of collegiate sport.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

	SD	D	N	A	SA	
9. I obtain satisfaction from participating in my collegiate sport, but I am concerned that I will not achieve that same level of satisfaction in the future after I disengage from collegiate sport.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
10. I am disappointed that my sport career will not advance beyond the collegiate level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
11. I feel the best about myself when I practice and play my sport.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

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	SD	D	N	A	SA	
12. Separating from my collegiate teammates will make my transition out of collegiate athletics difficult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
13. My collegiate athletic experience has been the major influence in the development of my identity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
14. I can easily view myself having an identity outside of competitive collegiate athletics.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

**SD = Strongly Disagree   D = Disagree   N = Neutral   A = Agree   SA = Strongly Agree**

	SD	D	N	A	SA	
15. I believe it will be difficult for me to find new pursuits in which I can invest my time and energy following my transition out of collegiate sport.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
16. I know the type of first job or career opportunity that I am seeking upon my college graduation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
17. I have given consideration to how I will plan the first 2-3 years of my career following sport.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

**SD = Strongly Disagree   D = Disagree   N = Neutral   A = Agree   SA = Strongly Agree**

	SD	D	N	A	SA	
18. A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a workout regimen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
19. Upon graduation, I believe it will be easy for me to develop a new social network.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
20. The friends that I have outside of sport will help to make the transition out of collegiate sport easy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

SD = Strongly Disagree   D = Disagree   N = Neutral   A = Agree   SA = Strongly Agree

	SD	D	N	A	SA	
21. A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my physical endurance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
22. A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my fitness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
23. Upon graduation, I believe it will be difficult to obtain a job in my desired field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

SD = Strongly Disagree   D = Disagree   N = Neutral   A = Agree   SA = Strongly Agree

	SD	D	N	A	SA	
24. My current athletic achievements satisfy the expectations I had when I entered college as a freshman.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
25. A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain a healthy lifestyle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

26. Because I have social activities outside of sport, my transition out of collegiate sport will be easy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
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**SD = Strongly Disagree   D = Disagree   N = Neutral   A = Agree   SA = Strongly Agree**

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
27. Because of how much I have invested in my collegiate sport, the discouragement I will experience when it is over will make it difficult to make the transition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
28. Transitioning out of my collegiate sport will be difficult because of how much I have personally invested in my collegiate career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
29. Upon graduation, it would be difficult if I experienced a loss in the prestige and status that I enjoyed from my peer group while participating in collegiate athletics.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

**SD = Strongly Disagree   D = Disagree   N = Neutral   A = Agree   SA = Strongly Agree**

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
30. A reason it will be difficult to disengage from my collegiate sport is that it will be difficult for me to maintain my physical strength.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
31. I believe the education that I have received while in college has prepared me to effectively make the transition into the job market or to apply to graduate school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
32. I have a clear idea of the steps I will need to take in order to look for and get a job or apply to graduate school following graduation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

**SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree**

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
<b>33. I believe that others value me mostly for my athletic ability.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
<b>34. I believe it will be difficult to achieve satisfaction in a pursuit outside of my sport.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
<b>35. I have cared and invested a lot in my sport and my collegiate athletic career, but when it is over I will be able to easily move on to other pursuits.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	
<b>36. Upon graduation, I would find it difficult if others no longer viewed me as an athlete.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

## PERSONAL INFORMATION

This form is designed to obtain demographic information from the participants of this study. Please fill in the blank or check the appropriate response for the following questions. If you are unsure of how to respond, please do not hesitate to contact the researcher (hdeaner@wvu.edu).

In responding to the questions below, some will ask you to use your keyboard to fill in a text box. To do so, use your mouse to click inside the box and type in your response. For the majority of questions, you will simply need to use your mouse to click on a specific response choice. Be sure to use your mouse as opposed to the arrow keys as the arrow keys will change your desired response as you move on to the next question.

**Date (mm/dd/yy):**  **University:**

**Age:**  **Gender (check one):**  Female  Male

**Race:** (check one):  African American  Caucasian  Other (specify)

**Academic Year (check one):**

Freshman

- Sophomore
- Junior
- Senior
- 5<sup>th</sup> Year Senior

Sport:

Were you recruited to participate in the sport you have listed (check one)?

- Yes
- No

Have you received a scholarship to participate in this sport (check one)?

- Yes
- No

How many years of eligibility will you have remaining at the end of this academic year (May 2002)?

**\*\*Do not type a 0 -- if you have no eligibility remaining, type "none."**

Please indicate on the scale below the amount of playing time you received/expect to receive this season (check one).

- 0%-25%
- 25%-50%
- 50%-75%
- 75%-100%

Are you currently injured (check one)?  Yes  No

If you responded "Yes" to the question above, please indicate how long you expect to be out of competition as a result of your injury (specify days, weeks, months, etc.):

Do you have goals or intentions of competing in your sport at a higher competitive level after college? (check one)

- Yes
- No

If you responded "Yes" to the question above, please indicate what level (e.g., Olympic, semi-pro, professional):

Have you participated in a program to prepare for your sport disengagement? (check one)

- Yes
- No

No

If yes: Who provided the program and what was the name/title?

NA

When did you participate in the program? NA

Did you find the program to be beneficial? (check one)

- Yes                        
 No

Briefly describe what the program entailed in the space below:

NA

Please respond to the items below using the following scale:

SD = Strongly Disagree    D = Disagree    N = Neutral    A = Agree    SA = Strongly Agree

	SD	D	N	A	SA	
I completed this study in a quiet environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	SD	D	N	A	SA	
While completing this study I was not interrupted by outside distractions (e.g., telephone).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Please answer the following questions using the Poor-to-Excellent scale

	Poor	Fair	Satisfactory	Good	Excellent	
My level of satisfaction with the time it took to complete the survey is:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>



	Poor	Fair	Satisfactory	Good	Excellent	
<b>My level of satisfaction with the convenience of completing the study is:</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Please record the current time (time finished):

Submit answers

Erase all answers & start over

## APPENDIX E

## INTRODUCTORY LETTER FOR PENCIL/PAPER SAMPLE

February 11, 2002

Dear WVU Athlete,

Greetings from Morgantown! My name is Heather Deaner and I am a doctoral student at West Virginia University. I am working on a research study under the supervision of my advisor Dr. Andrew Ostrow in which I am examining how collegiate athletes perceive the ending of their collegiate sport careers. I have obtained the permission of the athletic department to contact you and in order to make this study a success I would like to ask for approximately 15 minutes of your time.

The process of ending one's collegiate sport career is called disengagement. Disengagement is very similar to retirement. I am interested in your perceptions of your impending collegiate sport disengagement and in order to assess athletes' perceptions, I have developed a questionnaire entitled the Sport Disengagement Questionnaire (SDQ) that I would like to ask you to complete.

At the top of each form you will find directions detailing how to proceed. If you agree to participate and complete these forms, the total amount of participation time will be about 15 minutes. All information you provide will be kept confidential. If you agree to participate, I ask that you please complete the two human subjects consent forms now. Retain one of these forms for your records and return the other one to me along with your SDQ and Personal Information Sheet when you are finished.

I believe this study is very worthwhile and will serve as an initial step in discovering how athletes can best be assisted with their transition out of sport. Thus, the attention demonstrated to athletes during the recruitment process would be balanced by the concern demonstrated for these same athletes as their collegiate careers approach an end point and they begin a new personal and professional chapter in their young lives. I would greatly appreciate your participation in this study. Please do not hesitate to contact me should you have questions. Thank you for your time.

Sincerely,

Heather R. Deaner  
241 Coliseum  
P.O. Box 6116  
Morgantown, WV 26505  
(304) 293-3295 ext. 5269  
hdeaner@wvu.edu

## APPENDIX F

CONSENT and INFORMATION FORM  
(pencil and paper version of administration)**Title: Psychometric Evaluation of the Sport Disengagement Questionnaire**

**Introduction.** I, \_\_\_\_\_, have been asked to participate in this research study which has been explained to me by Heather R. Deaner. This research is being conducted to fulfill the requirements for a doctoral dissertation in sport psychology in the Department of Physical Education at West Virginia University.

