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Motivation and its Effect on Exercise Choice

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MOTIVATION AND ITS EFFECT ON EXERCISE CHOICE

by

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The problem of this study was designed to examine students at Saint Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice.

A major portion of the review of literature focuses on motivation. The review also includes an examination of the health of the nation, individual and group exercise, exercise frequency, duration, and intensity, campus recreation centers, and self-determination theory.

A questionnaire was used to gather information to determine to what extent motivation affects exercise choice. The Behavioural Regulation in Exercise Questionnaire-2 was used to assess amotivation, intrinsic motivation, and three out of the four types of extrinsic motivation–external, introjected, and identified.

The correlation statistics from this study were used to draw conclusions to the research questions.

Motivation measured against individual exercise in the fitness center saw a significant correlation for amotivation, external regulation, identified regulation and intrinsic motivation. This lead the researcher to conclude that motivation does not affect exercise choice for those that participate exclusively in individual exercise in the fitness center.

Motivation measured against group fitness classes and motivation measured against the combination of individual exercise in the fitness center and group fitness classes saw a significant relationship for identified regulation and intrinsic motivation. This lead the researcher to conclude that motivation does affect exercise choice for

those that participate in group fitness classes and the combination of individual exercise in the fitness center and group fitness classes.

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Approved by Research Committee:

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Chapter I

INTRODUCTION

This study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice. The importance of partaking in regular exercise can provide a host of physical and psychological benefits. Time spent exercising has been linked to a decreased risk of obesity and chronic disease, better control of body weight, blood pressure, blood glucose, and cholesterol (Klein, 2008) along with mood improvements (Prichard & Tiggemann, 2008). Despite the host of benefits, research shows that 39% of Americans 18 years of age and older do not engage in any leisure-time physical activity (Klein, 2008).

Recently some health organizations have provided guidelines in an attempt to help individuals understand the importance of physical activity. The American College of Sports Medicine and the American Heart Association released physical activity guidelines in 2007 to serve as a tool to help Americans lead healthier and more active lives. Healthy adults ages 18-65 need moderate-intensity physical activity for a minimum of 30 minutes a day, 5 days a week or vigorous-intensity aerobic activity for a minimum of 20 minutes a day, 2 days per week. Adults between the

ages of 18-65 also need to complete 8 to 10 strength-training exercises, 8 to 12 repetitions of each exercise, two times per week (Haskell et al., 2007). Even with the new guidelines implemented by the American College of Sports Medicine and the American Heart Association, only 31% of adults over the age of 18 participate in regular physical activity at a moderate level, and only 22% of adults over the age of 18 take part in vigorous physical activity (National Center for Health Statistics, 2008). One may ask; what type of format should the recommended exercise take place in?

Physical exercises conducted individually (individual exercise defined as exercise completed alone) or in a group setting (group exercise defined as exercise completed with others) are two common formats of exercise (Beauchamp, Carron, McCutcheon, & Harper, 2007) that were examined in this study. Hence there was a need to understand what was necessary to motivate individuals and groups to engage in physical activity. In order to conceptualize this study, the researcher employed both a cognitive and humanistic perspective of motivation which views motivation as intrinsic or arising from the individual and a behaviorist perspective of motivation which views motivation as extrinsic or arising from the manipulation of a reinforcement (Owens & Valensky, 2007).

A variety of motivational theories exist that explain why adults do not engage in the recommended amount of physical activity. This study focused on one major type of motivation theory referred to as self-determination theory. Self-determination theory is a widely accepted premise that examines different types of motivation in an attempt to understand the goals or reasons behind an action. This theory suggests that

there are three major types of motivation: intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation refers to "doing something because it is inherently interesting or enjoyable" (Ryan & Deci, 2000, p. 55). Extrinsic motivation refers to doing "something because it leads to a separate outcome" (Ryan & Deci, 2000, p. 55). Amotivation refers to a "state of lacking an intention to act" (Ryan & Deci, 2000, p. 61).

Motivation is an important aspect to consider as to why adults do not engage in the recommended amount of physical activity. It has been well documented by the National Center for Health Statistics that the American population over the age of 18 is not getting enough exercise despite the host of physical and psychological benefits associated with regular exercise.

This study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice.

Statement of the Problem

Due to the unhealthy exercise characteristics of the American population over the age of 18, the problem of this study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice.

One questionnaire with two parts was used to address the problem of this study. The first part of the questionnaire collected background information–age, gender, status in school, year in college, ethnicity, type of exercise program (individual exercise in the fitness center, group fitness classes, or a combination of the two), average frequency of each physical activity session, and average duration of each physical activity session. The second part of the questionnaire assessed intrinsic motivation, three out of the four types of extrinsic motivation (external regulation, introjected regulation, and identified regulation), and amotivation.

Descriptive statistics were used to describe results from both parts of the questionnaire. Correlation statistics were used to determine if a relationship existed between motivation and exercise choice.

Purpose of the Study

The purpose of this study was to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice. The study will aid in the body of research regarding self-motivation in exercise participants and shed light on the extent to which motivation influences exercise choice. The results from this study will also assist health organizations understand the differences in individual's motivation and its relation to exercise patterns and choices.

Objectives of the Study

This study contained the following objectives:

1. Review the literature on physical exercise and motivation.
2. Acquire the Behavioural Regulation in Exercise Questionaire-2 and request permission to use the instrument to develop a two-part questionnaire.
3. Secure Human Subjects Approval.

Research Questions

The study was directed by the following questions:

1. To what extent does motivation (intrinsic, extrinsic, and amotivation) affect exercise choice in students at St. Cloud State University?
2. Is there a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in students at St. Cloud State University?

Hypothesis to be Tested

The following statement indicates the research hypothesis that was used for this study:

1. There is a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in students at St. Cloud State University.

Assumptions of the Study

The research assumptions for this thesis were as following:

1. This study will assume that respondents will, to the best of their ability, complete the survey in an honest and accurate manner.

2. Respondents of both the individual and group exercise settings will be representative of students at St. Cloud State University that exercise in the fitness center and participate in group fitness classes.

Delimitations of the Study

The investigation was delimited by the following:

1. The data for this thesis was collected during spring semester 2010.
2. Only students registered for the fitness center and group fitness classes at St. Cloud State University were used in this study.
3. Moderate and vigorous activity levels were not measured.
4. The self-determination theory of motivation was used to assess motivation.
5. The Behavioural Regulation in Exercise Questionaire-2 does not assess for integrated regulation, so that type of extrinsic motivation was not measured in the study.

Human Subjects Approval

In an effort to ensure that the rights and welfare of subjects participating in this study were adequately protected, all requirements set forth by the n.t Cloud State University Institutional Review Board were strictly adhered to. This thesis was conducted in an educational setting involving typical educational practices. Data were collected by means of questionnaire survey, and there was no unforeseeable discomforts or risks involved with participation.

Definitions of Terms

1. Individual exercise: Exercise completed alone (Beauchamp et al., 2007, p. 200).
2. Group exercise: Exercise completed with others (Beauchamp et al., 2007, p. 200).
3. Moderate-intensity physical activity: Activities having three to six metabolic equivalents carried out for 30 minutes a day, five times per week (Haskell et al., 2007, p. 1427).
4. Vigorous-intensity aerobic activity: Activities having six or more metabolic equivalents carried out for 20 minutes a day, three times per week (Haskell et al., 2007, p. 1427).
5. Self-determination theory: A quality of human functioning that involves the experience of choice. It is integral to intrinsically motivated behavior and is also evident in some extrinsically motivated behaviors (Deci & Ryan, 1985, p. 38).
6. Intrinsic motivation: Doing something because it is inherently interesting or enjoyable (Ryan & Deci, 2000, p. 55).
7. Extrinsic motivation: Doing something because it leads to a separate outcome (Ryan & Deci, 2000, p. 55).
8. External Regulation: Behaviors performed to satisfy an external demand or obtain an externally imposed reward (Ryan & Deci, 2000, p. 61).

