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Prediction of Exercise Behavior Using the Exercise and Self-Esteem Model

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PREDICTION OF EXERCISE BEHAVIOR
USING THE EXERCISE AND SELF-ESTEEM MODEL

BY

GERARD MOREAU

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
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Abstract

The intent of this study was to compare the capability of self-efficacies and self-concept of physical ability to predict weight training and jogging behavior. The study consisted of 295 college students (123 males and 172 females), from the University of Rhode Island. The subjects received a battery of psychological tests consisting of the Physical Self-Perception Profile (PSPP), the Perceived Importance Profile (PIP), the General Self-Worth Scale (GSW), three self-efficacy scales, assessing jogging, weight training, and hard intensive studying, and a survey of recreational activities that recorded the number of sessions per week and number of minutes per session of each recreational activity the subject participated in. Hypotheses were supported in three of four cases in which self-efficacies for a specified exercise behavior developed larger associations with that behavior than with a more general physical self-concept. The only discrepancy occurred in females, where self-efficacy for jogging failed to achieve a significantly greater association with jogging behavior than perceived physical condition. This research shows that through the Exercise and Self-Esteem Model (EXSEM) one's efficacy is inclined to be a better predictor of exercise behavior than more general self-perceptions.

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Chapter 1

Introduction

Self-esteem is seen as a person's evaluation of oneself. These perceptions are formed through one's experience with one's environment and are influenced especially by environmental reinforcements and significant others (Shavelson, Hubner, & Stanton, 1976). Research shows that exercise improves self-concept, mood, and work behavior (Folkins, Lynch & Gardner, 1972; Ismail & Trechtman, 1973; Folkins, 1976; Greist, Klein, Eischens, Faris, Gurman & Morgan, 1979; Morgan, 1976, 1979, 1981). Self-esteem has been described as the variable that's most likely to reflect psychological benefit from regular exercise (Folkins & Sime, 1981). The Exercise and Self-Esteem model developed by Sonstroem and Morgan (1989) (Figure 2) is "based on contemporary theory, proposing that self concept is best studied as a collection of self-perceptions organized on hierarchical levels of specificity/generality" (Sonstroem, Harlow, & Josephs, 1994, p. 29). The model was developed to

trace the manner in which physical exercise influences self-esteem. The Exercise and Self-Esteem Model comprises several levels. The highest and most general level of the model is global self-esteem. Below self-esteem come physical competence and physical acceptance hypothesized to be components of global self-esteem. Of the two, physical competence appears to be the most directly related to increases in physical fitness (Sonstroem & Morgan, 1989). Self-efficacy represents the lowest psychological level in the model. It assesses the most minute and most specific cognition's associated with exercise performance. A self-efficacy is the expectancy that one can perform a particular task associated with the exercise program. The Exercise and Self-Esteem model was modified in 1993 by Sonstroem, Harlow and Josephs to expand the physical competence domain to include a level of physical self-worth with its' four subdomains as developed by Fox and Corbin (1989).

The Physical Self-Perception Profile (PSPP) (Fox & Corbin, 1989) is designed to measure physical self-worth and its' subdomains of perceived sports competence (SPORT), body attractiveness (BODY), physical strength (STREN), and physical condition (COND). It is believed that "the PSPP offers potential for developing insight into the mechanisms and antecedents of self-esteem change through physical activity experiences" (Fox & Corbin, 1989, p. 411). The expanded Exercise and Self-Esteem Model is labeled EXSEM. The theory of the Exercise and Self-Esteem Model is that more specific self-perceptions (e.g., self-efficacies) will be better predictors of specific behavior than will more general self-perceptions such as condition (COND) or strength

(STREN). Also, physical self-perceptions (e.g., COND and STREN) will be better associated with a broader range of physical activity than will specific self-efficacies.

This study tests the Exercise and Self-Esteem Model by testing whether self-efficacies for jogging (EFJOG) and weight lifting (EFWL) will be more highly related to participation in jogging and weight lifting as compared to the general global self-perceptions of condition (COND) and strength (STREN).

Statement of the Problem

This project compared the ability of general perceived physical competencies to that of specific physical self-efficacies in predicting exercise behavior. Exercise behavior consisted of self-reports of endurance and resistance training. Subjects included 295 college students consisting of 123 male and 172 female. Approximately half the subjects came from a previous master's thesis research (Palminteri 1993). These data were collected in the spring of 1993. The remaining data were collected by the present author in the fall of 1994. The subjects read a Letter of Participation before they completed the paper and pencil tests. The tests were immediately completed and returned for analysis.

The inventories consisted of the Physical Self-Perception Profile (PSPP) (Fox, 1990) which assesses general Physical Self-Worth (PSW), and four more specific self-subdomains: perceived sport competence (SPORT), perceived physical condition (COND), perceived attractive body (BODY), and perceived physical strength (STREN). These four scales are more general in nature than self-efficacies and represent a mediator between self-efficacies and global self-esteem (Sonstroem & Morgan, 1989). The Perceived Importance Profile (PIP) asked the subjects how important the PSPP scales were to them. Self-efficacy scales were completed for jogging (such as the distance that one can run), weight lifting (the amount of weight that one can lift overhead) and for hard intensive studying (how many hours one can study per week). Subjects also reported both the frequency of exercise and the time spent exercising (type and time of exercise per day, per week). Additional tests administered were the General Self-Worth scale assessing global self-esteem (GSW) (Messer & Harter, 1986) and the Balanced Inventory of Desirable Responding (BIDR) (Paulhus, 1991) assessing social desirability.

Specific Hypotheses

The following hypotheses were tested:

- 1- Self-efficacy for jogging (EFJOG) will be a more accurate predictor of jogging behavior than will perceptions of physical condition (COND).
- 2- Self-efficacy for weight training (EFWL) will be a more accurate predictor of weight training behavior than will perceptions of physical strength (STREN).

Justification and Significance

People's ability to see themselves performing an activity, as well as their perception of doing that activity well, are strong indications that the activity will be accomplished. Research has indicated that self-esteem and self-concept are related to personal achievement in areas, such as academic, reading, participation in class, possession of social skills and leadership status (Shavelson, Hubner & Stanton, 1976; Coopersmith, 1967; Rosenberg, 1965). Behavior can be influenced positively or negatively by the way people think of themselves. People have different roles in their lives and may perceive themselves differently in each of those roles (e.g., as partner, employee, student, or athlete). Although, many components influence self-esteem, one

component is physical self-esteem (how people perceive themselves physically). Incorporated into one's general physical self-esteem are perceptions of sport competency, physical condition, body attractiveness and physical strength (Fox 1990). This study used the Physical Self Perception Profile (PSPP) (Fox 1990) to assess one general and four specific physical competencies. The hierarchical model of Shavelson, et al (1976) posits, that the most specific self-perceptions, located lowest in the hierarchy, will develop the largest associations with external variables which are congruent. The Sonstroem and Morgan (1989) model contains self-efficacies as the most precise or specific level of self-perception. Therefore, self-efficacies are hypothesized as being more closely related to a person's actual behavior than are perceived physical competencies.

Current research in psychology has established that self-efficacies are powerful predictors of behavior (Bandura, 1982). Self-efficacy has been shown to be an important gauge of existing and future exercise behavior with self-efficacy being highly related to a persons intention to exercise (Sonstroem & Morgan, 1989; Sonstroem, Harlow, & Salisbury, 1993; Maddux, 1993). Therefore, it is predicted that physical self-efficacies will develop larger Pearson r correlation coefficients with self-reports of physical activity than will perceived physical competencies.

Definition of Terms

Physical Self-Concept: An organized formation of perceptions of the physical self as relating to perceptions of physical self-worth, sport competency, physical condition, body attractiveness and physical strength.

Physical Self-Efficacy: The degree to which one believes himself/herself presently capable of performing a specific physical behavior incorporated within the training protocol of an exercise (Sonstroem & Morgan, 1989). In the Exercise and Self-Esteem Model, self-efficacies represent the lowest, most specific, level of competence. In the present study self-efficacies for jogging, weight training and hard intensive studying were employed.

Competence: To feel capable to master and experience control over one's self and the environment (Sonstroem & Morgan, 1989).