**Purpose of the Study.** The purpose of this study is to test the psychometric properties of the Sport Disengagement Questionnaire (SDQ) and learn more about collegiate athletes' perceptions of their sport disengagement (i.e., retirement).

**Description of Procedures.** This study involves the completion of a personal information sheet and the Sport Disengagement Questionnaire (SDQ) utilizing a pencil and paper format and will take approximately 15 minutes for me to complete. Approximately 300-400 athletes are expected to participate in this study. I may view the personal information sheet and the SDQ before I sign this consent form and I do not have to answer all of the questions if I decide to participate.

**Risks and Discomforts.** There are no known or expected risks from participating in this study, except for the mild frustration associated with completing an educational questionnaire.

**Alternative.** I may choose not to participate in this study.

**Benefits.** I understand that this study is not expected to be of direct benefit to me, but the knowledge gained may be of benefit to others.

**Contact Persons.** For more information about this research, I can contact Heather R. Deaner at (304) 293-3295 ext. 5269 or by email at hdeaner@wvu.edu, or her supervisor, Dr. Andrew Ostrow at (304) 293-3295 ext. 5268. For information regarding my rights as a research participant, I may contact the Executive Secretary of the Institutional Review Board at (304) 293-7073.

**Confidentiality.** I understand that any information about me obtained as a result of my participation in this research will be kept as confidential as legally possible. I understand also that my research records, just like hospital records, may be subpoenaed by court order or may be inspected by federal regulatory authorities. In any publications that result from this research, neither my name nor any information from which I might be identified will be published without my consent.

**Voluntary Participation.** As a voluntary participant, I understand that I am free to withdraw from the study at any time without penalty or harm. Although my full participation in this study will be appreciated, I do not have to answer every question. Refusal to participate or withdrawal will involve no penalty or loss of benefits and will not affect my class standing, grades, or status on an athletic team. I have been given the opportunity to ask questions about the research and have received answers concerning areas that I did not understand.

I have read and understood the statements outlined above and I willingly provide my consent to participate in this study.

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Signature of Subject

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Date

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Signature of Investigator

---

Date

## APPENDIX G

## DIRECTIONS FOR ADMINISTRATION OF STUDY MATERIALS

- Items needed:
  - pens and/or pencils
  - clock or watch to record the time
- Pass out the introductory letter and allow athletes a couple of minutes to read it. They will keep this for their records.
- Provide each athlete with **two** copies of the human consent form. Have them read and sign both forms if they agree to participate. Collect one of their **signed** forms. They will keep the second form for their records.
- Pass out the questionnaire
  - inform them that they first need to record the time they start and that when they are finished they also need to record the time (please emphasize that they are not being timed – this is strictly for the use of the researcher)
  - inform them that all three pages of the questionnaire are double sided so that they do not miss items
  - have them complete the questionnaire in the order it is presented
  - emphasize that there are no right or wrong answers and that they should not spend too much time deliberating on any one question
  - emphasize that their answers will be kept confidential with only the researcher and her advisor having access to them
  - inform them that they need to maintain a quiet environment until everyone has finished completing the materials
  - collect the completed questionnaires
- When you are finished administering the materials, you should have collected one human consent form and one questionnaire from each athlete.
- Return materials to researcher in the envelope provided within one week.

## APPENDIX H

### REVIEW OF LITERATURE

#### *Introduction*

The disengagement process is an inevitable transition for all athletes. Since the 1960's researchers have been studying this process, but there are many aspects of sport disengagement that remain to be explored and that require more systematic assessment. While most researchers agree as to which factors positively and negatively affect the disengagement process, there remains some debate concerning the affective and emotional ramifications of the transition process. Some researchers maintain that sport disengagement is a relatively positive, smooth transition for most athletes (Allison & Meyer, 1988; Coakley, 1983; Curtis & Ennis, 1988; Sinclair & Orlick, 1993), while other researchers have found sport disengagement to be an inherently negative transition for the majority of athletes (Mihovilovic, 1968; Parker, 1994; Svoboda & Vanek, 1982; Werthner & Orlick, 1986).

The portrayal of sport disengagement by the media tends to reflect these two views. Recent retirees and sport heroes such as Michael Jordan, Wayne Gretsky, and John Elway have been viewed as success stories. The media has projected these athletes as individuals who had storied sport careers and who have very bright personal futures. However, perhaps even more prominent are the stories of former professional athletes who have fallen on hard times. In an article entitled "The Thrill of Victory, The Agony of Retirement," financial concerns, drug and alcohol abuse, and divorce are discussed as significant problems of former professional athletes (Rothman & Forest, 1991). In the review of literature to follow, various areas of sport disengagement will be reviewed including theories of sport disengagement, mediators of the sport disengagement process, positive transitions out of sport, negative transitions out of sport,

measurement of sport disengagement including Internet assessment, and coping with sport disengagement.

### *Theories Associated With Sport Disengagement*

Researchers have been working to identify a theoretical framework in which to study sport disengagement. Two theories, social gerontology and thanatology, have been used in past research to study sport disengagement. Social gerontology has been used to compare sport retirement to occupational retirement because in both areas individuals are often forced to retire due to age, and the adjustment difficulties are often associated with the variable of life satisfaction (Blinde & Greendorfer, 1985). However, the extent to which these two areas can be compared is questionable (Blinde & Greendorfer, 1985; Sinclair & Orlick, 1994). These researchers maintain that sport can't be adequately compared to occupational retirement because the athlete is chronologically and biologically younger than the worker and, therefore, must often deal with social and economic issues related to a "second career."

Thanatology, the study of death and dying, has also been used as a theoretical framework to understand sport disengagement (Blinde & Greendorfer, 1985; Sinclair & Orlick, 1994). Here, the athlete's retirement is viewed as a form of "social death" resulting from social isolation and ostracism from other individuals because of a loss in status. This framework is also very questionable given its highly negative portrayal of sport disengagement (Blinde & Greendorfer, 1985; Sinclair & Orlick, 1994). These researchers acknowledge that some athletes will experience difficulty following disengagement, but note that the theory of thanatology generalizes an extreme reaction that is most likely not characteristic of the majority of athletes.

In addition to the problems outlined above, social gerontological and thanatological perspectives have some assumptions which hinder their applicability to sport disengagement.

First, the social gerontological and thanatological perspectives assume sport retirement is an event and an abrupt termination as opposed to a process whereby the athlete's patterns following retirement are also examined. Coakley (1983) maintained that the athlete may still remain involved with his/her sport, but in a different role. Second, the social gerontological and thanatological perspectives assume sport retirement is inherently negative as opposed to being individually based. Often ignored are the social structural factors which may influence the transition (Coakley, 1983). Articles by Blinde and Greendorfer (1985) and Coakley (1983) stated that athletes may actually experience relief upon disengagement as opposed to difficulty, given their new opportunities for personal freedom.

Lavallee and Andersen (2000) discussed the potential usefulness of utilizing Erikson's stages of psychosocial development to assist in understanding an athlete's career transition. In particular, stages such as identity, intimacy, and generativity may relate to what the athlete is experiencing at the time he/she is transferring out of sport. For example, a young athlete who heavily identifies with his/her sport and chooses to or is forced to disengage from that sport, may experience difficulty in figuring out who he/she is without sport. Identity issues, such as this one, are common amongst all youth. However this issue may be exacerbated when a youth athlete possesses a limited self-perception that focuses on sport. Thus, Erickson's stages can be used to recognize potential problem areas that accompany certain time periods at which athletes commonly transition out of sport (e.g., following high school, following college, and mid to late 30's).

Although the debate and search for a theoretical framework by which to assess sport disengagement continues, researchers have noted that such a framework will need to account for the individual. This view is often based on Schlossberg's model of transition. Schlossberg (1981)



developed a model that consists of three sets of factors which together influence the transition process and an individual's adaptation to it. These factors include the characteristics of the transition (e.g., gain or loss, positive or negative, internal or external, gradual or sudden), the characteristics of the pre- and post-transition environments (e.g., internal support systems, institutional supports, physical setting), and the characteristics of the individual experiencing the transition (e.g., psychosocial competence, sex, age, previous experience with a transition of a similar nature). Thus, Schlossberg's model accounts for the individualistic nature of transitions and views adaptation to transition as a dynamic process. According to this model, adaptation can be assessed by the individual's resources-deficits balance or by the degree of similarity and difference between the pre-and post-transition environments.