9. Introjected Regulation: Actions performed with feelings of pressure in order to avoid guilt or anxiety (Ryan & Deci, 2000, p. 62).
10. Identified Regulation: Behaviors recognized with personal importance and accepted as one's own (Ryan & Deci, 2000, p. 62).
11. Integrated Regulation: Behaviors fully assimilated to the self in congruence with one's other values and needs (Ryan & Deci, 2000, p. 62).
12. Amotivation: State of lacking an intention to act (Ryan & Deci, 2000, p. 61).

Chapter II

REVIEW OF LITERATURE

This study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice. This literature review examines the health of the nation, individual and group exercise, exercise frequency, duration, and intensity, campus recreation centers, motivation, and self-determination theory.

Health of the Nation

Thirty-nine percent of Americans 18 years of age and older do not engage in any leisure-time physical activity (Klein, 2008). Of the American population 18 years of age and older, 50% do not complete enough physical activity to provide health benefits (Sutton, 2007). The United States Department of Health and Human Services created a national planning process to address the inactive American population. The process began in 1979 with the release of *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention*, followed in 1990 with *Healthy People 2000*, and in 2000 with *Healthy People 2010* (U.S. Department of Health and Human Services, 2000). Most recently in December of 2011, *Healthy People 2020*

was released with new 10-year goals and objectives for health promotion and disease prevention that looks at how physical activity levels are positively affected by structural environments, such as the availability of sidewalks, bike lanes, trails, and parks and also by legislative polices that improve access to facilities that support physical activity ("Healthy People," 2011). The researcher chose to look specifically at Healthy People 2010 because a progress report was available at the time of the study.

Healthy People 2010 is divided into 28 different focus areas, one of which includes physical activity and fitness. The major goal of the physical activity and fitness focus area of Healthy People 2010 is to improve health, fitness, and quality of life through daily physical activity (U.S. Department of Health and Human Services, 2000). The physical activity and fitness focus area is further divided into fifteen objectives, three of which relate to physical activity among adults. The objectives include: reducing the proportion of adults who engage in no leisure-time physical activity; increase the proportion of adults who engage in moderate physical activity; and increase the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness (Klein, 2008).

A progress review of the physical activity and fitness health objectives was completed by the National Center for Health Statistics (2008) and found that 39% of American adults 18 years of age and older do not partake in any physical activity (objective one), only 31% of adults over the age of 18 participate in regular physical

activity at a moderate level (objective two), and only 22% of adults over the age of 18 take part in vigorous physical activity (objective three).

According to the United States Department of Health and Human Services, it is important to understand why one does not partake in regular physical activity and look specifically at how individual biology, individual behaviors, the social environment, the physical environment, and policies and interventions affect regular physical activity. Individual biology looks at individual genetic makeup, family history, and physical and mental health related problems; individual behaviors examines one's response or reaction to internal stimuli and external conditions that can have a direct relationship on one's biology; the social environment looks at the relationships that take place between family, friends, co-workers, and people in the community; the physical environment examines things that can be seen, touched, heard, smelled, and tasted; and policies and interventions look at health promotion campaigns, public policies, and disease prevention services (U.S. Department of Health and Human Services, 2000). These factors presented by the United States Department of Health and Human Services might explain why one does not partake in regular physical exercise and why there is a large prevalence of obesity in the United States.

Prevalence of obesity. Over the past 20 years, there has been a huge increase in the number of obese Americans. According to data collected from the Center for Disease Control and Prevention (2009), the number of obese Americans aged 20-74 increased from 15% in a 1976-1980 survey to 32.9% in a 2003-2004 survey. To

determine if one is considered overweight or obese, a range is determined by using weight and height to calculate body mass index. A body mass index between 25-29.9 is considered overweight and an adult with a body mass index of 30 or greater is considered to be obese (Center for Disease Control and Prevention, 2009).

While there are a number of reasons that may contribute to the obesity epidemic (behavior, environment, and genetic factors), the reality is that there are severe health and economic factors that the Center for Disease Control and Prevention (2009) has identified that relate to obesity. Health factors include: coronary heart disease, type two diabetes, cancers (endometrial, breast, and colon), high blood pressure, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea, respiratory problems, and osteoarthritis. Economic factors include both direct and indirect medical costs. Direct medical costs include prevention, diagnostic, and treatments services. Indirect costs include morbidity (value of income lost from restricted activity and decreased productivity) and mortality (income lost by premature death). In 2008, medical costs associated with obesity were estimated at $147 billion with medical costs $1,429 higher than those with a healthy body mass index (Center for Disease Control and Prevention, 2011). A huge factor contributing to the obesity epidemic is the size of our food portions.

Portion distortion. Within the last 20 years our food portions in the United States have grown in size. According to the National Heart Lung and Blood Institute, the average size of a bagel in 1990 was 140 calories and was three-inches in diameter.

Today, the average bagel is 350 calories and six-inches in diameter ("Keep an eye on portion size," 2011).

In June of 2011, the United States Department of Agriculture unveiled MyPlate that replaces the well-known and outdated food pyramid that was introduced in 1992 as a total diet approach. MyPlate divides a plate into four sections–fruit, vegetables, grains, and protein with a small circle outside of the plate for dairy. The first stage of MyPlate encourages people to make half their plate fruit and vegetables with the other half of the plate consisting of grains and protein. Later stages of the plan will encourage smaller portions and water instead of sugary drinks (Neuman, 2011).

Nutrition recommendations use standard serving sizes so people know how much of different types of food they should eat each day to get the nutrients they need. While one cannot always control the food portions served in restaurants, one can control how much of the portion they eat. A portion can be thought as "the amount of a specific food you choose to eat" and a serving is "a measured amount of food or drink" ("Keep an eye on portion size," 2011). One serving of some common foods include: one cup raw baby spinach, one-half cup brown rice, one-half cup strawberries, three-ounces of chicken breast, and eight-ounces of milk ("Keep an eye on portion size," 2011). While it is important to look at reasons why so many Americans are overweight and portion sizes, it is also important to look at physical activity and the key role it can play in leading a healthy lifestyle.

Individual and Group Exercise

Exercise is generally grouped into one of three different categories: aerobic exercises that increases cardiovascular endurance such as cycling, walking, running, and swimming; anaerobic exercises that increases muscle strength such as weight training; and flexibility exercises that improve range of motion such as stretching (Haskell et al., 2007). Both individual and group exercise can fall into any of these three categories and can take place in a variety of different formats and places. Individual exercise is defined as exercise completed alone and group exercise is defined as exercise completed with others (Beauchamp et al., 2007). The following are examples of individual and group exercise options available at St. Cloud State University through Campus Recreation. Individual exercise options include using a treadmill, elliptical machine, stairmaster, rowing machine, stationary exercise bike, free weights, and weight machines independently. Group exercise options include attending fitness classes such as cycling, step aerobics, high intensity training, kickboxing, circuit training, full body toning, core strength, yoga, Pilates, Kettlebell, and Zumba ("Sport facilities and campus recreation," 2011). Two major types of research have been conducted in regards to individual and group exercise–those examining heart rate and those examining social factors.

Research by Laurson, Brown, Cullen, and Dennis (2008) examined the heart rates of high school students in a variety of different activities to determine which activities produced the highest heart rates. They looked at the differences in heart rates of high school students in team sports, group fitness activities, and individual

activities. They discovered that both males and females held the highest heart rate in the group fitness activities followed by individual activities for females and team sports for males. Research by Hannon and Pellett (1998) suggests that the average heart rate of high school students during team sports and group fitness activities (both forms of group exercise) did not differ, concluding that the students received the same fitness benefits from both forms of group exercise.

Social factors are a major topic studied in regards to the difference between individual and group exercise. A study conducted by Bidonde, Goodwin, and Drinkwater (2009) found that physical activity and its inherent social networks increases opportunities to experience social and mental health. Likewise, research by Carron, Hausenblas, and Mack (1996) concluded that social influences have a positive affect on exercise behavior in regards to adherence, compliance, and attitudes associated with an exercise experience. Wilson and Spink (2009) suggest there is not a one-size-fits-all approach to exercise and using social influences for people who prefer to be active alone will not be beneficial. Recently the American College of Sports Medicine and the American Heart Association released physical activity guidelines in an attempt to help individuals exercising alone and in groups understand the recommended frequency, duration, and intensity of their activity sessions.