Perceived Physical Competence: It refers to a general evaluation of the self as possessing overall physical ability.

Chapter 2

Review of Literature

This review section is divided into five areas. The first discusses self-esteem and how it relates to exercise. The second discusses the Physical Self-Perception Profile as a measure of the physical self-concept. The third area will review the Perceived Importance Profile. The Forth will review self-efficacy and its importance in predicting exercise behavior. The last section will discuss the Exercise and Self-Esteem Model and how all of the above elements fit together into the model.

Self-Esteem

Exercise produces many benefits; one of the benefits is thought to be mental health. Self-esteem is often regarded as the variable most likely to manifest the psychological benefits of exercise (Folkins & Sime, 1981). Self-esteem is a significant life adjustment variable that is affected by exercise

(Sonstroem, 1984). Self-concept and self-esteem, throughout the literature, are frequently used interchangeably. Self-concept is the mental image or description one has of one's self. Self-esteem is the confidence and satisfaction one has in one's self. It is the evaluative element of self-concept, an evaluation of one's self. The major elements that constitute self-concept are social identities (i.e. social status, group memberships, salient characteristics, and labels); personal dispositions (i.e. preferences, abilities, and self-perceptions of traits); physical characteristics (self-perceptions of weight, height, strength and attractiveness) (Rosenberg, 1979). Other factors in forming self-concepts are achievement, feelings of competence, dominant behavior patterns, role playing, and social comparisons.

Researchers, in the past, have treated self-esteem as a single construct, global self-esteem. However, recent research shows that self-esteem consists of many parts, a multidimensional construct. People have different roles in their lives and perceive themselves differently in each of those roles, e.g., partner, employee, student, or athlete. A person may perceive himself as a good student, but a very poor squash player. These perceptions of the self are formed through life's experiences. All of the many and varied experiences an individual has throughout life are the basis for the perceptions of the self. Shavelson, et al. (1976) explain that these experiences are varied and complex, therefore a person categorizes them into simpler forms. Self-concept is multifaceted and is seen as hierarchical. According to Shavelson and colleagues, general self-concept is broken down into two subdomains; academic

self-concept and nonacademic self-concept. The nonacademic self-concept is subdivided into several areas of social, emotional, and physical self-concept.

Exercise can produce psychological benefits, such as positive feelings of well-being, a positive increase in self-confidence and mood states, and a reduction of depression and anxiety (Folkins, Lynch & Gardner, 1972; Ismail & Trechtman, 1973; Folkins, 1976; Greist, Klein, Eischens, Faris, Gurman & Morgan, 1979; Morgan, 1976, 1979, 1981). These benefits are associated with self-esteem as well as exercise and therefore it is often concluded that self-esteem and exercise are related. Although, studies have found no direct relationship between global self-esteem and physical fitness, the studies did show a relationship between fitness and perceptions of physical fitness and also a relationship between global self-esteem and the perceptions of physical fitness. These relationships would suggest that one's perceptions of physical fitness are associated with both global self-esteem and fitness (Sonstroem, 1984).

Past self-esteem research has had many deficiencies which include incomplete and vague reports, inadequate scales to measure self-esteem, lack of appropriate control groups, results being overgeneralized without respect for the limitations of the hypotheses, and incorrect statistical analyses. Sonstroem (1984) reviewed 16 studies professing to affect self-esteem from exercise. He concluded that exercise does affect self-esteem but it is not known why, how or in what manner self-esteem is affected.

The Physical Self-Perception Profile (PSPP)

Self-esteem plays an important role in explaining human behavior. Self-esteem is accepted as an index of mental health and a mediator of behavior. Self-esteem, in the past, has been viewed as a unidimensional construct. But, self-esteem is more complex and is now seen as multidimensional. As stated before, one of the subdomains of general self-concept is the physical self-concept. The way people feel about themselves physically, their physical self-esteem, will be directly related to their global self-esteem

Fox and Corbin developed the Physical Self-Perception Profile (PSPP) based on "the contention that theory-grounded instrumentation of this nature would allow simultaneous measurement of several different facets of the physical self" (Fox & Corbin, 1989, p. 441). They believed that this would provide insightful mechanisms for understanding how exercise affects self esteem.

Figure 1. Hypothesized hierarchical organization of self-perceptions from Fox & Corbin, 1989, P. 414.

The PSPP consists of 30 open-ended questions. The inventory is divided into five, six item subscales, designed to measure the following perceptions; sports competence (SPORT), body attractiveness (BODY), physical strength (STREN), physical conditioning (COND) and physical self-worth (PSW). Sport competence deals with "perceptions of sport and athletic ability, ability to learn sport skills, and confidence in the sports environment" (Fox, 1990, P. 5). Body attractiveness is the "perceived attractiveness of figure, of physique, ability to maintain an attractive body and confidence in appearance" (Fox, 1990, p. 5). Physical condition is related to the "perceptions of level of physical condition, stamina and fitness, ability to maintain exercise, and confidence in the exercise and fitness setting" (Fox, 1990, P. 5). Physical strength deals with "perceived strength, muscle development, and confidence in situations requiring strength" (Fox, 1990 p. 6). Finally, physical self-worth is seen by Fox as the "general feelings of happiness, satisfaction, pride, respect, and confidence in the physical self" (Fox, 1990, p. 6). This inventory has an alternative item format response format so as to avoid socially desirable responses.

Researchers in the past had trouble studying physical self-perceptions because there was lack of a good instrument. Fox and Corbin have made an important advancement to the study of physical self-perceptions. Their objective was to create an instrument that reflected current ideas of self-esteem research. The authors believe they have developed a multidimensional

representation of one's self-perception within the physical domain of self-esteem.

The Physical Self-Perception Profile was developed through four phases. Subjects totaled 1,191 men and women from a midwestern university. The mean age of the subjects was 19.7 years. The data came from subjects enrolled in general education courses, which included students from all majors. Phase 1 identified the subdomains of the physical self. Fox and Corbin used open-ended questions to be able to gain a greater understanding of the physical self-perceptions. "The subjects were asked to list in order of importance the reasons why a person feels good about his/her physical self" (Fox & Corbin, 1989 p.412). Based on the results of the questionnaire, four subdomains were selected. The initial subdomains were; perceived body attractiveness, sport competence, physical strength, and fitness and exercise. Phase 2 was the construction of the instrument. Based on the results of phase 1, an inventory was created for each of the four subdomains. Phase 3 determined the instrument reliability and factorial validity. Students were given the PSPP, a self-report activity survey, and the Rosenberg Global Self-Esteem Scale (Rosenberg, 1965). The result of this phase was a change to the initial subdomains. The fitness and exercise subdomain was changed to Physical Conditioning. Phase 4 was designed to test the profile structure and the relationships of subscales to global self-esteem and physical activity behavior. "The correlation and regression results support the validity of the Physical Self-Worth measure as a generalized outcome of the evaluations in several physical

subdomains. In addition, the relationships between the four subdomains, the PSW, and global self-esteem are consistent with the hypothesized three-tier hierarchical self-esteem structure" (Fox and Corbin, 1989, p. 425).

The Physical Self-Perception Profile was tested rigorously with college age subjects. The subscales have been shown to be stable over a 3-week period. They have also shown acceptable internal consistency and have not been susceptible to socially desirable responses (Fox & Corbin, 1989). "The Physical Self-Worth subscale appears to function as intended as a generalized outcome of perceptions the four subdomains of physical self." (Fox and Corbin, 1989, p. 426).

Perceived Importance Profile (PIP)

Fox (1990) developed another scale, the Perceived Importance Profile (PIP), to report the importance of each of the PSPP subdomains. He suggests that PIP scores can be combined with PSPP scores to predict Physical Self-Worth (PSW). Researchers have proposed that self-esteem can be better predicted by combining its' elements with the importance of the elements to the prediction (Coopersmith, 1967; Rosenberg, 1965). Research by Marsh (1994) has failed to reach this conclusion, however, other research has showed that by using importance scores the prediction of exercise behavior can be improved (Marsh and Sonstroem, 1995). They showed that with the addition of importance scales ratings, predictions of exercise was significantly improved.