A few models have been developed to date with the purpose of assessing career transitions specifically among elite athletes. For example, Taylor and Ogilvie (1998) developed a conceptual model for use in assessing an athlete's adaptation to his/her career transition. According to their model, in order to understand the nature of one's transition out of sport (i.e., healthy or distressful), there are a number of variables that must be examined. First, the cause(s) of the athlete's career termination must be explored and whether it was a voluntary or involuntary decision. Second, factors that relate to how the athlete will be able to adapt to his/her transition must be assessed. These factors include constructs such as identity and locus of control. Lastly, an inventory must be conducted on the type of resources the athlete possesses to assist in adapting to the transition. Important resources include one's individual coping strategies (e.g., goal setting, exercise, etc.), social support, and pre-retirement planning. Together these variables interact to determine the quality of the athlete's career transition. For those athlete's

who experience a distressful transition, Taylor and Ogilvie offer some useful categories of interventions that can be employed such as cognitive, behavioral, and organizational.

### *Mediators of the Sport Disengagement Process*

A number of factors have been identified within the literature that influence an athlete's adjustment pattern to disengagement. Among these factors are the type of disengagement, the athlete's age at disengagement, the extent to which the athlete's identity is tied or connected to his/her sport, the athlete's level of achievement, and the athlete's social support system (Murphy, 1995; Ogilvie, 1987; Pearson & Petitpas, 1990; Sinclair & Orlick, 1993).

Perhaps one of the most important mediating influences in how an athlete responds to disengagement is the type of disengagement the athlete experiences. There are two types of disengagement: forced disengagement and disengagement by choice. Forced disengagement results from injury, age, or a failure to meet the changing criteria at the various levels of competition (Ogilvie, 1987). Athletes who choose to disengage from their sports do so for a variety of reasons. Some have obtained personal fulfillment in their sport careers, some have other interests they want to pursue, and others become bored or experience burnout and choose to disengage (Murphy, 1995). Athletes who are forced to disengage from their sports may experience a more difficult time in the transition process than those athletes who choose to disengage. Those athletes who choose to disengage have the benefit of doing so when they believe the time is appropriate. On the other hand, athletes forced to disengage must end their sport career before they are psychologically and socially ready to disengage (Ogilvie, 1987).

Kerr and Dacyshyn (2000) noted, however, that the distinction between voluntary (i.e., retirement by choice) and involuntary (i.e., forced retirement) retirement can be confusing. In their study, while some of the gymnasts "chose" to retire it did not necessarily reflect their

wanting to leave gymnastics. Instead, the option of choosing to retire appeared better to them than the option of staying under the current conditions (e.g., coach/athlete conflict). Had circumstances been different, several indicated that they would have continued participation. In addition to noting the perhaps problematic distinction between voluntary and involuntary retirement, Kerr and Dacyshyn also indicated that voluntary retirement or retirement by choice is not a protective shield against the development of transition difficulty. Thus, while choosing to retire is the favorable option it does not ensure a smooth, healthy transition out of sport.

Age and identity are also important mediating influences in an athlete's adjustment to disengagement. Murphy (1995) noted that athletes, especially elite and professional athletes, devote considerable amounts of time and energy to their sports, and as a result many professionals have identities that are formed primarily from their sport experience. While most individuals view themselves as multidimensional, Murphy (1995) has suggested that the athlete's identity differs in that it is often defined solely by one aspect of their life – sport. Athletes are often unable to view themselves outside of the sport context. Instead of questioning and exploring their values, ideas, interests, and needs, many conform to their athletic system, which requires increasing commitment in terms of physical and psychological energy (Pearson & Petitpas, 1990). Athletes who have trouble separating the athlete from the individual may have trouble transitioning out of sport. In addition, the problem can compound when an athlete's limited identity is combined with a relatively young disengagement age (Murphy, 1995; Ogilvie, 1987).

The level of achievement and the social support system the athlete possesses are also important in an athlete's adjustment to disengagement. Sinclair and Orlick (1993) found that athletes who had achieved their sport goals usually felt more satisfied about life than those who

had not achieved their sport goals. In addition, an athlete who has an adequate social support system may have an advantage in handling the disengagement process because of the emotional, material, and informational support they can receive to cope with the transition (Pearson & Petitpas, 1990).

In addition to the type of disengagement, the athlete's age at disengagement, the extent to which the athlete's identity is connected to his/her sport, the athlete's level of achievement, and the social support system of the athlete, there are other variables which have the potential to impact the athlete's transition.

Pre-retirement planning can positively influence the athlete's disengagement. Ogilvie (1987) stated "present evidence indicates that the young adult competitor can best gain from more intelligent preparation for their termination from sport" (p. 227). However, the number of athletes who engage in pre-retirement planning is questionable. Svoboda & Vanek (1982) found that 50% of the athletes they studied paid no attention to a career after sports while they were transitioning out of sport and only 31% had considered a career when at the end of their sport participation. Baillie (1993) has proposed using both preretirement interventions and postretirement interventions. During the preretirement stage athletes would focus on specific issues related to functional adjustment such as career options and maintaining a positive attitude indicative of the opportunities that come as a result of retirement. During the postretirement stage athletes would be provided with counseling or supportive group sessions to assist with emotional issues such as grief, loneliness, and depression that may arise as a result of their sport disengagement.

Coakley (1986) identified three factors which together he believes positively influence an athlete's transition into another career. These factors include: educational achievement, family

resources of a social, material, and emotional nature, and personal contacts outside of sport. Coakley believes former athletes who possess these factors are the most likely to experience upward mobility in the work world. However, Coakley cautioned that career and mobility patterns can vary based on sport type and the characteristics associated with the sport.

Three additional variables which positively influence sport disengagement are options and interests outside of sport, a high degree of personal control, and the ability to anticipate the impending transition. Sinclair and Orlick (1993) found that those athletes who had interests and activities to take part in following retirement tended to have a smooth transition and to be satisfied with their lives since disengaging. In addition, those athletes who possess a high degree of personal control while competing tend to have a smoother transition (Orlick, 1986). These athletes will have had more experience in making their own decisions and as a result will be more skilled in making life choices following disengagement. Lastly, the extent to which one's sport disengagement can be anticipated influences one's response to it (Pearson & Petitpas, 1990). Athletes who are aware of the transition they are about to face have the opportunity to prepare and plan for it thus easing the adjustment process.

#### *Positive Transitions Out of Sport*

While many studies have reported that athletes have negative experiences associated with sport disengagement, Coakley (1983) argued that this transition is not as stressful or negative as it is often said to be. In his article, Coakley acknowledged that some athletes have serious adjustment problems, but he maintained that most athletes experience relatively smooth transitions that are a part of other normal developments.

Coakley's position is based on studies that have made comparisons between athletes at the high school and collegiate levels and their non-athlete counterparts (Dubois, 1980; Otto &

Alwin, 1977; Phillips & Schafer, 1971; Sack & Thiel, 1979; Sands, 1978; Snyder & Baber, 1979). These studies indicated that there were no significant differences between the athletes and the non-athletes and that in some instances the athletes compared more favorably than the non-athletes in areas such as educational level, occupational status, income, satisfaction with marriage, and satisfaction with friends. In addition, studies at the amateur and professional levels of sport have shown that while there are negative effects associated with sport disengagement, most athletes are able to successfully cope with these stressors (Haerle, 1975; Lerch, 1981; Mihovilovic, 1968; Reynolds, 1981). Coakley stated, “retirement from competitive sport may be the scene of problems but it does not necessarily cause those problems” (p.8). He examined sport disengagement within a social structural context as opposed to taking a social psychological approach. He maintained that it is not adequate to simply compare the athlete to the non-athlete as is often done. Instead, the athlete needs to be compared to a similar non-athlete in terms of gender, race, and socioeconomic status when assessing the athlete’s adjustment to sport disengagement. If this approach were taken, Coakley believes the athlete’s transitional experience would be viewed as relatively normal and smooth.