Exercise Frequency, Duration, and Intensity

"Frequency refers to how often an individual exercises and is commonly expressed as the number of days a week that a person exercises" ("Exercise: Practice

guidelines for optimal psychological benefits," 2001, p. 334). "Duration refers to the length of a single exercise session and is expressed most commonly in minutes" ("Exercise: Practice guidelines for optimal psychological benefits," 2001, p. 338). "Intensity refers to how hard a person is exercising and varies along a continuum from not exercising at all and being sedentary to the opposite extreme of exercising to maximum exertion" ("Exercise: Practice guidelines for optimal psychological benefits," 2001, p. 334). Healthy adults ages 18-65 need moderate-intensity physical activity for a minimum of 30 minutes a day, 5 days a week or vigorous-intensity aerobic activity for a minimum of 20 minutes a day, 3 days per week (Haskell et al., 2007). Moderate physical activity would include walking briskly (about three and a half miles per hour), bicycling (less than 10 miles per hour), general gardening (raking, trimming shrubs), dancing, canoeing, tennis (doubles), and water aerobics. Vigorous physical activities would include running/jogging (5 miles per hour), walking very fast (four and a half miles per hour), bicycling (more than ten miles per hour), heavy yard work (chopping wood), swimming (laps), basketball (competitive), tennis (singles), and aerobics ("What is physical activity," 2011). These guidelines are provided by the American College of Sports Medicine and the American Heart Association and reflect the recommended exercise requirements for most individuals.

Campus Recreation Centers

Campus Recreation Centers on the campuses of Universities across the United States and around the world have provided students, faculty, and staff with the

opportunity to take part in a wide-variety of exercise programs. The first campus recreation center was opened in 1928 at the University of Michigan and was designed for non-varsity club sports, intramural activities, and physical education strictly for men's participation. Facilities built during the 1930s, 1940s, and 1950s followed the model set forth by the University of Michigan. In the 1960s and 1970s, a wave of change ushered through campus recreation. Both women and men were participating in campus recreation activities and fees supported the operation and in some rare cases, the construction debt. In the 1980s and 1990s, a huge growth took place in the construction of new recreational sport facilities with a growing demand for women's sports and physical education along with an increasing interest in physical fitness. This brought an expansion of programs to many universities to include options for students such as fitness centers and group fitness classes. Facilities were built as wide-open, user-friendly, and well-equipped facilities that became a social gathering point on campus. Campuses today commonly use recreation centers as student recruitment and student retention tools (Taylor, Canning, Brailsford, & Rokoszo, 2003).

Research conducted by Lankford, Rice, Chai, and Hisaka (1993) looked at the barriers to campus recreation participation. The findings suggest that barriers to participating in order of most prevalent to least prevalent for University students are: lack of leisure time, lack of information, lack of child care, lack of parking, belonging to a private club, participating in other activities, poor transportation options, no interest in the program offerings, the time of the programs, lack of skills to participate

in the programs, too competitive, and lack of co-ed programs. Barriers are an important aspect to consider because they might explain reasons why people may choose not to participate in campus recreation.

Motivation

Motivation is an important factor to consider when examining the differences between exercise participants. "Motivation deals with explanations of why people do the things they do" (Owens & Valesky, 2007, p. 362). Why for example, do some people workout five times per week, whereas others have never worked out a day in their life? For years, the mystery of why people behave the way they do has fascinated researchers. While many theories of motivation exist, most scholars agree that there are three approaches to motivation: behavioral, cognitive, and humanist. "Behaviorists tend to view motivation as something that one does to people, whereas the cognitive or humanists tend to view motivation as tapping the inner drive of people by creating growth-enhancing environments" (Owens & Valesky, 2007, p. 365). Extrinsic views align with the behaviorist approach in that people are motivated to act based on external rewards and punishments. Intrinsic views align with the cognitive or humanist approach in that people are motivated by feelings of aspiration, perception and attitude (Owens & Valesky, 2007).

Behavioral approach to motivation. The behavioral approach to motivation states that people can be motivated through the manipulation of both a positive and a negative reinforcement. The approach contends that once people are rewarded for a

particular behavior, they tend to repeat that behavior so they can continue to achieve the reward. Some motivational purists believe that the behavioral approach has nothing to do with motivation. "The view is that although people can be controlled by external forces such as rewards and punishments, a crucial factor in the motivation of people lies within the individuals themselves" (Owens & Valesky, 2007, p. 365).

Cognitive approach to motivation. The cognitive approach to motivation assumes that people have a need for order, predictability, sensibleness, and logic in dealing with the world (Owens & Valesky, 2007). "The cognitive perceptive on motivation is based on the belief that human beings have an innate inner drive to understand the world, to make sense of it, to gain control over their lives, and to become increasingly self-directed" (Owens & Valesky, 2007, pp. 378-379). The cognitive approach to motivation is grounded in achievement motivation. John Atkinson believed that everyone was driven by one of two characteristics developed through achievement motivation: the desire to achieve success and/or the desire to avoid failure. One that highly desires to achieve success thrives on competition and finds it enjoyable whereas one that desires to avoid failure avoids competition and does not find it enjoyable (Owens & Valesky, 2007).

Humanist approach to motivation. The humanistic approach to motivation strives to "understand what goes on inside us–our needs, wants, desires, feelings, values, and unique ways of perceiving and understanding what causes us to behave the way we do…" (Owens & Valesky, 2007, p. 383). In this approach, there is no such

thing as an unmotivated person. The humanist approach to motivation is grounded in the works of Abraham Maslow who looked at the way people live their lives. Maslow held that individuals were driven from within to realize their full potential. Maslow created a hierarchy of needs that includes five different levels. The first level of the hierarchy is the need to survive–the need for food, water, clothing, and shelter. The second level of the hierarchy is the need for safety and security–the need for physical safety and financial security. The third level of the hierarchy is the need for social affiliation–the need for love, a sense of belonging, and an acceptance by others. The fourth level of the hierarchy is the need for esteem–the need for self-esteem and recognition by peers. The fifth and final level of the hierarchy is for self-actualization–one that is capable of becoming and is self-directed (Owens & Valesky, 2007). Figure 1 depicts Maslow's hierarchy of need.

Figure 1

Maslow's Hierarchy of Need

Self-Determination Theory

A wide variety of theories exist as to why adults do not engage in the recommended amount of physical activity. Self-determination theory is a widely accepted premise that examines different types of motivation and is commonly used to understand motivation in the exercise context. It is based on the assumption that "humans are growth oriented, proactive, functioning, but that they are also vulnerable to being controlled" (Deci, 1992, p. 170). Self-determination theory is comprised of four mini-theories–cognitive evaluation theory, organismic integration theory, causality orientation theory, and basic need theory. Cognitive evaluation theory and organismic integration theory explain that motivational behaviors can be intrinsically

motivating, extrinsically motivating, and amotivating (Deci & Ryan, 1985) while causality orientation theory and basic need theory explain other factors must be taken into consideration when classifying motivational behaviors (Deci & Ryan, 2002).

Intrinsic motivation "refers to doing something because it is inherently interesting or enjoyable" (Ryan & Deci, 2000, p. 55) and falls into the cognitive and humanistic viewpoint of motivation. Intrinsic motivation is looked at in terms of a need for competence, autonomy, and relatedness, which fits under a subcategory of self-determination theory, referred to as *Cognitive evaluation theory*. Cognitive evaluation theory was originally formulated by Edward Deci (1975) and looked at intrinsic motivation only in terms of competence. Deci suggested that self-determination and competence were the fundamental issues involved in the intrinsic motivation process. Cognitive evaluation theory was further investigated by Deci and Ryan (1985) finding that interpersonal events and structures will produce feelings of competence during intrinsically motivating activities that can lead to the satisfaction of the basic psychological need of competence. Cognitive evaluation theory explains that, "competence will not enhance intrinsic motivation unless they are accompanied by a sense of autonomy and relatedness" (Deci & Ryan, 2000, p. 58). If autonomy and relatedness are not present, it is likely that a different motivator is at hand.