"The perceived importance of self-perceptions of body fat, physical endurance, and physical activity may be useful in predicting individuals who will persist with physical activity programs designed to reduce body fat or to increase physical fitness" (Marsh and Sonstroem, 1995, p. 101). The results of their research show the usefulness of importance ratings as additional predictors of exercise behavior.

Self-Efficacy

"A social psychological construct that clearly has an important role in the motivation to be involved in health pursuits and to be physically active is self-efficacy" (Poag-DuCharme & Brawley, 1993, p. 178). According to Bandura (1977) self-efficacy is the confidence that one has to perform an activity. "The stronger the perceived self-efficacy, the more active the efforts" (Bandura, 1977, p. 194). "Perceived self-efficacy refers to the level and strength of a belief that one can successfully perform a given activity" (Sonstroem and Morgan, 1989, p. 332). Past research shows that self-efficacy is a powerful force on behavior. Self-efficacy not only influences behavior but is influenced by the results of the behavior. Studies have shown that perceived self-efficacy has predicted such health behaviors as weight loss, smoking cessation, exercise behavior in cardiac patients and the general adult population (Weinberg, Hughes, Critelli, England, & Jackson, 1984; Prochaska, Crimi, Lapsandki, Martel & Reid, 1982; Ewart, Taylor, Reese, & de Busk, 1983; Dishman, Sallis, & Orenstein, 1985).

The body of research suggests that self-efficacy can predict exercise intent and exercise behavior. Dziewaltowski (1989) reported that people who were confident they would continue exercising, despite having more barriers, exercised more days per week than those who were less confident. "An individual's perceived control as reflected by self-efficacy should be considered a consistent and fundamental component for the prediction of exercise behavior" (Poag-DuCharme & Brawley, 1993, p. 180). Self-efficacy is highly predictive of behavior when the target behavior is important to the individual. Poag and McAuley (1992) showed that regular attendance in exercise class may not be related to strong efficacies, but maintaining a high level of intensity during those classes is related to efficacies. When exercise behavior becomes part of a regular routine, participation in the activity is less difficult to maintain and the role of self-efficacies are needed less. "Cognitive control systems play their most important role in the acquisition of behavioral regimens. As behaviors become less demanding, cognitive control systems such as self-efficacy give way to regulation by lower control systems" (Poag and McAuley, 1992, p. 357). Bandura (1990) explains that self-efficacy beliefs consist of an intricate process of self-persuasion, a process that relies on cognitive processing from different sources.

The Exercise and Self-Esteem Model

In 1989, Sonstroem and Morgan developed the Exercise and Self-Esteem Model (Figure 2). They believed that self-efficacies for a specific activity can be generalized through physical competencies to a broader evaluation of global self-esteem. The Model attempts to understand how self-esteem is influenced by exercise. People have a better feeling of well-being after vigorous exercise. "Self-esteem has been identified as the variable with the greatest potential to reflect psychological benefit gained from regular exercise" (Sonstroem and Morgan, 1989, p. 329).

The Exercise and Self-Esteem Model is arranged vertically, with global self-esteem being the highest and most general construct. "Lower level elements are conceived as components of higher level elements, and changes in these lower level elements are postulated as being instrumental to changes in higher order self-conceptions" (Sonstroem and Morgan, 1989, p. 332). The Model includes a horizontal dimension of time. There are two or more points of time within the Model which represent initial and post-intervention testing. Data would provide the objectivity needed in tracing the feelings of competence which are postulated as generalizing along a continuum of specificity / generality proceeding from the most specific to the most general.

Self-efficacy represents the lowest psychological level in the model. Self-efficacy is the level of confidence one has in completing a specific task. Research has shown that self-efficacies are highly predictive of exercise behavior and are largely related to physical competencies. Self-efficacy scales

must be specific to the actual activity. For example, in weight lifting, the self-efficacy scale must list weight lifting activity of the same nature. The scale could include lifting weight (e.g. over ones' head, bench press or leg press) from 20 pounds to 160 pounds. Subjects predict their own confidence (from 0% to 100%) at each level for this activity. The self-efficacy score is represented by the mean of the confidence for that task, e.g. weight lifting.

Physical competence and physical acceptance are represented in the next level in the model. Physical competence is the general evaluation of the physically capable self. Recently, the Self-Esteem and Exercise Model has been modified to include a level of physical self-worth with its' four subdomains as developed by Fox and Corbin (1989) (Sonstroem, Harlow, & Josephs, 1994) (Figure 3). This Model now separates the perceived physical competence into two levels as evaluated by the Physical Self-Perception Profile (PSPP) (Fox & Corbin, 1989). The PSPP measures a general physical self-worth and it's four subdomains of perceived sport competence (SPORT), body attractiveness (BODY), physical strength (STREN), and physical condition (COND). It is believed that "the PSPP offers potential for developing insight into the mechanisms and antecedents of self-esteem change through physical activity experiences" (Fox & Corbin, 1989, p. 411).

Finally, at the peak of the Exercise and Self-Esteem Model is global self-esteem. Global self-concept should be content free, to be separate from any specific situation (Sonstroem and Morgan, 1989). This study using the General Self-Worth Scale, developed by Messer and Harter (1986).

EXSEM Associations with Physical Activity

Validity for the Model has been developed by external relationships. These criteria have been limited to self-reports of exercise behavior. Fox and Corbin (1989) were able to classify 180 male and 175 female college students into two groups, exercisers and non-exercisers. They identified 70.4% of the males and 70.7% of the females by means of PSPP scores. Sonstroem, Speliotis, and Fava (1992) also classified 111 males and 149 females into exercise and non-exercise groups. Sonstroem et al, correctly predicted 80.2% of the males and 88.6% of the females as either exercisers or non-exercisers by means of the PSPP scales. These studies show that PSPP scales are able to predict exercise behavior. Sonstroem, Harlow, and Josephs (1994) were the first to study the prediction of exercise behavior with the entire EXSEM model. The authors noted that the subdomains and not the self-efficacies, developed a larger associations with exercise. This may have been due to an admitted difficulty of writing a self-efficacy that would tap the skill aspects of aerobic dancing. In a previous M.S. thesis research, the results show that appropriate self-efficacies were able to develop slightly larger associations with exercise behavior than did physical self-concepts as measured by the PSPP (Palminteri, 1993).

Figure 2. Exercise and Self-Esteem Model
by Sonstroem & Morgan, 1989, p.333

Figure 3. The revised Exercise and Self-Esteem Model
by Sonstroem, Harlow, & Josephs, 1994, p. 38.

Chapter 3

Methods

This chapter is divided into four sections. The first section describes the selection of subjects. The second section discusses the research design. The third section explains the instruments used in the study. The final section consists of the statistical analyses.

Selection of Subjects

The subjects in this study were 295 male and female college students from the University of Rhode Island. There were 123 male subjects and 172 female subjects. The subjects came from different departments of the university and from classes such as HLT 123 Foundations of Health, HSS 320 Human Science and Services, and PSY 113 General Psychology. Approximately half the subjects came from a previous M.S. thesis research (Palminteri, 1993).

These data were collected in the spring of 1993. The remaining data were collected by the present author in the fall of 1994. All the subjects were volunteers and agreed to answer anonymously several paper and pencil tests "to help me with my research regarding how they feel about themselves physically". The subjects completed the tests after reading the Letter of Participation. The Letter of Participation (Appendix A) states that by agreeing to complete the inventory, the subject has given his/her permission, regarding the participation and need not sign an informed consent. Therefore, it becomes impossible to link data with any particular subject. The inventories took approximately 25 minutes to complete.

Research Design

The subjects were each given a package that contained the following: the first page was the Letter of Participation, which was read and the subjects had an opportunity to ask questions. The paper and pencil test contained the following inventories: the Physical Self-Perception Profile (PSPP) and Perceived Importance Profile (PIP) (Fox, 1990); the General Self-Worth Scale assessing global self-esteem from the Adult Self-Perception Profile (Messer & Harter, 1986); the forty items of the Balanced Inventory of Desirable Responding (BIDR) (Paulhus, 1991); three scales for self-efficacies of jogging, weight lifting and hard intensive studying; and an exercise participation survey that assessed the frequency and duration of the subjects recreational activities (i.e. bicycling,

jogging, weight training, ice hockey, recreational walking, etc.). Self-efficacy for studying was employed as a measure of discriminate validity. It was proposed as being unrelated to all study variables with the probable exception of general self-worth. The subjects were asked to complete the test with careful thought, to be honest with their answers and to remember that there were no right or wrong answers. All students completed the inventories in approximately 30 minutes. Students who participated in this study, have not, and can not be identified in any way. All the answers were recorded on an IBM general purpose answer sheet with the exception of the self-efficacies report and the recreational activities questionnaire which were coded with an identifying number matched to an IBM answer sheet. These were scored later by the author and entered in the subject's computerized data.