Allison and Meyer (1988) conducted a study on 20 former professional female tennis players to assess their perceptions of their retirement from competitive sport as well as their perceptions of their competitive career. Each athlete was mailed a ten-page questionnaire that asked them to comment on their earliest expectations and goals in competitive tennis, their experiences and perceptions during their most competitive years, and their reactions to retiring. The results indicated that the major reasons for retirement were frustration (40%), travel (25%), injury (15%), other opponents (10%), and age (10%). In addition, when asked “What was your first psychological/emotional response to retirement?”, 50% of these athletes indicated relief

while 30% reported feelings of isolation and loss of identity. Overall, Allison and Meyer found that the transition experiences of these athletes were not traumatic and that most enjoyed the opportunity to have a normal lifestyle which disengagement afforded them.

Curtis and Ennis (1988) assessed the disengagement process of former elite-level hockey players. Their sample included 109 Canadian Junior hockey alumni. These athletes were mailed a questionnaire that was designed to measure life satisfaction, employment, education, and marital status. The results from these athletes were then compared to a group of non-sport males who were similar with respect to age and province of residence. The results indicated that the former hockey players either scored similar to or better than their non-sport male counterparts. Thus, Curtis and Ennis concluded that the disengagement process for these athletes was not associated with stressful negative consequences. In addition, over 90% of the former athletes reported that they would play at the same level again if they could live their lives over and 86% of the former athletes reported that they would like to have their sons as involved in hockey as they were. The only difficulties reported by these former hockey players were in regard to leaving and missing hockey. Fifty percent of these athletes found it difficult to leave their sport and a large majority reported that they missed their sport. However, the authors contend that these responses are most likely indicative of a brief lament at having to give up one's sport as opposed to psychological pain resulting from the disengagement process.

Sinclair and Orlick (1993) conducted a study on sport retirement with 199 high performance Canadian athletes. These athletes were administered the Athlete Retirement Questionnaire (ARQ) which was designed to obtain information about the participants' national team career, their retirement transition, and the practicality of providing transitional services to athletes. The time taken to adjust to retirement varied such that 23% adjusted within 1 or 2

months, 32% adjusted within 6 months to 1 year, 22% adjusted in 2 years or more, and 23% had yet to totally adapt to their life out of competitive sport. During the early part of the transition, 37% of the athletes experienced problems with missing the social aspects of their sport, 32% experienced problems with job/school, and 34% experienced problems with finances. Sinclair and Orlick also found that the most beneficial coping strategies for these athletes during the transition phase were finding another focus or interest, keeping busy, and training/exercising. Overall, the majority of athletes studied reported that they felt in control of their adjustment process and experienced a relatively positive transition. In addition, Sinclair and Orlick found that the adjustment out of sport was facilitated for these athletes when the athlete achieved his/her goals, retired on his/her own terms, and had other options to pursue following retirement.

#### *Negative Transitions Out of Sport*

While the studies described above found that athletes generally had a positive transition out of sport, the following studies have found a significant degree of difficulty associated with the disengagement process. Mihovilovic (1968) was one of the first to study adjustment to retirement in his study of 44 former Yugoslavian soccer players. Mihovilovic was interested in the current situation of these former athletes, the reasons for and mechanisms of their retirement, the mechanisms associated with why sportsmen of advanced age still remain with their team, the attitude toward these athletes while they were active and once they retired, and ways in which their disengagement from sport could be facilitated. In order to obtain this information, questionnaires and interviews were utilized, opinions from coaches and members of management were requested, and the archives of the athletes' soccer federations were analyzed. From his study Mihovilovic made four major conclusions. First, athletes strive to remain active members of their teams for as long as possible and prefer to have a gradual retirement. Second,



Mihovilovic found that athletes who have no career outside of their sport find the retirement process to be particularly difficult and behaviors such as smoking and drinking increase while physical exercise decreases. Third, athletes' social networks diminish following retirement and this often results in feelings of abandonment and neglect. Fourth, athletes often desire to stay involved with their sport organizations in some way following retirement and feel that this would help ease the transition process. In addition, Mihovilovic found that over 95% of the participants in his study reported that retirement was imposed upon them.

In 1982, Svoboda and Vanek conducted a study of 147 former Czechoslovakian national team members who had dedicated their lives to their sports. Over 80% of these athletes reported a variety of psychological, social, and vocational conflicts as a result of their sport disengagement. These athletes reported that balancing the demands of prolonged training while preparing for a post sport career was a significant stressor. Other sources of stress for these athletes included role expectations, the pressure of competing against younger athletes, a decline in physical power, and injury. Of the 147 athletes, 38% reported they were able to handle their disengagement immediately, 15% took 6 months, 8% took 1 year, 17% took as many as 3 years, 4% took more than 3 years, and 18% still were not coping with their disengagement.

In a study assessing the retirement experiences of 28 elite Canadian athletes, Werthner and Orlick (1986) found that the majority of the athletes experienced some degree of difficulty transitioning out of sport. Werthner and Orlick conducted an interview with each of these athletes and asked them 32 open-ended questions regarding their feelings and behaviors while competing as an elite athlete, the reasons and mechanisms associated with their retirement, the transition phase, and their post-competitive life. The athletes were asked to rate their level of life satisfaction, their sense of personal control, and their feelings of self-confidence at the time they

were competing, immediately after retirement, and at the time they were interviewed for this study. On a scale from 1 to 10 with 1 representing low and 10 representing high, Werthner and Orlick found that the athletes' ratings were generally lowest immediately after retirement (4.4-life satisfaction, 6.3-personal control, 6.2-self-confidence) compared to their ratings while competing (7.6-life satisfaction, 6.1-personal control, 8.2-self-confidence) and at the time they were interviewed (8.0-life satisfaction, 8.1-personal control, and 8.3-self-confidence). These results indicate a level of difficulty associated with sport disengagement as well as a period of transition until life becomes more satisfying.

In addition to these results, Werthner and Orlick (1986) were able to identify seven factors that influenced the nature of the athlete's transition out of sport. The first factor was the presence of a new focus. The presence of a new focus, into which the athlete could direct his/her energy, helped to ease the transition. The second factor, a sense of accomplishment, indicated that athletes who had achieved all they had hoped to achieve in sport were likely to have an easier transition than those athletes who had sport goals and aspirations that were unfulfilled. Coaching, the third factor, also helped to determine the ease or difficulty of the transition. Werthner and Orlick noted that the majority of athletes they studied spoke of having negative relationships with their coaches. As a result, these athletes left their sport feeling bitter and sometimes disengaged sooner than they would have had they had a positive relationship with their coach. Injuries and health problems, the fourth factor, generally tend to make the transition more difficult because they are unexpected and can result in early disengagement. The fifth factor identified was politics and sport association problems. Athletes who experienced conflicts over coaching positions, team selection, financial assistance, and other political aspects often left their sport careers feeling bitter. Finances, the sixth factor, also influenced the way in which the

careers of these athletes ended. Those who disengaged due in part to funding issues may have disengaged before they were ready to do so. Lastly, the support of family and friends, the seventh factor, positively impacted the disengagement process for these athletes.

The transition experiences of seven former Division I collegiate football players who completed their careers within three years of the study were examined by Parker (1994) through in-depth qualitative interviews. The interviews were phenomenological in nature so that the athletes had control over the direction of the interview. The researcher believed this format would provide the athlete with the opportunity to discuss the experiences that were most important to them. Following the interviews, the transcripts were read, the data was coded from the transcripts, and general themes were outlined. In addition, the researcher developed descriptions of each of the participants based on the interviews, impressions and notes, and sources such as media guides and athletic staff comments. The results of the interview indicated that the athletes were more interested in reflecting on the past than discussing their current situations and experiences since disengaging. The athletes spent the majority of the time discussing coaches, athletic systems, and perceived injustices and overall appeared to the researcher to be jaded by their collegiate athletic experience. In addition, the athletes' perceived lack of control arose as a dominant theme. These athletes discussed the control their coaches had over them which left them feeling powerless. This power differential was believed to contribute to the negative relationships these athletes had with their coaches. Orlick (1986) has spoken of the debilitating effect a lack of control can have on an athlete's disengagement and Werthner and Orlick (1986) have addressed negative coach/athlete relationships as a factor which hinders disengagement.