Extrinsic motivation "refers to doing something because it leads to a separate outcome" (Ryan & Deci, 2000, p. 55) and falls into the behavioral viewpoint of motivation. Extrinsic motivation can differ tremendously in its degree of autonomy, so a second sub-theory of the self-determination theory, *Organismic integration theory*

was "introduced to detail the different forms of extrinsic motivation and the contextual factors that either promote or hinder internalization and integration of the regulation for these behaviors" (Ryan & Deci, 2000, p. 61). Organismic integration theory is looked at along a continuum of least autonomous forms of extrinsic motivation (external regulation and introjected regulation) to more autonomous or self-determined forms of extrinsic motivation (identified regulation and integrated regulation). If no motivation is present, amotivation is examined.

The final piece of self-determination theory is amotivation, which is the "state of lacking an intention to act" (Ryan & Deci, 2000, p. 61). One that is amotivated is unable to control his or her behavior so that it produces a desired result. Many times, a person loses control by unmanageable forces (Deci & Ryan, 1985). Amotivation does not fall into the behavioral, cognitive, or humanistic viewpoints to motivation because there is no motivation present in the activity and some level of motivation must be present to fall into one of the viewpoints.

Causality orientation theory and basic needs theory were formulated to explain the differences between and among people. *Causality orientation theory* was formulated to describe individual differences in people's tendencies to orient toward environments that support their autonomy and control their behavior. This allows for individuals to change their behavior based on how they feels in a particular environment. *Basic needs theory* expands on causality orientation theory in that values to psychological health vary across time, gender, situations, and cultures (Deci & Ryan, 2002).

Figure 2 illustrates self-determination theory, as depicted by Ryan and Deci (2000). As one moves across the figure (left to right), behaviors become more self-determined in that "individuals have an inherent tendency to internalize and integrate extrinsic motives to come to autonomously self-regulate their behaviors" (Deci & Ryan, 1985; as cited in Markland & Ingledew, 2007, p. 33).

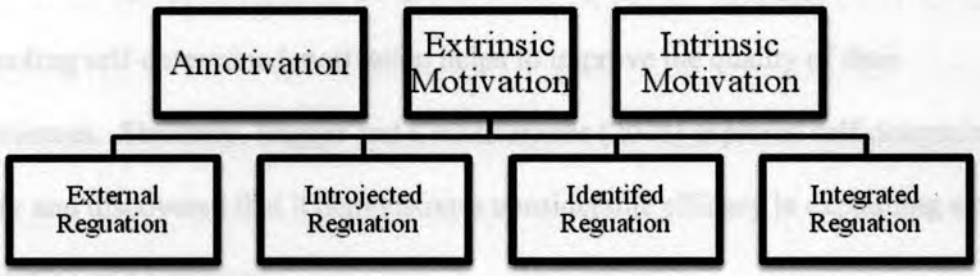

Figure 2

Self Determination Theory

Numerous studies have examined self-determination theory and its relation to exercise; however no study has investigated the relationship between individual and group exercise and its relation to self-determination study. Research conducted by Wilson, Rodgers, Blanchard, and Gessell (2003) found that intrinsic motivation and identified regulation are associated with positive motivation in that people performed frequent exercise, had positive attitudes toward exercise, and displayed overall physical fitness. In addition, the study suggests that more self-determined exercise regulations occurred over the course of completing a set exercise program, indicating that one becomes more self-determined as they progress through their exercise

program. Likewise, research by Lewis and Sutton (2011) concluded that more autonomous forms of exercise were more strongly associated with increased exercise participation while external behavioural regulation and amotivation were negatively correlated to participation in exercise. In addition, studies conducted by Daley and Duda (2006) and Thogersen-Ntoumani and Ntoumanis (2006) found that self-determination plays a role in shaping individuals' physical activity patterns and that promoting self-determined motivation helps to improve the quality of their experiences. Similarly, Hagger and Chatzisarantis (2008) explored self-determination theory and discovered that it demonstrates considerable efficacy in explaining exercise motivation and behavior.

Summary of Literature Review

This study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice. The review of literature focused on examining journal articles and books to better understand the role motivation plays in exercise choice. In this literature review, many topics were examined that included the health of the nation, individual and group exercise, exercise frequency, duration, and intensity, campus recreation centers, motivation, and self-determination theory.

Chapter III

METHODOLOGY

This study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice. The following sections describe the methods and procedures that were used to organize and analyze data results.

The Questionnaire

The importance of partaking in regular exercise can provide a host of physical and psychological benefits. Despite the multitude of benefits, research shows that 39 percent of Americans 18 years of age and older do not engage in any leisure-time physical activity (Klein, 2008). This questionnaire was designed to understand to what extent motivation affects exercise choice.

Questionnaire development. A two-part questionnaire was used to gather information. The survey instrument was available for participants to complete online at SurveyMonkey.com. The first part of the questionnaire collected background information–age, gender, status in school, year in college, ethnicity, type of exercise program (individual exercise in the fitness center, group fitness classes, or a

combination of the two), average frequency of each physical activity session, and average duration of each physical activity session. The researcher selected frequency and duration cutoffs based on common practice. Eight questions were asked in this first section. Respondents were asked to use a check mark to indicate their chosen answer based on the statement(s) that best described them.

The second part of the questionnaire was based on the works of Edward Deci and Richard Ryan and examined different types of motivation grounded in self-determination theory. David Markland and Vannessa Tobin (2004) developed the Behavioural Regulation in Exercise Questionnaire-2 that was used to assess amotivation, intrinsic motivation, and three out of the four types of extrinsic motivation–external, introjected, and identified. The Behavioural Regulation in Exercise Questionnaire-2 consists of 19 questions and uses a 5-point Likert scale to indicate to what extent the questions are true or not true for the respondent. 0 = not true, 2 = sometimes true, and 4 = very true. Responses 1 and 3 are the median choices. The Behavioural Regulation in Exercise Questionnaire-2 was chosen, as it is the most widely used instrument available to measure motivation in the exercise context. The questionnaire can be found in Appendix A.

Item dimension. In order to determine specifically what sources of motivation exist, the survey items were grouped into five different clusters based on the different levels of motivation. The outline of the motivation question groupings can be found in Table 1.

Table 1

Outline of Motivation Question Groupings

Item Number	Source of Motivation	Major Characteristic
5, 9, 12, 19	Amotivation	No Motivation
4, 10, 15, 18	Intrinsic	Doing something because it is enjoyable
1, 6, 11, 16	External Regulation	Least self-determined form of extrinsic motivation
2, 7, 13	Introjected Regulation	Median self-determined form of extrinsic motivation
3, 8, 14, 17	Identified Regulation	Most self-determined form of extrinsic motivation

Instrument reliability. Statistical integrity of the questionnaire was important to this study. Markland and Tobin (2004) conducted a Cronbach alpha procedure to test the reliability of this instrument. Cronbach alpha reliabilities were as follows: amotivation 0.83, intrinsic motivation 0.86, external regulation 0.79, introjected regulation 0.80, and identified regulation 0.73.

Securing Participation in the Study

Data was collected from undergraduate and graduate students at St. Cloud State University students who were members of the fitness center, group fitness classes, and intramural sports teams during spring semester 2010. Participation was voluntary as stated in the letter that accompanied each questionnaire and can be found in Appendix B. Participants were contacted regarding the opportunity to take part in this study through e-mail. The Director of Sport Facilities and Campus Recreation at

St. Cloud State University provided the researcher with membership lists. Students were given a link to the questionnaire that was available for completion online at SurveyMonkey.com. This study required convincing students to participate voluntarily and that such involvement was beneficial to them. A well-written and detailed draft of the e-mail was presented to the Director of Sport Facilities and Campus Recreation before the participants were contacted. A copy of the letter is displayed in Appendix B.