Instruments Employed

Physical Self Perception Profile (PSPP). This profile was developed by Fox (1990) to assess components of the physical self-concept. They developed scales assessing general physical self-worth (PSW) and four, more specific subdomains of perceived: Sport Competence (SPORT), Physical Condition (COND), Attractive body (BODY) and Physical Strength (STREN).

This scale is structured in an alternative-response format with four choices. This format is used to minimize socially desirable responses (Harter, 1985). Fox and Corbin (1989) have shown initial validity and reliability of the

PSPP as an inventory in measuring specific physical self-perceptions for college-age adults.

The PSPP first asks the subject "which kind of person best describes you" and then asks "to what degree are you like that". There is a 4-point response ranging from 1 to 4. PSPP scales have been shown to develop means close to the midpoint of this range and have demonstrated excellent variability. The coefficients for the test-retest reliability range from 0.74 to 0.92 for a 16 day period and from 0.81 to 0.88 for a 23 day period (Fox 1990). Coefficient alphas for PSPP have been high for males and females on all sub-scales, ranging from 0.81 to 0.92. Internally reliability for these responses show that this inventory is stable for over a two to three period.

This inventory consists of five, six item, sub-scales, for a total of 30 questions. The questionnaire alternates items in consecutive fashion, in the order of sport competence, physical condition, body attractiveness, physical strength physical self-worth, and back to sport competence. The PSPP is represented by questions 1 - 30 (Appendix B).

Perceived Importance Profile (PIP). This inventory developed by Fox (1990), asks subjects to report the importance of each of the PSPP subdomains. Fox (1990) suggests that PIP scores can be combined with PSPP scores to predict Physical Self-Worth (PSW). Researchers have proposed that self-esteem can be better predicted by combining its elements with the importance of elements to the prediction (Coopersmith, 1967; Rosenberg,

1965). Marsh (1994) failed to reach this conclusion, however, Marsh and Sonstroem (1995) did show evidence that by using importance scores the prediction of exercise behavior can be improved. The PIP is represented by questions 36 - 43 (Appendix C).

General Self-Worth Scale (GSW). Developed by Messer and Harter (1986), this scale is taken from the Adult Self-Perception Profile. The GSW measures one's global perception of self-worth. This scale is general and is independent of any domain of ability or competence. The GSW assesses how the subjects are leading their life, the kind of person they are and how happy they are with themselves. This scale has been found to be valid and is a valuable diagnostic and research utility (Messer & Harter, 1986). The GSW scale is represented by questions 44 to 49 (Appendix D).

Balanced Inventory of Desirable Responding (BIDR). This inventory by Paulhus (1991), measures two constructs: Self deceptive enhancement and impression management. Self deceptive enhancement refers to the subject's tendency to give reports that are honest but positively biased and exaggerated. The impression management construct measures the tendency to distort consciously the image given to others. Each scale is composed of twenty items stated as propositions. The subjects indicate their agreement on a five-point scale. This inventory has been shown to be highly reliable, with a coefficient alpha of 0.83 and test-retest correlation of 0.67 over a five week period

(Paulhus, 1991). The questions for self-deceptive enhancement are 50 - 69 and for impression management are 70 - 89 (Appendix E).

Self-Efficacy Scales. This study employed three self-efficacy scales. They were self-efficacies of jogging (EFJOG), weight lifting (EFWL) and hard intensive studying (EFSTUD). The subjects were asked how confident they were at performing different levels of the activity. The answers ranged from 0% "I cannot do this level of activity" to 100% "I definitively can do this level of activity". The self-efficacy for jogging included 11 levels, with statements ranging from "jog 200 yards without stopping" to "jog 8 miles without stopping". The self-efficacy for weight lifting had 9 levels, with statements ranging from "lift 20 pounds over my head 6 times" to "lift more than 160 pounds over my head 6 times". The last self-efficacy, self-efficacy for hard, intensive studying, included 7 levels, with statements ranging from "study 2 hours per week" to "study more than 21 hours per week". For purposes of discriminant validity, a self-efficacy scale for studying was also included. Scoring self-efficacies are done by summing the confidences and dividing by the number of levels for that particular self-efficacy. The format for the self-efficacy was suggested by Bandura & Adams (1977). (Appendix F).

Exercise Participation Survey. This study developed survey asked the subjects to reveal their customary exercise activities including recreational activities. The report included the type of exercise performed, frequency of the

activity per week, and amount of time spent participating in each exercise per session.

The scale included the following activities: bicycling, ice hockey, basketball, recreational walking, aerobic dance, weight training, slimnastics, calisthenics, jogging, and skiing. There was also space available for the subjects to include any other activity that they may also participated in.

This report was scored for frequency (times per week) and duration (times per session in minutes). Scores were calculated for both frequency and duration for the following: jogging, aerobic activity (bicycling, basketball, walking, aerobic dance, slimnastics and jogging), weight lifting and resistance training (weight lifting and calisthenics). Individual frequency scores were multiplied by individual duration scores to provide a best indicator of overall involvement in each of the categories of jogging, aerobics, weight training, and resistive exercises. (Appendix G).

Statistical Analysis

All the answers for the Physical Self-perception Profile, the General Self-Worth Scale and the Balanced Inventory of Desirable Responding were recorded on IBM general purpose answer sheets. The computer answer sheets were then scanned at the University of Rhode Island's main frame computer by the data entry center. The self-efficacy and recreational activities surveys were scored manually and then entered into the same data file as the other scores.

The statistical analyses were done using the Statistical Package for the Social Sciences (SPSS). Analyses were done for both male and female subjects, separately. The analyses included calculations for means, standard deviations, ranges, and Pearson r 's for all of the variables. Hierarchical multiple regression analyses were used to test the capability of the EXSEM to predict physical activity behavior.

Chapter 4

Results

There are five sections in this chapter. The first section is the descriptive statistics. The second section tests the hypotheses. The third section is the discussion. The fourth section discusses the practical applications. The last section discusses implications for future research.

Descriptive Statistics

Means. This study included 295 college students from different disciplines at the University of Rhode Island. Tables 1 and 2 present the descriptive data for important study variables for both males (Table 1) and females (Table 2). The Physical Self-Perception Profile scales (PSW, COND, SPORT, BODY, and STREN) have an item range of 1.0 to 4.0. The median for this range is 2.5. The means for the males were all above this median with an average mean of 2.87. The standard deviations for PSPP scales ranged from .56 to .68. The mean for the female subjects was distributed close to 2.5 with a mean of 2.49. The standard deviations for the females ranged from .66 to .73. All PSPP distributions for males and females, approached normality.