In a study with similar methodology to that employed by Parker (1994), Kerr and Dacyshyn (2000) assessed the retirement experiences of seven elite level female gymnasts. These gymnasts had been retired for various lengths of time ranging from six months to five years. Each gymnast completed a non-directive interview either in person or over the phone with one of the researchers during which she was asked to reflect on her transition out of sport. Utilizing the content obtained from these interviews, the researchers transcribed and coded the data to summarize the themes that were repetitive among the majority of these gymnasts. Overall, Kerr and Dacyshyn reported that five of the gymnasts characterized their transition out of sport as very difficult, while the remaining two indicated that their transitions were relatively smooth. A number of descriptions were highlighted which spoke to the difficulty the majority of the gymnasts experienced. These phrases included “the only good part about retirement is that I’m not in so much pain” and “I always find myself coming back to gym, or thinking about it—thinking I might start again” (pg. 121). In addition, retirement was described as an ambivalent period, a state of confusion, and a painful time. The reflections of these gymnasts led the researchers to divide one’s transition out of sport into three phases: Retirement, Nowhere Land, and New Beginnings. The first phase represents the athlete’s actual act of retiring or withdrawing from sport. The second phase is characterized by disorientation, feelings of void, and reorientation during which the athlete reflects on and makes sense of his/her sport experiences. The last phase represents a period during which the athlete has adjusted to life without sport, has found new avenues to pursue, and has achieved happiness in this new and different time.

Kerr and Dacyshyn (2000) were able to identify a number of difficulties an athlete may experience upon disengaging from sport through their interviews. These difficulties include feelings of loss, disorientation, anger, and betrayal associated with a lack of identity, poor social

support systems outside of sport, and negative coach/athlete relationships. However, the researchers also noted that that each gymnast they interviewed reported a positive sense of freedom having left behind the rigorous and demanding nature of their sport. Unfortunately, it appears as though many had difficulty knowing how to use this newly found freedom to redefine their lives.

Ogilvie (1987) identified the following pattern of negative stress reactions to disengagement from highly competitive sport programs: use of denial as a protective shield (Stage One), projection (Stage Two), resentment, anger, and hostility (Stage Three), and depression (Stage Four). In Stage One, the athlete has difficulty accepting that (s)he can no longer compete. Ogilvie stated, “the persistence against all odds that has taken them so far in sport is now applied in the defense of accepting the truth” (p. 225). Stage Two, projection, is characterized by the athlete blaming outside sources (i.e., people) as the cause behind their disengagement. This is done to protect one’s self-esteem. The third stage, resentment, anger, and hostility, can be externalized or internalized. Generally, these feelings are externalized toward coaches, teammates, and loved ones and the target of the hostility is usually a source connected to the variable threatening the athlete’s security. The final stage is characterized by depression. Athletes who internalize the resentment, anger, and hostility are susceptible to depression. These athletes selectively perceive negative aspects of their environment that reinforce their feelings of anger and resentment. The result is learned helplessness in which the athlete takes in information that justifies his/her feelings of victimization. Instead of changing those things that are within their control, these athletes display despair and hopelessness. Ogilvie (1987) stated that these athletes are in need of counseling in order to change their negative attitudes and behavior patterns.

Much of the debate concerning the affective and emotional nature of the sport disengagement transition occurs over how to operationalize a negative transition. While several studies report some degree of difficulty associated with the disengagement process (Mihovilovic, 1968; Parker, 1994; Svoboda & Vanek, 1982; Werthner & Orlick, 1986), it should be noted that most athletes report an increase in areas such as life satisfaction six months to one year following disengagement. Thus, while the initial adjustments are often difficult and disrupting, the athlete generally adapts in a relatively short period of time to his/her post sport life. In fact, Orlick (1986) stated that while most elite athletes approach sport disengagement with some level of uncertainty, fear, or sense of loss, these feelings are normal and that the challenge lies in coping with the disengagement process.

#### *Measurement of Sport Disengagement*

As outlined earlier, very little attention has been devoted to developing a psychometrically sound questionnaire to assess the sport disengagement process. Lantz (1995) developed the Life Transitions Inventory for Athletes (LTI-A) to assess collegiate athletes' readiness to retire. The factor analysis conducted on this inventory did not produce a solution which matched the conceptualized model and failed to yield a clean factor structure. Thus, while this instrument examines the sport disengagement process, it is in need of further psychometric testing.

Another instrument designed to assess the sport disengagement process was developed by the present researcher (Deaner, 2000). This instrument, entitled the Sport Disengagement Questionnaire (SDQ), measures collegiate athletes' perceptions of their impending sport disengagement. The SDQ consists of 36 questions designed to represent six factors (i.e., career/future planning, achievement satisfaction, personal investment, social dynamics, athletic

identity, and health/fitness). Four of these six factors (i.e., career/future planning, achievement satisfaction, social dynamics, and athletic identity) were chosen because the literature suggests that these variables impact the transition process (Grove, Lavallee, & Gordon, 1997; Mihovilovic, 1968; Orlick, 1986; Pearson & Petitpas, 1990; Petitpas et al., 1992; Sinclair & Orlick, 1993; Werthner & Orlick, 1986). Specifically, planning for a post sport career and for the future, achieving one's goals and aspirations, having social pursuits and supportive relationships outside of sport, and having a balanced identity are believed to facilitate the athlete's transition out of sport. Furthermore, it is believed that the absence of these variables can make the transition difficult. The final two factors, personal investment and health/fitness, were hypothesized by the researcher to be important variables in how an athlete will respond to sport disengagement. It is believed that the athlete who fully invests in his/her sport will find the transition to be more difficult than the athlete who invests little or does not invest in his/her sport. This investment is not only of a physical nature, but of a psychological and emotional nature as well. In addition, health/fitness is believed to be an important factor in sport disengagement because of how prevalent health and fitness are in the lifestyle of collegiate athletes. The factor analysis conducted on this inventory yielded a reasonably good factor structure and showed internal consistency. However, the SDQ is in need of further psychometric testing. Furthermore, in addition to evaluating the psychometric properties of the pencil/paper format of the SDQ, the advancement of the Internet as a research tool warrants the psychometric evaluation of an online version of the SDQ as well.

### *The Internet*

Throughout history, advances have been made in the field of technology. The advent of radio, telephone, and television changed the way societies functioned and transformed their

means of communication. One of society's newest technological advancements is the Internet. Researchers have stated that the Internet differs from previous communication advancements such as the radio, telephone, and television, in that it allows for greater interactivity (Hewson et al., 1996). A variety of components such as text, sound, graphics, and live interaction can be utilized when communicating via the Internet. No other form of communication allows the individual to incorporate all of these components. Given the numerous capabilities the Internet affords, researchers have begun to explore the possibilities of its use in conducting scholarly research. This section will explore the areas of Internet capabilities, computerized assessments, and pros and cons associated with the utilization of this medium.

### *Internet Capabilities*

The Internet was first introduced in 1969 by the United State's defense department (Childress & Asamen, 1998). Its popularity as a means of communication for the general public has skyrocketed in recent years. This is evidenced by the number of youth who are adept at using the Internet. Stevens and Lundberg (1998) have noted the emphasis that is placed on procuring Internet access for public schools. In addition, they state that an increasing number of colleges and universities are requiring that their incoming students possess a computer. This initiative will likely lead to an even greater increase in the number of Internet users.

The Internet contains four types of communication systems which are then further divided. The four types of communication systems include the World Wide Web (WWW), electronic mail (e-mail), Internet Relay Chat (IRC), and multi-user dungeons (MUDs) (Childress & Asamen, 1998). The WWW consists of informational homepages/webpages that are accessed through Uniform Resource Locators (URLs). These homepages cover an endless variety of topics and are the creations of individuals, organizations, and companies. Thus, anyone who has



access to the necessary computer resources can post a webpage. A variation of the webpage found on the WWW is seen in Newsgroups and electronic bulletin boards. These communication forms allow individuals with common interests and/or concerns to connect with one another to post messages, discuss information, and provide support.

The second type of Internet communication system is e-mail (Childress & Asamen, 1998). E-mail expands upon the concept of postal mail whereby individuals communicate through the written word. However, e-mail differs in that it allows for communication that is practically instantaneous. A variation of the Internet's e-mail feature is the List Server mailgroup. This feature allows individuals with common interests to subscribe to a group (e.g., NetPsy and SportPsy). This group can then share information and engage in discussions through email. Anyone subscribed to the List Serve will receive all of the emails submitted by the other subscribers of the group.