The Sample

In order to try to understand the exercise choices of a large population of individuals, simple random sampling and convenience sampling were used in this study. Simple random sampling was chosen, so each individual in the defined population had an equal chance of being selected. From the fitness center list, the 28th male and female and each subsequent 28th male and female were selected and asked to participate in the study; from the group fitness classes list, every other person on the list were selected and asked to participate in the study (only one male was registered for the group fitness classes); from the fitness center and group fitness classes list, the third male and female and each subsequent third male and female were selected and asked to participate in the study; and from the intramural list, the fifth and each subsequent fifth person were selected and asked to participate in the study. Convenience sampling was chosen, as the researcher was in close proximity to the University and familiar with its setting (Gall, Borg, & Gall, 1996).

The sample population was representative of students at St. Cloud State University students who were members of the fitness center and group fitness classes during spring semester 2010. Four hundred participants were asked to participate in this study. Of the 400 participants asked to participate, 100 were members of the fitness center, 100 were members of the group fitness classes, 100 were members of the fitness center and the group fitness classes and 100 were members of intramural sports teams. Of the 17,000 students enrolled in classes at St. Cloud State University, 3,347 were registered for the fitness center or group fitness classes as of February 1, 2010, so there were ample students in both of those categories to sample.

Collection of Data

The e-mail sent to each student selected to participate in the study stated the purpose of the study, the use of the results, voluntary participation, and the assurance of confidentiality. Each participant was contacted on February 5, 2010 regarding the opportunity to take part in this study through e-mail. Participants were given a link to the questionnaire in the e-mail and the questionnaire was available for completion online at SurveyMonkey.com. Participants were given three weeks to complete the questionnaire. A follow-up reminder was sent to all participants after the questionnaire had been available on SurveyMonkey for 1 week and then again after it had been available for 2 weeks. The researcher's contact information was included in the e-mail in the event that a participant has a question or concern regarding the study.

Analysis and Treatment of Data

The responses to the questionnaire were organized and analyzed using both the SurveyMonkey statistical analysis software available and the statistical services provided at St. Cloud State University. SurveyMonkey provided a response count and percentage breakdown of answers to each of the questions. The statistical services at St. Cloud State University performed a correlation analysis on the data.

Descriptive statistics. Descriptive statistics were used to organize and summarize the data. The age, gender, status in school, year in college, ethnicity, exercise choice, exercise frequency, and exercise duration was described with accompanying figures. Motivation type (intrinsic, extrinsic, and amotivation) was described through mean, standard deviation, range, and minimum and maximum scores. Results were put into a table and a narrative description was used to assist with visual comparisons.

Correlation analysis. A Pearson product-moment correlation coefficient was used to correlate the data as continuous scores to determine the magnitude of relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in exercise participants at St. Cloud State University (Gall et al., 1996). Results were put into a table and a narrative description was used to assist with visual comparisons.

Variables. The dependent variable of this study was exercise choice and the independent variable was motivation. The independent variable was assumed to influence the dependent variable (Jaccard & Becker, 2002), as such; the extent to which participants respond to the questionnaire reflected the dependent variable.

Research Questions

The study was directed by the following questions:

3. To what extent does motivation (intrinsic, extrinsic, and amotivation) affect exercise choice in students at St. Cloud State University?
4. Is there a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise in students at St. Cloud State University?

Hypothesis to be Tested

The following statement indicates the research hypothesis that was used for this study:

2. There is a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in students at St. Cloud State University.

Chapter IV

FINDINGS

This study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice. Motivation in the exercise context was assessed using the Behavioural Regulation in Exercise Questionnaire-2 (BREQ-2), a 19-item, Likert questionnaire. Descriptive statistics were used to present averages. A Pearson product-moment correlation coefficient (*Pearson r*) was used to determine if a relationship existed between motivation and exercise choice.

The findings are reported in the order of research questions posed. The following research questions as well as the hypothesis directed this study.

Research Questions

5. To what extent does motivation (intrinsic, extrinsic, and amotivation) affect exercise choice in students at St. Cloud State University?
6. Is there a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in students at St. Cloud State University?

Hypothesis Statement

3. There is a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in students at St. Cloud State University.

This chapter is divided into three sections: (1) reliability analysis, (2) descriptive results, and (3) correlation results.

A two-part questionnaire was used to gather information. The first part of the questionnaire contained eight questions and collected background information–age, gender, status in school, year in college, ethnicity, type of exercise program (individual exercise in the fitness center, group fitness classes, or a combination of the two), and average frequency and average duration of each physical activity session. The BREQ-2 (part two of the questionnaire) was used to assess amotivation, intrinsic motivation, and three out of the four types of extrinsic motivation–external regulation, introjected regulation, and identified regulation. The BREQ-2 consisted of 19 questions and used a 5-point Likert scale to indicate to what extent the questions were true or not true for the respondent. 0 = not true, 2 = sometimes true, and 4 = very true. Responses 1 and 3 were the median choices. The outline of question groupings based on the different types of motivation can be found in Table 1.

Reliability Analysis–Cronbach Alpha

Test of Reliability

A Cronbach alpha test was performed on the BREQ-2 to determine the internal consistency of the questions and to determine how much measurement error was present in the scores yielded by the questionnaire. If the reliability is high,

participants will answer items of a comparable nature in a similar fashion. The alpha scores for this instrument computed by the St. Cloud State University Statistical Services Center were as follows: amotivation 0.62, intrinsic 0.86, external regulation 0.70, introjected regulation 0.79, and identified regulation 0.77. Generally, tests that yield scores with a reliability of 0.75 or higher are sufficiently reliable for most research purposes (Gall et al., 1996).

Response Rate

Four hundred questionnaires were e-mailed out to students at St. Cloud State University. Completed questionnaires were reviewed and checked for proper markings and completion. The total number of participants that responded to the questionnaire was 85. Five of the 85 were discarded, as four were not completed as directed and the fifth was discarded because the participant indicated participation in intramural sports only and intramural sports was removed from the study due to a low response rate, generating a return rate of 20%.

Those participants that indicated participation in intramurals and another program area (individual exercise in the fitness center, group fitness classes, or both individual exercise in the fitness center and group fitness classes) were moved into the other program area. Ten participants indicated participation in individual exercise in the fitness center and intramural sports, so they were moved into the individual exercise section. Six participants indicated participation in group fitness classes and intramurals, so they were moved into the group fitness classes section. Nine

individuals indicated participation in individual exercise in the fitness center, group fitness classes, and intramural sports, so they were moved into the combination section of individual exercise in the fitness center and the group fitness classes.

Table 2 illustrates how many participants responded from each of the three program areas. Twenty-eight of the 80 returned surveys that were used in this study came from people that participated in individual exercise in the fitness center, 22 responses came from those that participated in group fitness classes, and 30 responses came from people that participated in both individual exercise in the fitness center and group fitness classes.

Table 2

Questionnaire Return Rate

Cluster Category	*N*	*P*
Individual Exercise in the Fitness Center	28	35%
Group Fitness Classes	22	27.5%
Individual Exercise in the Fitness Center and Group Fitness Classes	30	37.5%
Total Number of surveys received	**80**	**100%**
Total Number of surveys sent out	**400**	

Questionnaire Part I–Descriptive Results

The following section includes a summary of background information collected from the 80 participants that took part in this study. Information gathered included each participant's age, gender, status in school, year in college, ethnicity,

type of exercise program, and average frequency and average duration of each physical activity session.

Age. Figure 3 provides the age of those that participated in the study. Participants ranged in age from 18 to 48. The most frequently occurring age was 19 with 16 participants, followed closely by those 20 years old with 15 participants, and in third by those 21 years old with 14 participants. The other groups had nine or less participants.