Table 1

Descriptive Statistics and Internal Consistency Values for Males (N = 123)

Variable	Mean	Standard Deviation	Minimum	Maximum	Cronbach Alpha
GSW	2.95	0.69	1.00	4.00	.87
PSW	3.14	0.68	1.00	4.00	.79
SPORT	3.02	0.56	1.66	4.00	.77
COND	2.95	0.62	1.50	4.00	.81
BODY	2.60	0.62	1.16	4.00	.79
STREN	2.68	0.63	1.16	4.00	.84
EFJ	74.42	18.97	16.40	100.00	
EFWL	72.90	20.77	1.10	100.00	
EF STUDY	54.39	25.36	0.00	100.00	
SDE	1.16	1.87	0.00	9.00	.64
IM	3.53	3.66	0.00	15.00	.64
JOG F	1.56	1.94	0.00	7.00	
JOG	57.18	92.30	0.00	420.00	
WT F	2.91	2.08	0.00	7.00	
WEIGHT	228.29	216.78	0.00	900.00	

Note:

GSW - Global Self Worth, **PSW** - Physical Self-Worth,
SPORT - Perceived Sport Competence, **COND** - Perceived Physical Condition,
BODY - Perceived Attractive Body, **STREN** - Perceived Physical Strength,
EFJ - Self-Efficacy for Jogging, **EFWL** - Self-Efficacy for Weight Lifting,
EF STUD - Self-Efficacy for Studying, **SDE** - Self-Deceptive Enhancement,
IM - Impression Management, **JOG F** - Jogging Frequency,
JOG - Jogging Frequency x Jogging Duration, **WT F** - Weight Lifting Frequency,
WEIGHT - Weight Lifting Frequency x Weight Lifting Duration

Table 2

Descriptive Statistics and Internal Consistency Values for Females (N = 172)

Variables	Mean	Standard Deviation	Minimum	Maximum	Cronbach Alpha
GSW	3.03	0.65	1.00	4.00	.87
PSW	2.49	0.66	1.16	4.00	.86
SPORT	2.40	0.73	1.00	4.00	.89
COND	2.67	0.72	1.00	4.00	.87
BODY	2.34	0.73	1.00	4.00	.88
STREN	2.57	0.66	1.00	4.00	.87
EFJ	57.44	27.04	0.00	100.00	
EFWL	32.58	18.59	0.00	100.00	
EF STUDY	62.80	23.81	0.00	100.00	
SDE	1.07	1.66	0.00	10.00	.65
IM	3.13	3.32	0.00	14.00	.72
JOG F	1.34	1.90	0.00	7.00	
JOG	46.11	85.70	0.00	540.00	
WT F	1.22	1.77	0.00	8.00	
WEIGHT	52.11	101.00	0.00	960.00	

Note:

GSW - Global Self Worth, **PSW** - Physical Self-Worth,
SPORT - Perceived Sport Competence, **COND** - Perceived Physical Condition,
BODY - Perceived Attractive Body, **STREN** - Perceived Physical Strength,
EFJ - Self-Efficacy for Jogging, **EFWL** - Self-Efficacy for Weight Lifting,
EF STUD - Self-Efficacy for Studying, **SDE** - Self-Deceptive Enhancement,
IM - Impression Management, **JOG F** - Jogging Frequency,
JOG - Jogging Frequency x Jogging Duration, **WT F** - Weight Lifting Frequency,
WEIGHT - Weight Lifting Frequency x Weight Lifting Duration

PSPP scores tended to lie at the midpoint (2.5) or greater on the scale. This mid-range level shows a positive scale characteristic that allows for change in subsequent scores. Reliability scores were acceptable for both males and females. PSPP reliability's for males ranged from a low of .77 to a high of .84. They were improved for females ranging from .86 to .89.

Of those men that did jog ($N=58$), their mean jogging frequency (JogF) was 3.31. This indicates that most of those men who did jog, were able to meet cardiorespiratory fitness frequency requirements (3 to 5 days per week) as established by the American College of Sports Medicine (ACSM) (1990). The weight lifting frequency (WTF) mean for males was 2.91. There were 34 men who did not weight lift at all. Those males who did weight lift ($N=89$), trained an average of four days per week. This greatly exceeds the minimum requirement (2 days per week) for resistance training frequency according to ACSM (1990). It was decided to use jogging frequency and weight training frequency instead of jog and weight because previous research indicates these scales tend to be more objective.

Of those females that jogged ($N=73$), jogging frequency mean was 3.16. These women did meet the ACSM (1990) frequency requirement for cardiorespiratory fitness in healthy adults. Most of the women did not weight train ($N=105$). Those who did weight train ($N=67$), did so 3 days per week. These subjects did meet the resistance training requirement by ACSM (1990).

Variable relationships. Table 3 presents Pearson r coefficients for males. In general PSPP scales were not highly related to jogging self-reports and were

moderately related to weight training activities. Jogging frequency (Jog F) and Jog has a larger relationship between self-efficacy for jogging (EFJ), .461 and .368 respectively, than did perceived physical condition (COND), .154 and .153. Furthermore, weight training frequency (WT F) and weight also has a larger relationship between self-efficacy for weight lifting (EFWL), .558 and .487 respectively, than did perceived physical strength (STREN), .415, and .426. Table 3 indicates that PSPP scales were very poorly related to jogging self-reports and were moderately related to weight training activities. Surprisingly, male subjects seem to associate perceived physical condition (COND) rather than perceived physical strength (STREN) with weight training.

Table 3

Correlation's of Study Variables for Males (N = 123)

Variable	Jog F	Jog	WT F	Weight	EFJ	EFWL	EF Stud
PSW	.048	.053	.364**	.333**	.228*	.240**	.092
SPORT	.048	.085	.235**	.247**	.201*	.225*	.032
COND	.154	.153	.492**	.465**	.280**	.352**	.055
BODY	.032	.001	.256**	.289**	.235**	.213*	.123
STREN	-.038	-.066	.415**	.426**	.050	.361**	.012
EFJ	.461**	.368**	.167	.104	----	.238**	.116
EFWL	.186*	.211*	.558**	.487**	.238**	----	.052
EF Stud	.010	-.032	-.001	.008	.116	.052	----

* < .05 ** < .01

Note:

see bottom of Table 4 for variable explanations.

Correlation's of Study Variables for Females (N= 172)

* < .05 ** < .01

PSW - Physical Self-Worth, **SPORT** - Perceived Sport Competence,
COND - Perceived Physical Condition, **BODY** - Perceived Attractive Body,
STREN - Perceived Physical Strength, **EFJ** - Self-Efficacy for Jogging,
EFWL - Self-Efficacy for Weight Lifting, **EF STUD** - Self-Efficacy for Studying,
JOG F - Jogging Frequency, **JOG** - Jogging Frequency x Jogging Duration,
WT F - Weight Lifting Frequency, **WEIGHT** - Weight Lifting Frequency x
 Weight Lifting Duration

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and PSPP variables. This was not the case for the relationship between EFJ and the subdomains, which was quite large for the females.

Tests of Hypotheses

The hypotheses presented in this study were tested by using t-ratio which tests the significance of differences between Pearson r's. The t-ratio formula is below.

$$t = \frac{(r_{12} - r_{13})\sqrt{(N-3)(1+r_{23})}}{\sqrt{2(1-r_{12}^2-r_{13}^2-r_{23}^2)+2(r_{12}*r_{13}*r_{23})}}$$

Where as, in Hypothesis 1

$$\begin{aligned} r_{12} &= r \rightarrow EFJ + JogF \\ r_{13} &= r \rightarrow COND + JogF \\ r_{23} &= r \rightarrow EFJ + COND \end{aligned}$$

Where as, in Hypothesis 2

$$\begin{aligned} r_{12} &= r \rightarrow EFWL + WTF \\ r_{13} &= r \rightarrow STREN + WTF \\ r_{23} &= r \rightarrow EFWL + STREN \end{aligned}$$

The t-ratio value was tested for significance by referencing to a t-table using degrees of freedom ($N-3$).

Table 5 presents the results of the tested hypotheses.

Hypothesis 1. Self-efficacy for jogging (EFJ) will be a better predictor of jogging behavior than will Perceived Physical Condition (COND).

To test Hypothesis 1 (Table 5), the coefficients of .461 and .154 were compared for males and the coefficients of .474 and .407 were compared for females. The critical t for a one-tailed directional test at the .05 level with 120 degrees of freedom is 1.658. The formula described above was used, and t values of 3.20 ($p < .005$) for the male subjects and 1.30 (n.s.) for the female subjects were obtained. The research hypothesis was supported for the male subjects but not for the female subjects. Therefore, the self-efficacy for jogging is a better predictor for jogging behavior than perceived physical condition for males but not for females.

Table 5

Self-Efficacy and Subdomain Associations with Exercise and Test for Significant Differences

Criterion	Variables	Coefficients	t	p
Behavior				
MALES				
Jog F	EFJ (.461)	COND (.154)	3.20	.005
WT F	EFWL (.558)	STREN (.415)	1.89	.05
FEMALES				
Jog F	EFJ (.474)	COND (.407)	1.30	n.s.
WT F	EFWL (.312)	STREN (.177)	1.71	.05

note: n.s. - non significant

Hypothesis 2. Self-efficacy for weight training (EFWL) will be a better predictor of weight training behavior than will Perceived Physical Strength (STREN).