The third type of Internet communication system is IRC (Childress & Asamen, 1998). IRC expands upon the concept of email by allowing for real time communication. Thus, text entered by one user can be simultaneously displayed on the computer system of the party with whom they are communicating. Because of this capability, IRC is a more interactive form of communication than is email.

The final type of Internet communication system is MUDs (Childress & Asamen, 1998). MUDs are role-playing games that allow individuals to access a main database that is controlled by a mainframe computer. Individuals who have the appropriate program can play from their personal computers.

*Computerized Assessments*

Researchers have begun to expand upon the capabilities outlined above to use the computer to conduct assessments and interventions. Specifically, research has been aimed at developing computerized versions of traditional pencil/paper assessments that can be administered over the Internet. In addition, recent research has also focused on how the computer and the Internet can be utilized in conducting interventions such as smoking cessation programs.

Hewson et al. (1996) stated “surveys and questionnaires are perhaps the most obvious forms of research tool which lend themselves to administration via the Internet” (p. 188). In the psychological domain, a number of standardized pencil/paper assessments such as the MMPI, the Slosson Intelligence Test, and the 16 PF have also been developed into computerized versions (Lukin et al., 1985). However, in order for a computerized version of an assessment to be considered valid, comparisons of results must be made to the traditional version (i.e., pencil/paper). The studies to date that have compared pencil/paper and computer administration are few, but the results are promising (Lukin et al.).

Lukin et al. (1985) compared the results of traditional pencil/paper and computer administration formats using a sample of sixty-six undergraduate students recruited from an introductory psychology course. Each participant completed three personality measures, the Therapeutic Reactance Scale, the State-Trait Anxiety Inventory, and the Beck Depression Inventory, utilizing both forms of administration (i.e., pencil/paper and computer). Half of the participants completed the pencil/paper format first followed one week later by the completion of the computer format while the other half of the participants proceeded in the opposite order. As the authors expected, the results obtained from the computerized assessments were similar to those produced by the traditional pencil/paper assessments and no significant differences were

found. The authors also compared the participants' reactions to the two types of administration formats utilizing an instrument containing fifteen dichotomous word pairs such as slow/fast. Using this instrument, no statistical differences were found in the participants' reactions to the pencil/paper and computer formats. However, the participants were also asked which administration format they preferred and eighty-four percent chose the computer version. Common responses for why the computer version was preferred over the pencil/paper version included the computer was "more fun" and "different," the pencil/paper version was "too much like school work" or "taking a test," and the completion of the computer version was perceived as faster. Interestingly, the researchers found no significant differences in the amount of time it took to complete the two versions of assessments. The results of this study provide support for the viability of computerized assessments.

Compared to the study highlighted above, the present study differed in several ways. First, the present study utilized only one instrument as opposed to several. Second, the instrument assessed in the present study is not yet validated in its pencil/paper form while the instruments used in the previous study were. Third, in the present study the researcher developed the computer version of the instrument such that it resembled as closely as possible the format of the pencil/paper version. In the Lukin et al. (1985) study, the computer version of the instruments differed from the pencil/paper version in that only one question was displayed on the computer screen at a time. Lastly, in the present study some of the participants completed the pencil/paper version of the instrument while others completed the computer version of the instrument. In the study discussed above, all of the participants completed both forms.

Another study conducted by King and Miles (1995) also sought to compare the results obtained from pencil/paper and computer administration formats. They recruited 874

undergraduate students who were asked to complete four non-cognitive work-related measures. These measures included the Balanced Inventory of Desirable Responding (BIDR), the Mach V Scale, the Equity Sensitivity Instrument (ESI), and Rosenberg's Self-Esteem Scale. Of the 874 participants, 483 completed the computerized version of the instruments while the remaining 391 completed the pencil/paper version of the instruments. Statistical analyses were conducted to determine whether the type of administration (i.e., pencil/paper versus computer) influenced the number of underlying factors, the factor loadings, and the mean scores. Overall, the results of this study indicated that the type of administration did not significantly influence the number of underlying factors or the factor loadings. Thus, the results of the pencil/paper and computerized versions were comparable on these domains. On the other hand, analysis of mean scores did indicate significant differences such that those who completed the pencil/paper version had higher scores related to socially desirable responding than those who completed the computerized version. The authors noted, however, that this difference was not due to measurement inequivalence associated with the two versions of instruments. Overall, this study lends support for the viability of using computerized versions of traditional assessments when conducting survey research.

Smith and Leigh (1997) were also interested in using an alternate form of the traditional pencil/paper assessment. They recruited two samples: 56 introductory psychology students and 72 members of the Internet newsgroup sci.psychology.research. Thus, the researchers not only used the Internet to administer a questionnaire, but also to directly recruit participants. The introductory psychology students completed the pencil/paper version of a human sexuality questionnaire, while the newsgroup members completed the questionnaire online. The demographic results indicated that the variables of sexual orientation, marital status, ethnicity,

education, and religiosity were similar amongst the two samples. However, differences were found with respect to gender and age. The majority of the student sample was female, while the majority of the Internet sample was male. Furthermore, the Internet sample was found to have a broader range of ages. The researchers also noted the potential differences in testing environment that may have existed given that the Internet participants may have completed the questionnaire on their personal computer or in a computer lab. Thus, the environmental conditions (e.g., quiet versus noisy) in this study may have differed. Overall, no significant differences were found between the two samples on the questionnaires. This finding lead the researchers to conclude, “obtaining similar patterns of responses, despite these differences in sample population, subject selection, survey administration, and testing environments, strongly argues in favor of the generalizability and validity of data collected from the Internet as an alternative or supplemental source of subjects” (p. 503).

#### *Pros and Cons of Conducting Computerized Assessments*

There are numerous advantages to administering questionnaires and surveys via the computer and/or the Internet. First, this form of administration limits the geographic restraint that is often experienced with other forms of administration (Smith & Leigh, 1997). Thus, less travel is required of both the researcher and the participants. Second, the use of computerized assessments can decrease the costs associated with copying and mailing traditional pencil/paper assessments (Hewson et al., 1996). Hewson et al. also noted the advantage of automatic collection of study materials that is present with Internet assessments. Internet assessments allow the researcher rapid accessibility to the participants’ results. Another advantage of computerized assessments is the possibility that exists for automatic scoring. Some computer software packages and Internet coding programs automatically compute each participant’s results and

allow the data to be easily transmitted into statistical software packages. This feature saves the researcher valuable time and energy. Lastly, Hewson et al. noted that the Internet can be used not only for the administration of materials, but also for the recruitment of participants. This advantage may allow the researcher to gain a larger sample size and decrease the amount of time that is associated with participant recruitment.

While there are many advantages to administering assessments via the computer and/or Internet, there are several potential concerns as well. Many of these concerns are centered around ethical issues. One concern of using the Internet to conduct research is the potential problem of maintaining confidentiality (Childress & Asamen, 1998). Both the transmission of computer information and the storage of it are susceptible to intercept. A second issue surrounding computerized assessments is that they often do not afford the researcher the opportunity for face to face contact to ensure that the participants understand the requirements of the study (Childress & Asamen, 1998). Childress and Asamen argued, however, that providing participants with a telephone number and an email address with which they can contact the researcher is sufficient. Third, King and Miles (1995) believe that an ethical issue is raised when computerized assessments force participants to answer all questions. Some computerized assessments are programmed such that the participant must answer the currently displayed question before he/she is able to access the next question. King and Miles maintained that computerized assessments should provide an option that allows the participants the choice of not responding to any given question. A fourth concern of utilizing the Internet to conduct research is the provision of a human subjects consent form. Precautions must be taken when consent to participate is obtained online. Researchers must be careful that the instructions are read, that participants do not complete the study multiple times, and that unwanted individuals do not gain access to the site

and proceed as participants (Smith & Leigh, 1997). Smith and Leigh recommended that passwords be provided to the participants and/or email addresses and passwords be used to avoid the concerns listed above. A final concern that needs to be addressed in conducting Internet research is the participant's right to withdraw. Smith and Leigh stated that online assessments should provide instructions detailing how to withdraw from the study and that the option to withdraw should be made available at any point in the study.