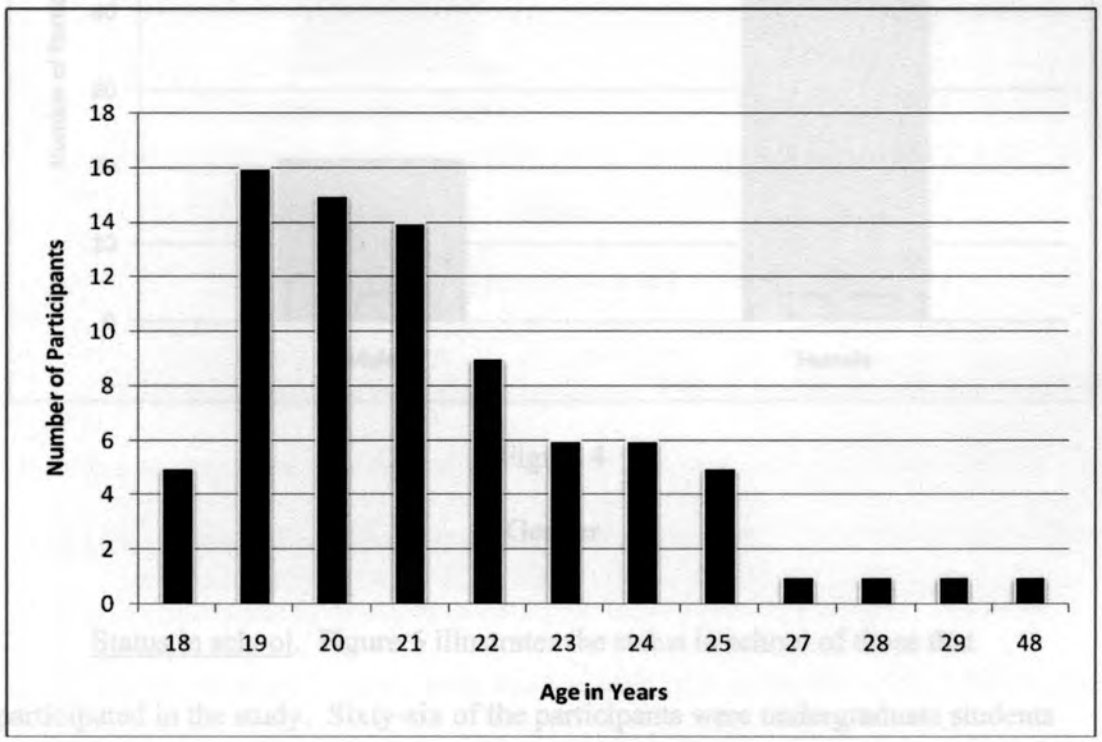

Figure 3

Age

Gender. Figure 4 displays the gender of those that participated in the study. Fifty-nine of the participants that took part in the study were females and 21 of the participants that took part in the study were males.

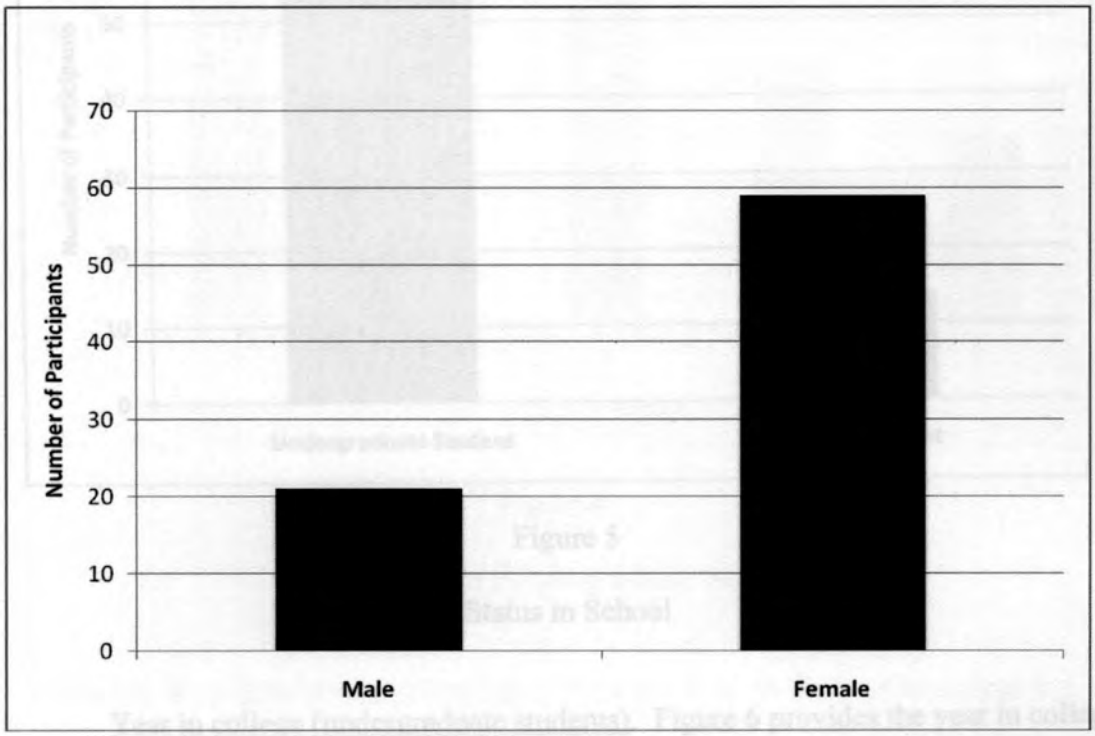

Figure 4

Gender

Status in school. Figure 5 illustrates the status in school of those that participated in the study. Sixty-six of the participants were undergraduate students and 14 of the participants were graduate students.

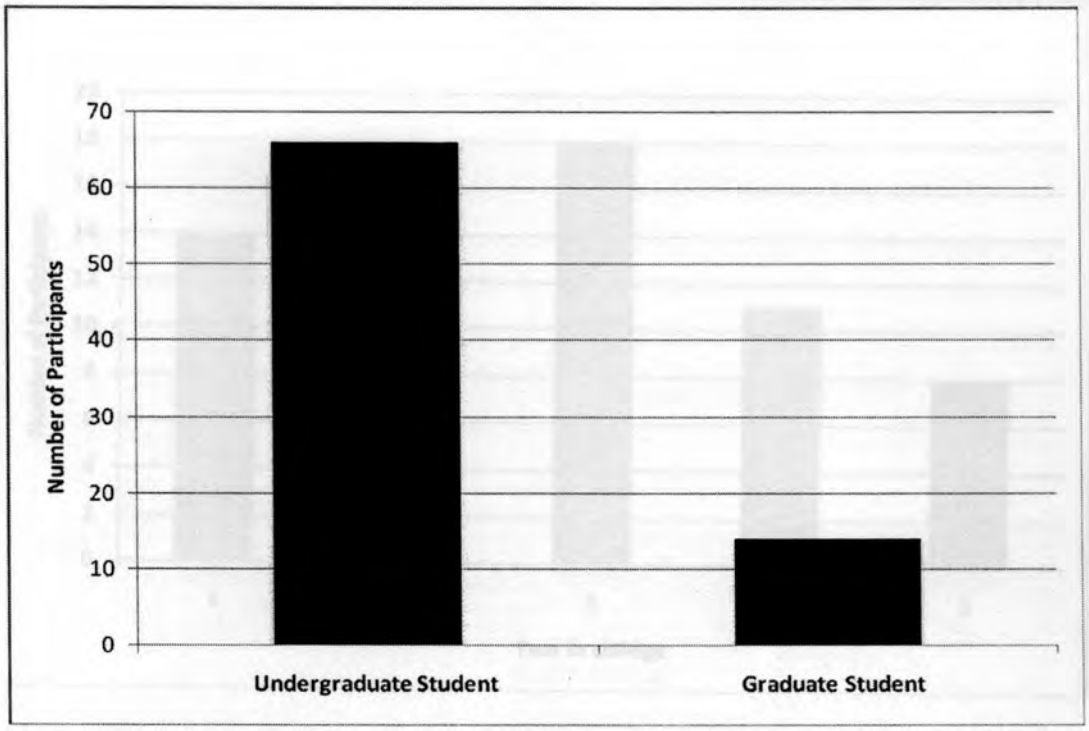

Figure 5

Status in School

Year in college (undergraduate students). Figure 6 provides the year in college for those students that participated in the study that were undergraduate students. A total of 66 undergraduate students participated in the study. Participants ranged from first year undergraduate students to fifth year undergraduate students. The most commonly occurring year was third year students with 18 of the participants falling into this category, following closely by second year students making up 15 of the participants, followed by first year students making up 14 of the participants, followed by fourth year students making up 11 of the participants, and finally followed by fifth year students making up eight of the participants.