To test Hypothesis 2 (Table 5), the coefficients of .558 and .415 were compared for males and the coefficients of .312 and .177 were compared for females. The critical t for a one-tailed directional test at the .05 level with 120 degrees of freedom is 1.658. The formula described above was used, and t values of 1.89 ($p < .05$) for the males and 1.71 ($p < .05$) for the females were obtained. The research hypothesis was supported for both males and females. Therefore, the self-efficacy of weight lifting is a better predictor of weight training behavior than perceived strength in both males and females.

Additional Analysis. Hierarchical regression permits the entry of variables or variable sets into the prediction of a criterion in a logical and hypothesized fashion. In this study, self-efficacies as the hypothesized premier predictor of exercise, were entered first, followed by the five PSPP scales as secondary predictors. Recent research (Marsh & Sonstroem, 1995) has established that assessing the perceived importance's of the subdomains can significantly improve the prediction of exercise. Therefore, Perceived Importance Profile (PIP) scores were added as the third set of predictors.

Table 6 indicated that in males the self-efficacies significantly predicted jogging frequency and accounted for 21.9% (i.e. $.219 \times 100$) of reported jogging behavior. EFJ as compared to EFWL developed the larger standardized regression coefficient. PSPP scales and the importance scales failed to significantly improve the prediction of jogging frequency.

With the prediction of weight training in males, all three sets of variables developed significant associations and accumulatively accounted for 48.5% of

weight training variance. Explaining 48.5% of exercise participation is a notable result in terms of exercise participation research. It is interesting that while STREN's predictive contribution was second to that of COND's (standardized coefficient of .223 compared to .378), strength importance developed the largest associations of the four subdomains (standardized coefficient of .251).

Table 7 presents a similar hierarchical analysis for female values. For frequency of jogging and frequency of weight training, both self-efficacies and PSPP subdomains scales made significant contributions. Importance failed to contribute in both cases. As theory would hypothesize, self-efficacy for jogging and physical condition self-concept raise the premier predictors of jogging behavior, and self-efficacy for weight lifting and physical condition self-concept were major contributors to association with weight training. EXSEM was able to account for 29.6% of jogging behavior and 32.5% of weight training participation.

Table 6

Multiple Regression Analysis for Males (N=123)

Dep. Variable	Set	Predictor	Regression Coefficient	p	R ²
Jog F	Self-Efficacies	EFJ	.442		
		EFWL	.186	.000	.219
	PSPP			n.s.	
	IMP's			n.s.	
WT F	Self-Efficacies	EFWL	.558		
		EFJ	.036	.000	.312
	PSPP	SPORT	.112		
		COND	.378		
		BODY	.120		
		STREN	.223		
		PSW	.125	.000	.437
	IMP's	SIMP	-.018		
		CIMP	-.142		
		BIMP	.063		
		STIMP	.251	.041	.485

Note:**PSW** - Physical Self-Worth,**COND** - Perceived Physical Condition,**STREN** - Perceived Physical Strength,**EFWL** - Self-Efficacy for Weight Lifting,**WT F** - Weight Lifting Frequency,**BIMP** - Body Importance,**CIMP** - Condition Importance,**SPORT** - Perceived Sport Competence,**BODY** - Perceived Attractive Body,**EFJ** - Self-Efficacy for Jogging,**JOG F** - Jogging Frequency,**IMP** - Perceived Importance Profile,**SIMP** - Sport Importance,**STIMP** - Strength Importance

p - probability that the particular set fails to make a significant contribution to the prediction, R^2 - cumulative proportion of criterion variance accounted for.

Table 7

Multiple Regression Analysis for Females (N=172)

Dep. Variable	Set	Predictor	Regression Coefficient	p	R ²	
Jog F	Self-Efficacies	EFJ	.541			
		EFWL	.112	.000	.241	
	PSPP	SPORT	.017			
		COND	.253			
		BODY	-.074			
		STREN	.187			
		PSW	-.047	.028	.296	
	IMP's			n.s.		
	WT F	Self-Efficacies	EFWL	.312		
			EFJ	.260	.000	.150
PSPP		SPORT	-.056			
		COND	.539			
		BODY	-.116			
		STREN	.068			
		PSW	-.287	.000	.325	
IMP's			n.s.			

Note:

PSW - Physical Self-Worth,**SPORT** - Perceived Sport Competence,**COND** - Perceived Physical Condition,**BODY** - Perceived Attractive Body,**STREN** - Perceived Physical Strength,**EFJ** - Self-Efficacy for Jogging,**EFWL** - Self-Efficacy for Weight Lifting,**JOG F** - Jogging Frequency,**WT F** - Weight Lifting Frequency,**IMP** - Perceived Importance Profile

p - probability that the particular set fails to make a significant contribution to the prediction, R² - cumulative proportion of criterion variance accounted for.

Discussion

This research provided a degree of support for the Exercise and Self-Esteem Model and for its multidimensional model, labeled EXSEM. Hypotheses were supported in three of four cases in which self-efficacies congruent to a specified behavior developed larger associations with that behavior than a more general physical self-concept. The single discrepant result occurred in females where self-efficacy for jogging failed to achieve a significantly greater association with jogging than perceived physical condition.

In males, self-efficacy for weight lifting was closely related to weight lifting participation ($r = .558$) and developed the large relationships with the PSPP subdomain scales. The EFWL relationships were all higher than the EFJ relationships for the males. It seems logical that, in general, most male college students place a high priority on weight lifting (muscle building, body shaping) as their primary means of exercise. This importance is also reflected in the frequency of weight lifting, the males actually exercised by lifting weights about three times per week. Jogging for the males did show some significance. As hypothesized, self-efficacy for jogging had a significant relationship ($r = .461$) with perceived physical condition.

Quite surprisingly, self-efficacy for jogging in females developed a larger associations with weight training than did self-efficacy for weight training. Additionally, perceived physical condition (COND) in females developed a larger Pearson r (.414) with weight training frequency as compared to STREN

($r = .177$). Moreover, self-efficacy for jogging developed the largest relationship of all the self-efficacies studied with the PSPP subdomain scales. This may have resulted because jogging may be a better correlate of physical fitness than weight lifting in the minds of female subjects. They may also be better aware of their self-efficacy for jogging than for weight lifting. However, as hypothesized, self-efficacy for weight lifting was significantly related to jogging frequency.

For both men and women, self-efficacy for studying produced small relationships with the PSPP scales. The small relationships between self-efficacy and the PSPP scales, therefore, provide discriminate validity for the PSPP.

The regression analysis revealed complimentary facets of the EXSEM in that several levels of the model were shown to be capable of improving the associations with behavior provided by a single level. The percentage of exercise behavior variance explained by the model (21.9%, 29.6%, 32.5%, and 48.5%) can be regarded as about average to excellent judged on previous reports. The great variability presented in these predictions, however, should represent a note of caution in terms of the reliability of prediction.

Importance scores improved associations with exercise in one of four cases. Importance scores improved the predictions of weight training participation by a significant 4.8%, the combined contribution of efficacies and subdomains.

This research supports the idea that for both males and females, weight lifting self-efficacy is a better predictor of behavior than perceived physical

strength. Sonstroem and Morgan (1989) proposed in their model that actual physical fitness behavior (i.e. weight lifting), has a better relationship with self-efficacies (i.e. self-efficacy for weight lifting) than the higher levels of the Model.

Practical Applications

This research suggests that performance of specific physical activities is closely related to self-efficacy expectations at that performance. Specific self-perceptions rather than more general or global self-perceptions will tend to relate more closely with a particular behavior. Therefore, a basketball coach who wishes to improve dribbling ability for a player will concentrate to reinforce a player's perceptions of himself / herself as a dribbler rather than an all around good basketball player.

Implications for Future Research

It is strongly recommended that this study be performed with subjects other than college students. Research should be done with subjects of different ages, areas of the country or world, education and activity levels. This study should be done with different self-efficacies, different from self-efficacies for jogging and weight lifting. This would provide a better perspective for the validity of the Exercise and Self-Esteem Model.