### *Coping with Sport Disengagement*

At the elite level of sport, the importance of assisting athletes through the disengagement process has been recognized. In 1988 the United States Olympic Committee (USOC) developed a program entitled the Career Assistance Program for Athletes (CAPA) to assist athletes with the disengagement process (Petitpas et al., 1992). This program was conducted in a workshop fashion and addressed areas such as managing the emotional and social impact of transitions, increasing understanding and awareness of personal qualities that are transferable and relevant to coping, and examining the information associated with the job market. The impetus for this program came from research that indicated Olympic level athletes rarely prepare for their post-sport lives (Mihovilovic, 1968) and from research that suggested about 80% of Olympic athletes report some level of difficulty in handling the transition out of sport (Svoboda & Vanek, 1982; Werthner & Orlick, 1986).

Another program developed to assist elite athletes with the disengagement process was designed by Mike Corey in 1982. He noticed that many professional athletes were ill prepared to enter the job market following their sport disengagement. Corey's organization, PACE Sports Inc., supplies career counseling for the National Basketball Association (NBA) and for other professional athletes and strives to integrate its clients into the business sector upon their

disengagement from sport (Howerton, 1994). It accomplishes this through business internships, seminars, degree-completion programs, and testing to identify an athlete's individual strengths.

Other programs which have been implemented to assist athletes with the transition process include the "Making the Jump Program" (MJP) and seminars funded by the COA Olympic Athlete Career Center. The "Making the Jump Program" is a project of the Advisory Resource Center for Athletics at Springfield College and is designed to target high school athletes who will be advancing to the collegiate level of sport (Pearson & Petitpas, 1990). This program offers high school athletes and their parents seminars, information, and counseling on topics such as balancing academics and athletics, selecting the right school, and learning transferable skills. The COA Olympic Athlete Career Center seminars were designed by Orlick and Werthner. These seminars target retiring Canadian Olympic athletes and offer information associated with the sport disengagement process (Sinclair & Orlick, 1993).

While several programs have been implemented to assist athletes in coping with sport disengagement, some athletes have been dissatisfied with the assistance offered to them by their sport organizations (Sinclair & Orlick, 1993). Often the attention organizations demonstrate toward their athletes as they move in is not matched when these athletes move out. Canadian elite athletes have felt ignored, used, and disposed of upon disengaging from their sports (Sinclair & Orlick, 1993). In addition, the National Football League (NFL) and Major League Baseball (MLB) do little to assist their players with retirement (Rothman & Forest, 1991). In contrast, the National Hockey League (NHL) and the NBA are much more involved in their athletes' transitions out of sport. The NHL has two sport psychologists who visit players to discuss planning for retirement and to offer advice and the NBA offers a counseling program and utilizes the services of PACE Sports Inc. to assist its players with retirement.



Sinclair and Orlick (1993) found a variety of services that athletes desire in order to facilitate their transition out of sport. These include financial assistance, job and educational information, information on the transferability of mental skills to new pursuits, opportunities to search for a new career or interest, and a physiological and dietary detraining program. However, athletes were interested in these services not only during their transition out of sport, but during their sport career as well. In addition, athletes reported that they would be more likely to consult a sport psychologist than a clinical psychologist, psychiatrist, or counselor in obtaining assistance with the disengagement process. This result serves to reinforce the value of researching sport disengagement within the field of sport psychology and demonstrates that the athlete's disengagement has some unique aspects that can best be understood from a combined psychological and sport science background.

In order to improve National and Olympic team members' transitions out of sport and to minimize the time it takes to adjust, Sinclair and Orlick (1993) have made several recommendations. First, they believe that extending financial support for a year following the athlete's disengagement would assist athletes in finishing their education and in finding a career. Second, seminars discussing emotions associated with disengagement, coping strategies, and support services should be offered. Third, athletes should be provided with opportunities to contribute to their sport systems, and national sport organizations should be encouraged to maintain contact with retired athletes. Sinclair and Orlick believe that contact with their sport, whether it is through coaching contributions or newsletters, allows athletes to feel valuable and worthwhile to their sport organizations. Fourth, athletes should be provided with a practical resource center that offers information, education, and consultation. Fifth, mental skills training programs geared toward skills such as goal setting, focusing, and imagery should continue to be

utilized and the relevance of these skills to other areas of life should be discussed. Lastly, the opinions and recommendations of the athletes should be acted upon in the form of seminars, workshops, and programs so that the athletes are receiving the services they need in order to facilitate a positive transition.

Most recommendations for assisting athletes through the disengagement process seem to be targeted toward National, Olympic, and professional athletes, while very few programs exist to help collegiate athletes cope with the disengagement process. This is quite surprising and troubling given that very few collegiate athletes advance to the professional level. As a result, most collegiate athletes disengage from their sport when their eligibility expires whether or not they are prepared. While programs are scarce, there are a few that have been developed in recent years.

The Ohio State University developed a program, entitled the Positive Transitions program, which has been in place since 1995 (Bragonier, 1999). This program is offered to junior and senior student-athletes in the form of an elective course and is co-taught by an academic counselor in the Department of Athletics and the Athletics Life Skills Coordinator. The course is designed to help collegiate athletes cope with life after sport and is comprised of three sections which focus on the constructs of identity, transferable skills, and career development. With regard to identity, athletes who enroll in the course are asked to explore who they are in terms of their values, beliefs, and needs outside of sport. In addition to exploring their identities, the athletes learn to identify important skills they have developed through their sport participation and how those same skills can be applied in other areas of life. Examples of transferable skills include goal setting, decision-making, and time management. The final component of the course, career development, focuses on teaching the athletes skills and

providing applied experiences related to resume writing, interviewing, networking, and internships.

Following the lead of the Ohio State University, several other universities are working to develop courses similar to the Positive Transitions course at their schools. In particular, Arizona State University, Xavier University, the University of Nebraska, and the University of Miami have asked the Ohio State University for assistance (Bragonier, 1999). In addition, the Pennsylvania State University developed a course similar to the one at the Ohio State University and implemented it in 1998. This course, entitled the Jaffe Senior Seminar: Life after Intercollegiate Sport, teaches coping skills to those athletes whose eligibility has expired as well as to those athletes who can no longer compete due to other issues (e.g., injury) (Pennsylvania State University Home Page). Similar to the Ohio State University's course, the Pennsylvania State University's course also focuses on transferable skills such as goal setting and decision-making and on career planning to prepare student-athletes for the workplace.

### *Conclusion*

Overall, the research has identified that the transition out of sport is variable, such that some athletes adjust with ease and other athletes experience a high level of difficulty. In addition, a number of variables have been identified that either facilitate or hinder sport disengagement (e.g., type of disengagement, identity, age, social support systems, level of personal control, other pursuits). Because of these variables the transition process must be examined in relation to the individual progressing through it. The way in which one athlete perceives and responds to sport disengagement can differ markedly when compared to the perceptions and responses of another athlete in a similar situation. Lastly, attempts must be made not only to understand the sport disengagement process, but also to assist the athlete in making

an effective transition. To this effect, a number of programs and services have been developed to assist the athlete with sport disengagement, but many lack empirical support. Presently, however, there is a lack of a psychometrically sound questionnaire to measure this inevitable and variable transition. The present study built upon previous research by continuing the psychometric testing of the pencil/paper version of the SDQ and expanded upon previous research by developing and assessing the psychometric properties of an online version of the SDQ as well. The results of these two versions indicated the viability of utilizing each as an assessment tool for identifying those athletes who may experience difficulty with their transition out of collegiate sport.