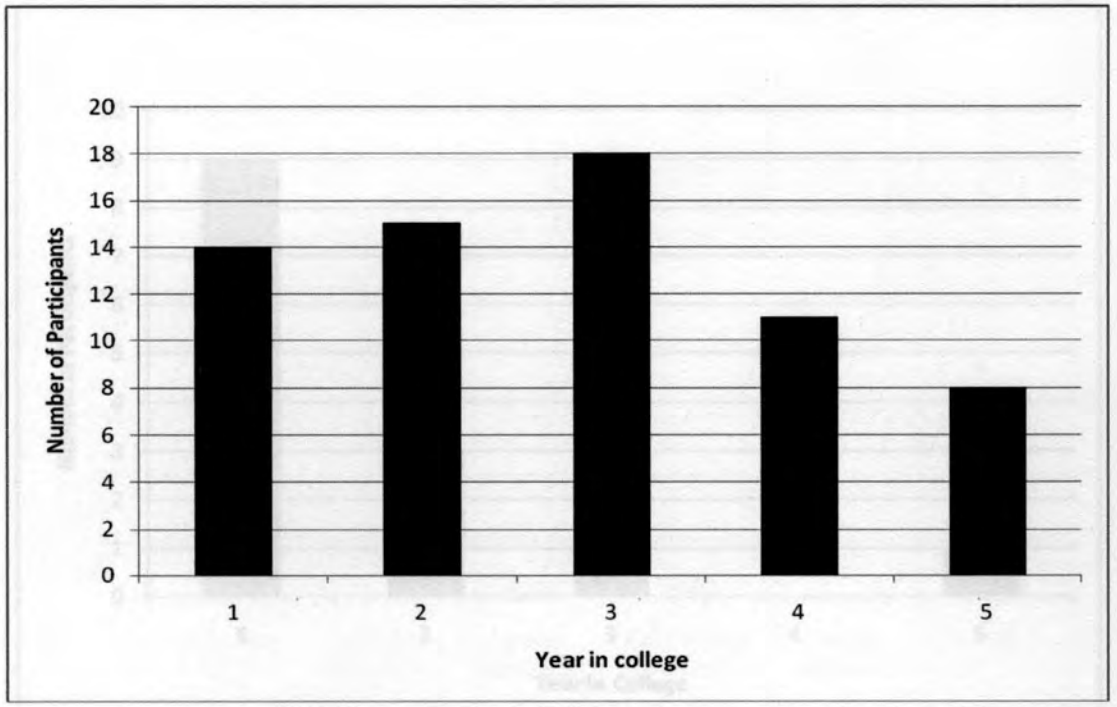

Figure 6

Year in College (Undergraduate Students)

Year in college (graduate students). Figure 7 displays the year in college for those students that participated in the study that were graduate students. A total of fourteen graduate students participated in the study. Participants ranged in year from first year graduate students to fifth year graduate students. The most commonly occurring year was first year students with nine of the participants falling into this category, following by second year students making up three of the participants, and finally followed by third and fifth year students with one participant each.

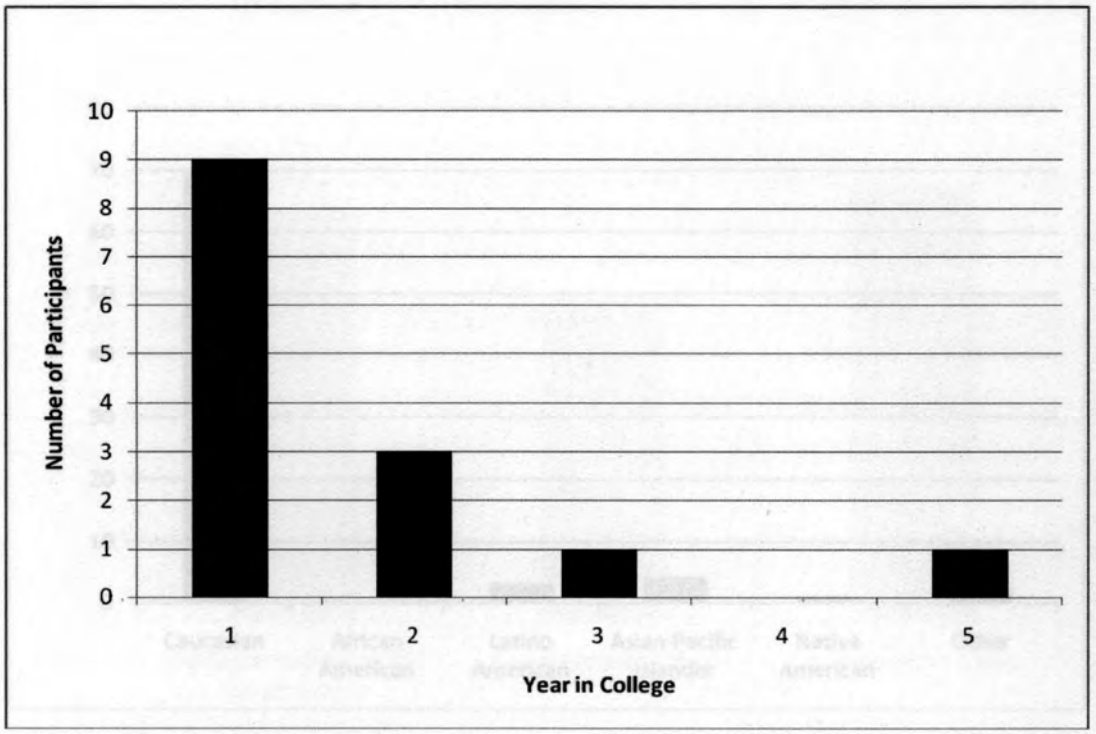

Figure 7

Year in College (Graduate Students)

Ethnicity. Figure 8 illustrates the different ethnicities of those that participated in the study. The majority of students that participated in the study were Caucasian with 70 of the participants falling into this category. The other 10 participants that took part in the study were Latino American, Asian-Pacific Islander, Native American, or other.