APPENDIX -- A

LETTER OF PARTICIPATION

LETTER OF PARTICIPATION

I have been asked to participate in a research project described below. The researcher will explain the project to me in detail. I should feel free to ask questions. **If I am under the age of 18, I should not participate.** If I have more questions later, Jerry Moreau (724-1446), the person mainly responsible for this study, will discuss them with me.

PROJECT DESCRIPTION: I will be asked to answer some questions which deal with the self-perceptions of college students and their ideas about recreation and exercise. There are no right or wrong answers to these questions. I will answer each question honestly as I feel about it. The questions will require approximately 30 minutes of my seated time.

POSSIBLE RISKS: Boredom, self-consciousness

POSSIBLE BENEFITS: The purpose of this study is to develop ideas about what college students think about themselves and primarily what they think about themselves in relation to physical activity and exercise. There are no "right" or "wrong" answers in this survey. Responding as you honestly feel will help us to learn more about college students and their leisure time.

CONFIDENTIALITY: These inventories have been pre-coded by number only. Please do not put your name on this test form and answer sheet. No data will be identifiable by name. If this study causes me any injury, I should write or call the University of Rhode Island's Director of Research, 70 Lower College Road, The University of Rhode Island, Kingston, RI 02881. Telephone 401-792-2635.

DECISION TO QUIT: The decision whether or not to take part in this study is up to me. I do not have to participate. If I decide to take part in this study, I may quit at any time. Whatever I decide will in no way affect my participation in academics or athletics at URI. If I wish to quit, I simply inform Jerry Moreau (724-1446) of my decision.

RIGHTS OF COMPLAINTS: If I am not satisfied with the way this study is performed, I may discuss my complaints with Jerry Moreau, anonymously, if I choose.

I have read the consent form. My questions have been answered. By participating in this study, I have given my consent, and I understand the information provided.

APPENDIX -- B

PHYSICAL SELF PERCEPTION PROFILE (PSPP)

THE PHYSICAL SELF PERCEPTION PROFILE (PSPP)

What am I like?

These are statements which allow people to describe themselves.

There are no right or wrong answers since people differ a lot.

First, decide which one of the two statements best describes you.

Then, go to that side of the statement and check if it is just "sort of true" or "really true" FOR YOU.

On the answer sheet, mark A if the left description is really true for you; mark B if it is sort of true for you; mark C if the right description is sort of true for you; and mark D if the right description is really true for you.

Remember to use categories A through D on the answer sheet. Do not use category E.

Really true for me	Sort of true for me		Example		Sort of true for me	Sort true for me
_____	X	Some people are very competitive	BUT	Others are not quite so competitive	_____	_____

Remember to check only one of the four spaces

	A	B				C	D
1.	_____	_____	Some people feel that they are not very good when it comes to playing sports	BUT	Others feel that they are really good at just about every sport	_____	_____
2.	_____	_____	Some people are not very confident about their level of physical conditioning and fitness	BUT	Others always feel confident that they maintain excellent conditioning and fitness	_____	_____

3.	_____	_____	Some people feel that compared to most, they have an attractive body	BUT	Others feel that compared to most, their body is not quite so attractive	_____	_____
4.	_____	_____	Some people feel that they are physically stronger than most people of their sex	BUT	Others feel that they lack physical strength compared to most others of their sex	_____	_____
5.	_____	_____	Some people feel extremely proud of who they are and what they can do physically	BUT	Others are sometimes not quite so proud of who they are physically	_____	_____
6.	_____	_____	Some people feel that they are among the best when it comes to athletic ability	BUT	Others feel that they are not among the most able when it comes to athletics	_____	_____
7.	_____	_____	Some people make certain they take part in some form of regular vigorous physical exercise	BUT	Others don't often manage to keep up regular vigorous physical exercise	_____	_____
8.	_____	_____	Some people feel that they have difficulty maintaining an attractive body	BUT	Others feel that they are easily able to keep their bodies looking attractive	_____	_____
9.	_____	_____	Some people feel that their muscles are much stronger than most others of their sex	BUT	Others feel that on the whole their muscles are not quite so strong as most others of their sex	_____	_____

10.	_____	_____	Some people are sometimes not so happy with the way they are or what they can do physically	BUT	Others always feel happy about the kind of person they are physically	_____	_____
11.	_____	_____	Some people are not quite so confident when it comes to taking part in sports activities	BUT	Others are among the most confident when it comes to taking part in sports activities	_____	_____
12.	_____	_____	Some people do not usually have a high level of stamina and fitness	BUT	Others always maintain a high level of stamina and fitness	_____	_____
13.	_____	_____	Some people feel embarrassed by their bodies when it comes to wearing few clothes	BUT	Others do not feel embarrassed by their bodies when it comes to wearing few clothes	_____	_____
14.	_____	_____	When it comes to situations requiring strength some people are one of the first to step forward	BUT	When it comes to situations requiring strength some people are one of the last to step forward	_____	_____
15.	_____	_____	When it comes to the physical side of themselves some people do not feel very confident	BUT	Others seem to have a real sense of confidence in the physical side of themselves	_____	_____

16.	_____	_____	Some people feel that they are always one of the best when it comes to joining in sports activities	BUT	Others feel that they are not one of the best when it comes to joining in sports activities	_____	_____
17.	_____	_____	Some people tend to feel a little uneasy in fitness and exercise settings	BUT	Others feel confident and at ease at all times in fitness and exercise settings	_____	_____
18.	_____	_____	Some people feel that they are often admired because their physique or figure is considered attractive	BUT	Others rarely feel that they receive admiration for the way their body looks	_____	_____
19.	_____	_____	Some people tend to lack confidence when it comes to their physical strength	BUT	Others are extremely confident when it comes to their physical strength	_____	_____
20.	_____	_____	Some people always have a really positive feeling about the physical side of themselves	BUT	Others sometime do not feel positive about the physical side of themselves	_____	_____
21.	_____	_____	Some people are sometimes a little slower than most when it comes to learning new skills in a sports situation	BUT	Others have always seemed to be among the quickest when it comes to learning new sports skills	_____	_____

22.	_____	_____	Some people feel extremely confident about their ability to maintain regular exercise and physical condition	BUT	Others don't feel quite so confident about their ability to maintain regular exercise and physical condition	_____	_____
23.	_____	_____	Some people feel that compared to most, their bodies do not look in the best of shape	BUT	Others feel that compared to most their bodies always look in excellent physical shape	_____	_____
24.	_____	_____	Some people feel that they are very strong and have well developed muscles compared to most people	BUT	Others feel that they are not so strong and their muscles are not very well developed	_____	_____
25.	_____	_____	Some people wish that they could have more respect for their physical selves	BUT	Others always have great respect for their physical selves	_____	_____
26.	_____	_____	Given the chance some people are always one of the first to join in sports activities	BUT	Other people sometimes hold back and are not usually among the first to join in sports	_____	_____
27.	_____	_____	Some people feel that compared to most they always maintain a high level of physical conditioning	BUT	Others feel that compared to most their level of physical conditioning is no usually so high	_____	_____

28.	_____	_____	Some people are extremely confident about the appearance of their body	BUT	Others are a little self-conscious about the appearance of their bodies	_____	_____
29.	_____	_____	Some people feel that they are not as good as most at dealing with situations requiring physical strength	BUT	Others feel that they are among the best at dealing with situations which require physical strength	_____	_____
30.	_____	_____	Some people feel extremely satisfied with the kind of person they are physically	BUT	Others sometimes feel a little dissatisfied with their physical selves	_____	_____
31.	_____	_____	Some people aren't very capable physically	BUT	Other people are very capable physically	_____	_____
32.	_____	_____	Some people don't have attractive bodies	BUT	Other people do have attractive bodies	_____	_____
33.	_____	_____	Some people do most physical things very well	BUT	Other people have trouble doing physical things very well	_____	_____
34.	_____	_____	Some people have lean and attractive bodies	BUT	Other people do not have lean and attractive bodies	_____	_____

A
YES

B
NO

35. Please indicate whether you have completed this or a very similar inventory within the past eight weeks (Please respond on the answer sheet)
- Mark "A" for Yes
Mark "B" for No

APPENDIX -- C

PERCEIVED IMPORTANCE PROFILE (PIP)

HOW IMPORTANT ARE THINGS TO YOU?