## APPENDIX I

## Full Reference List

- Allison, M. T., & Meyer, C. (1988). Career problems and retirement among elite athletes: The female tennis professional. *Sociology of Sport Journal*, 5, 212-222.
- Baillie, P. H. F. (1993). Understanding retirement from sports: Therapeutic ideas for helping athletes in transition. *The Counseling Psychologist*, 21, 399-410.
- Blinde, E. M., & Greendorfer, S. L. (1985). A reconceptualization of the process of leaving the role of competitive athlete. *International Review for the Sociology of Sport*, 20, 87-94.
- Bragonier, J. (1999, October 9). Making the transition. *Ohio State Game Day Program*, pp. 91, 104.
- Childress, C. A., & Asamen, J. K. (1998). The emerging relationship of psychology and the Internet: Proposed guidelines for conducting Internet intervention research. *Ethics and Behavior*, 8, 19-35.
- Coakley, J. J. (1983). Leaving competitive sport: Retirement or rebirth? *Quest*, 35, 1-11.
- Coakley, J. J. (1986). *Sport in society: Issues and controversies*. St. Louis, MO: Times Mirror/Mosby College Publishing.
- Curtis, J., & Ennis, R. (1988). Negative consequences of leaving competitive sport? Comparative findings for former elite-level hockey players. *Sociology of Sport Journal*, 5, 87-106.
- Deaner, H. R. (2000). *An exploratory factor analysis of collegiate athletes' perceptions of psychological adjustment to sport disengagement*. Unpublished master's thesis, University of North Carolina-Chapel Hill.
- Dubois, P. E. (1980). The occupational attainment of former college athletes: A comparative study. *International Review of Sport Sociology*, 15, 93-107.

- Gall, J. P., Gall, M. D., & Borg, W. R. (1999). *Applying educational research* (4th ed.). Reading, MA: Longman.
- Grove, R. J., Lavalley, D., & Gordon, S. (1997). Coping with retirement from sport: The influence of athletic identity. *Journal of Applied Sport Psychology, 9*, 191-203.
- Haerle, R. K., Jr. (1975). Career patterns and career contingencies of professional baseball players: An occupational analysis. In D. Ball & J. Loy (Eds.), *Sport and social order*. (pp. 461-519). Reading, MA: Addison-Wesley.
- Hewson, C. M., Laurent, D., & Vogel, C. M. (1996). Proper methodologies for psychological and sociological studies conducted via the Internet. *Behavior Research Methods, Instruments, and Computers, 28*, 186-191.
- Howerton, D. (1994). When the cheering stops: PACE Sports educates players on life after sports. *Sport, 85*, 92.
- Kerr, G., & Dacyshyn, A. (2000). The retirement experiences of elite, female gymnasts. *Journal of Applied Sport Psychology, 12*, 115-133.
- King, W. C., & Miles, E. W. (1995). A quasi-experimental assessment of the effect of computerizing noncognitive paper-and-pencil measurements: A test of measurement equivalence. *Journal of Applied Psychology, 80*, 643-651.
- Lantz, C. D. (1995). Validation of a conceptual model characterizing college student-athletes' readiness to retire from competitive sport participation (Doctoral dissertation, West Virginia University, 1995). *Dissertation Abstracts International, 56*, 3049.
- Lavalley, D., & Andersen, M. B. (2000). Leaving sport: Easing career transitions. In M. B. Andersen (Ed.), *Doing sport psychology* (pp. 249-260). Champaign, IL: Human Kinetics.

- Lerch, S. (1981). The adjustment to retirement of professional baseball players. In S. L. Greendorfer & A. Yiannakis (Eds.), *Sociology of sport: Diverse perspectives* (pp. 138-148). West Point, NY: Leisure Press.
- Lukin, M. E., Dowd, E. T., Plake, B. S., & Kraft, R. G. (1985). Comparing computerized versus traditional psychological assessment. *Computers in Human Behavior, 1*, 49-58.
- Lysens, R., Vanden Auweele, Y., & Ostyn, M. (1986). The relationship between psychosocial factors and athletic injuries. *Journal of Sports Medicine and Physical Fitness, 26*, 77-89.
- Mihovilovic, M. A. (1968). The status of former sportsmen. *International Review of Sport Sociology, 3*, 73-96.
- Murphy, S. M. (1995). Transitions in competitive sport: Maximizing individual potential. In S. M. Murphy (Ed.), *Sport psychology: The psychological health of the athlete* (pp. 331-346). Champaign, IL: Human Kinetics.
- Ogilvie, B. C. (1987). Counseling for sports career termination. In J. R. May & M. J. Asken (Eds.), *Sport psychology: The psychological health of the athlete* (pp. 213-230). New York: PMA Publishing Corp.
- Orlick, T. (1986). Life after sport. In L. A. Bump (Ed.), *Psyching for sport: Mental training for athletes* (pp. 169-176). Champaign, IL: Leisure Press.
- Otto, L. B., & Alwin, D. F. (1977). Athletics, aspirations, and attainments. *Sociology of Education, 42*, 102-113.
- Parker, K. (1994). "Has beens" and "wanna bes": Transition experiences of former major college football players. *The Sport Psychologist, 8*, 287-304.
- Pearson, R. E., & Petitpas, A. J. (1990). Transitions of athletes: Developmental and preventive perspectives. *Journal of Counseling and Development, 69*, 7-10.

Pennsylvania State University Home Page. [On-line]. Available:

*[http://blue.ue.psu.edu/ascsa/career.htm#Jaffe Senior Seminar](http://blue.ue.psu.edu/ascsa/career.htm#Jaffe%20Senior%20Seminar)*

Petitpas, A., Danish, S., McKelvain, R., & Murphy, S. (1992). A career assistance program for elite athletes. *Journal of Counseling & Development, 70*, 383-386.

Phillips, J. C., & Schafer, W. E. (1971). Consequences of participation in interscholastic sport. *Pacific Sociological Review, 14*, 328-338.

Reynolds, M. J. (1981). The effects of sports retirement on the job satisfaction of the former football player. In S. L. Greendorfer & A. Yiannakis (Eds.), *Sociology of sport: Diverse perspectives*. (pp. 127-137). West Point, NY: Leisure Press.

Rothman, A., & Forest, S. A. (1991). The thrill of victory, the agony or retirement. *Business Week, 3216*, 54-58.

Sack, A. L., & Thiel, R. (1979). College football and social mobility: A case study of Notre Dame football players. *Sociology of Education, 52*, 60-66.

Sands, R. (1978). A socio-psychological investigation of the effects of role discontinuity on outstanding high school athletes. *Journal of Sport Behavior, 1*, 174-185.

Schlossberg, N. K. (1981). A model for analyzing human adaptation to transition. *The Counseling Psychologist, 9*, 2-18.

Sinclair, D. A., & Orlick, T. (1993). Positive transitions from high-performance sport. *The Sport Psychologist, 7*, 138-150.

Sinclair, D. A., & Orlick, T. (1994). The effects of transition on high performance sport. In D. Hackfort (Ed.), *Psycho-social issues and interventions in elite sports* (pp. 29-55).

Frankfurt: Lang.



- Smith, M. A., & Leigh, B. (1997). Virtual subjects: Using the Internet as an alternative source of subjects and research environment. *Behavior Research Methods, Instruments, and Computers*, 29, 496-505.
- Smith, R., Smoll, F., Schutz, R., & Ptacek, J. (1995). Development and validation of a multidimensional nature of sport specific psychological skills: The Athletic Coping Skills Inventory. *Journal of Sport and Exercise Psychology*, 17, 379-398.
- Snyder, E. E., & Baber, L. (1979). A profile of former collegiate athletes and non-athletes: Leisure activities, attitudes toward work, and aspects of satisfaction with life. *Journal of Sport Behavior*, 2, 211-219.
- Stevens, D. T., & Lundberg, D. J. (1988). The emergence of the Internet: Enhancing career counseling education and services. *Journal of Career Development*, 24, 195- 208.
- Svoboda, B., & Vanek, M. (1982). Retirement from high level competition. In T. Orlick, J. Partington, & J. Salmela (Eds.), *Mental training: For coaches and athletes* (pp. 166-175). Ottawa: Coaching Association of Canada and Sport in Perspective Inc.
- Taylor, J., & Ogilvie, B. (1998). Career transition among elite athletes: Is there life after sports? In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (pp. 429-444). Mountain View, CA: Mayfield Publishing Company.
- Templer, D. I., & Daus, A. T. (1979). An athlete adjustment prediction scale. *The Journal of Sports Medicine and Physical Fitness*, 19, 413-416.
- Werthner, P., & Orlick, T. (1986). Retirement experiences of successful Olympic athletes. *International Journal of Sport Psychology*, 17, 337-363.