A B
Really Sort of
true true
for me for me

C D
Sort Really
of true
true for me
for me

36.	_____	_____	Some people feel that being good at sports is vitally important to them	BUT	Others feel that being good at sports is not so important to them	_____	_____
37.	_____	_____	Some people do not feel that maintaining a high level of physical conditioning is extremely important to them	BUT	Others feel that maintaining a high level of physical conditioning is extremely important to them	_____	_____
38.	_____	_____	Some people believe that having an attractive physique or figure is vitally important to them	BUT	Others believe that having an attractive physique or figure is not all that important in their lives	_____	_____
39.	_____	_____	Some people believe that being physically strong is not so important to them	BUT	Others feel that it is extremely important to them to be physically strong	_____	_____
40.	_____	_____	Some people feel that having very good sports ability and skills is not so important to them	BUT	Others feel that having a high level of sports ability is really important to them	_____	_____

41. _____ Some people feel BUT Others feel that
_____ that maintaining keeping up regular _____
_____ regular vigorous vigorous exercise is
_____ exercise is vitally not of prime
_____ important to them importance to them
42. _____ Some people do BUT Others think
_____ not feel it so that it is vitally _____
_____ important to them to important to spend
_____ spend a lot of time time and effort
_____ and effort maintaining an
_____ maintaining an attractive body
43. _____ Some people feel BUT Others feel that
_____ that being strong being strong and _____
_____ and having well having well
_____ developed/toned developed/toned
_____ muscles is vitally muscles is not so
_____ important to them important to them

APPENDIX -- D

GENERAL SELF WORTH SCALES (GSW)

GSW

	A Really true for me	B Sort of true for me			C Sort of true for me	D Really true for me
44.	_____	_____	Some adults like the way they are leading their lives	BUT	Other adults don't like the way they are leading their lives	_____
45.	_____	_____	Some adults are very happy being the way they are	BUT	Other adults would like to be different	_____
46.	_____	_____	Some adults sometimes question whether they are a worthwhile person	BUT	Other adults feel that they are a worthwhile person	_____
47.	_____	_____	Some adults are disappointed with themselves	BUT	Other adults are quite pleased with themselves	_____
48.	_____	_____	Some adults are dissatisfied with themselves	BUT	Other adults are satisfied with themselves	_____
49.	_____	_____	Some adults like the kind of person they are	BUT	Other adults would like to be someone else	_____

APPENDIX -- E

BALANCED INVENTORY OF DESIRABLE RESPONDING (BIDR)

Use the response scale below to indicate the extent of your agreement or disagreement with each item. Be sure to place your answer on the computer answer sheet. We are now using category "E". Please use all 5 response categories.

A	B	C	D	E
Very untrue of me	Untrue of me	Neither true or untrue of me	True of me	Very true of me

50. My first impressions of people usually turn out to be right.
51. It would be hard for me to break any of my bad habits.
52. I don't care to know what other people really think of me.
53. I have not always been honest with myself.
54. I always know why I like things.
55. When my emotions are aroused, it biases my thinking.
56. Once I've made up my mind, other people can seldom change my opinion.
57. I am not a safe driver when I exceed the speed limit.
58. I am fully in control of my own fate.
59. It's hard for me to shut off a disturbing thought.
60. I never regret my decisions.
61. I sometimes lose out on things because I can't make up my mind soon enough
62. The reason I vote is because my vote can make a difference.
63. My parents were not always fair when they punished me.
64. I am a completely rational person.
65. I rarely appreciate criticism.
66. I am very confident of my judgments.
67. I have sometimes doubted my ability as a lover.
68. It's all right with me if some people happen to dislike me.
69. I don't always know the reasons why I do the things I do.
70. I sometimes tell lies if I have to.
71. I never cover up my mistakes.
72. There have been occasions when I have taken advantage of someone.
73. I never swear.
74. I sometimes try to get even rather than forgive and forget.
75. I always obey laws, even if I'm unlikely to get caught.
76. I have said something bad about a friend behind his or her back.
77. When I hear people talking privately, I avoid listening.
78. I have received too much change from a salesperson without telling him or her.

- 79. I always declare everything at customs.
- 80. When I was young, I sometimes stole things.
- 81. I have never dropped litter on the street.
- 82. I sometimes drive faster than the speed limit.
- 83. I never read sexy books or magazines.
- 84. I have done things that I don't tell other people about.
- 85. I never take things that don't belong to me.
- 86. I have taken sick-leave from work or school even though I wasn't really sick.
- 87. I have never damaged a library book or store merchandise without reporting it.
- 88. I have some pretty awful habits.
- 89. I don't gossip about other people's business.

APPENDIX -- F

SELF-EFFICACY SCALES

SELF EFFICACIES

This form asks how well you think you can perform at certain very specific tasks. Activities are listed on the pages that follow. You show how confident you are that you could do each activity NOW by writing a number in the blank to the right of the activity. Use one of the following numbers to show how confident you are.

Definitely cannot		Probably cannot		Maybe (50/50)		Probably can		Definitely can		
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

EXAMPLE:

Mark is asked how far he thinks he can throw a football. Can he throw it 10 yards? 15 yards? 30 yards? 40 yards? 60 yards? Mark decides that he can definitely throw the football 10 yards, he is 100% confident about that. He is pretty sure he can throw the football 15 yards, he feels 80% certain. He feels there is about a 50/50 chance he could throw the ball 30 yards, but he thinks his chances of hitting the 40 yard marker are slim. He is definitely sure he cannot throw the ball 60 yards.

Mark should write his answers to the question like this:

THROW A FOOTBALL	CONFIDENCE
10 YARDS	<u>100%</u>
15 YARDS	<u>80%</u>
30 YARDS	<u>50%</u>
40 YARDS	<u>10%</u>
60 YARDS	<u>0%</u>

If Mark was definitely sure he could throw the ball 60 yards, he would have put a "100%" in every blank. If he was definitely sure he could not throw a ball even as far as 10 yards, he would have put a "0%" in every blank.

Now look at each activity and show how confident you are that you could do it NOW. Please write directly on this form.

PLEASE WRITE DIRECTLY ON THIS PAGE

Definitely cannot			Probably cannot		Maybe (50/50)	Probably can		Definitely can		
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

90. JOGGING CONFIDENCE

Jog 200 yards without stopping	_____
Jog 1/4 mile without stopping	_____
Jog 1/2 mile without stopping	_____
Jog 1 mile without stopping	_____
Jog 1.5 miles without stopping	_____
Jog 2 miles without stopping	_____
Jog 2.5 miles without stopping	_____
Jog 3 miles without stopping	_____
Jog 4 miles without stopping	_____
Jog 6 miles without stopping	_____
Jog 8 miles without stopping	_____

91. WEIGHT LIFTING CONFIDENCE

Lift 20 pounds over my head 6 times	_____
Lift 40 pounds over my head 6 times	_____
Lift 60 pounds over my head 6 times	_____
Lift 80 pounds over my head 6 times	_____
Lift 100 pounds over my head 6 times	_____
Lift 120 pounds over my head 6 times	_____
Lift 140 pounds over my head 6 times	_____
Lift 160 pounds over my head 6 times	_____
Lift more than 160 pounds over my head 6 times	_____

92. HARD, INTENSIVE STUDYING CONFIDENCE

Study 3 hours per week	_____
Study 9 hours per week	_____
Study 12 hours per week	_____
Study 15 hours per week	_____
Study 18 hours per week	_____
Study 21 hours per week	_____
Study more than 21 hours per week	_____

APPENDIX -- G

RECREATIONAL ACTIVITIES SURVEY

RECREATIONAL ACTIVITIES

Please indicate the number of sessions per week that you generally spend at each activity below. Next to it indicate the number of minutes which you spend at each session. Include information only for activities which you generally participate at. If categories seem to overlap, complete one of the categories.

	# OF SESSIONS	MIN. PER SESSION
Bicycling	_____	_____
Ice Hockey	_____	_____
Basketball	_____	_____
Recreation Walking	_____	_____
Aerobics Dance	_____	_____
Weight Training	_____	_____
Slimnastics	_____	_____
Calisthenics	_____	_____
Jogging	_____	_____
Skiing	_____	_____
Other, Please indicate		
_____	_____	_____
_____	_____	_____

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