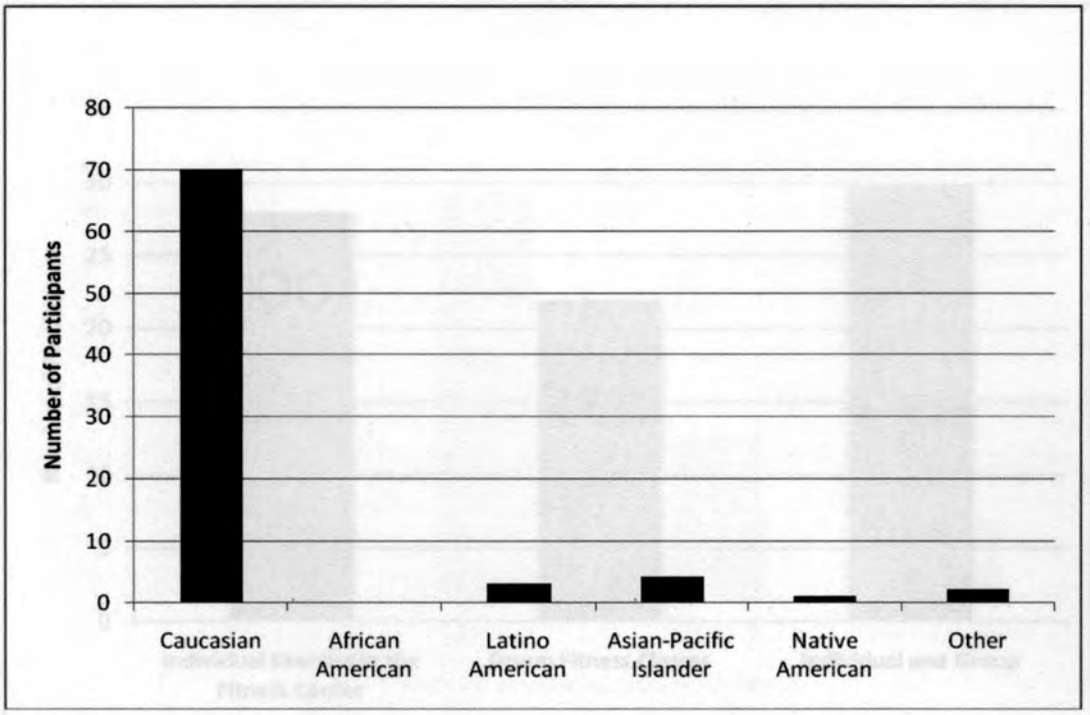

Figure 8

Ethnicity

Type of exercise program. Figure 9 provides a breakdown of the three different types of exercise programs–individual exercise in the fitness center, group fitness classes, and a combination of individual exercise in the fitness center and group fitness classes of those students that took part in this study. Twenty-eight took part in individual exercise in the fitness center, 22 took part in group fitness classes, and 30 took part in both individual exercise in the fitness center and group fitness classes.

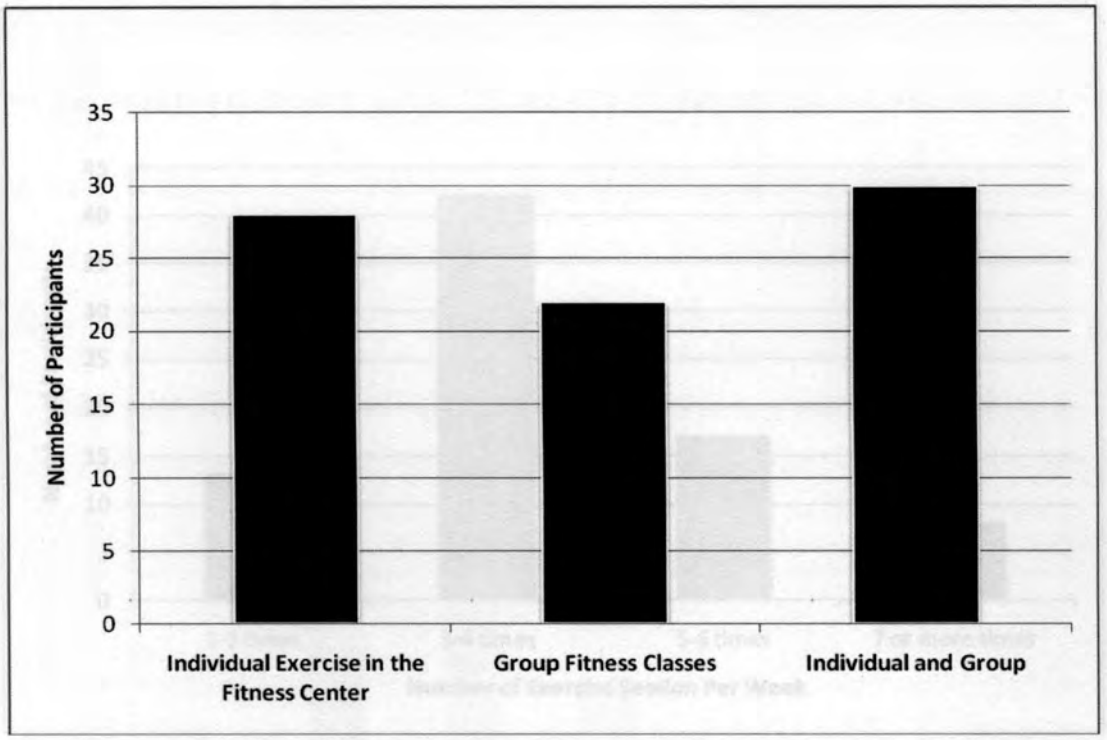

Figure 9

Type of Exercise Program

Average number of times you participate in physical activity per week. Figure 10 displays the average number of exercise session per week that participants took part in on a weekly basis. Participants took part in exercise 1-2 times per week, 3-4 times per week, 5-6 times per week, or seven or more times per week. Forty-two participants took part in exercise 3-4 times per week, 17 took part in exercise 5-6 times per week, 13 took part in exercise 1-2 times per week, and eight took part in exercise seven or more times per week.

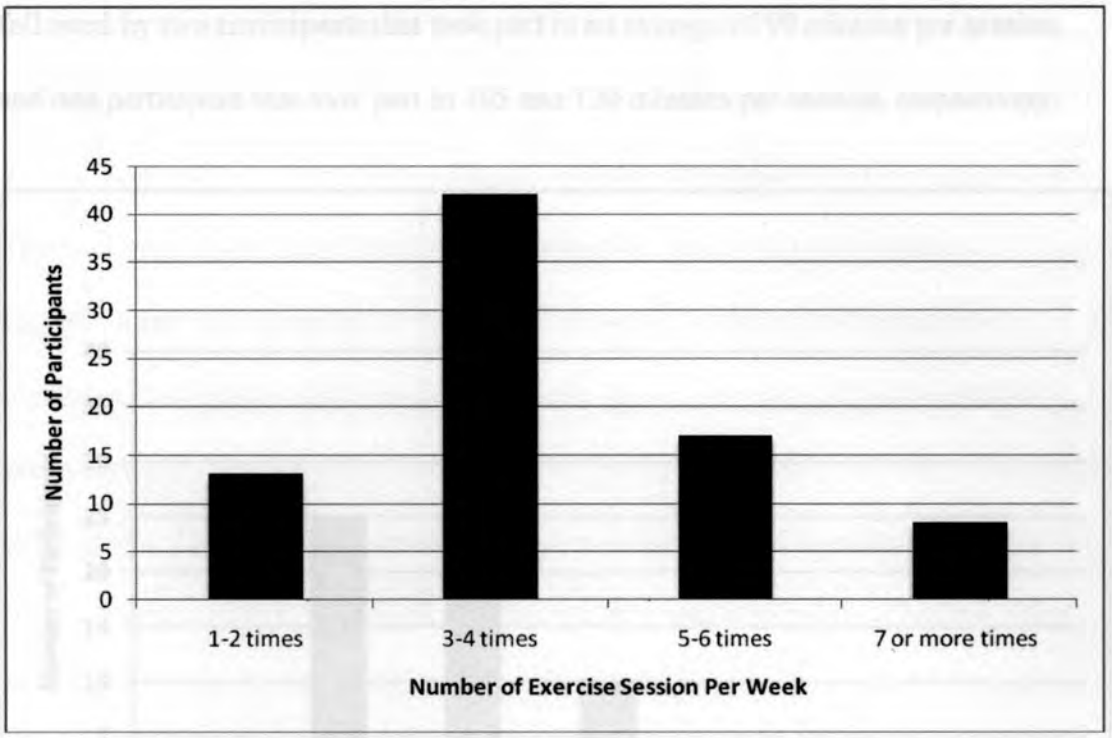

Figure 10

Average Number of Times You Participate in Physical Activity per Week

Average time (in minutes) you participate in each activity session. Figure 11 illustrates the average time in minutes of each activity session. Participants took part in exercise on average 30 minutes per session, 45 minutes per session, 60 minutes per session, 75 minutes per session, 90 minutes per session, 105 minutes per session, or 120 minutes per session. Participants that took part in 60 minutes per session was the most frequently occurring average with 37 participants falling into this category, followed by 25 participants that took part in an average of 45 minutes per session, followed by ten participants that took part in an average of 75 minutes per session, followed by four participants that took part in an average of 30 minutes per session,

followed by two participants that took part in an average of 90 minutes per session, and one participant that took part in 105 and 120 minutes per session, respectively.

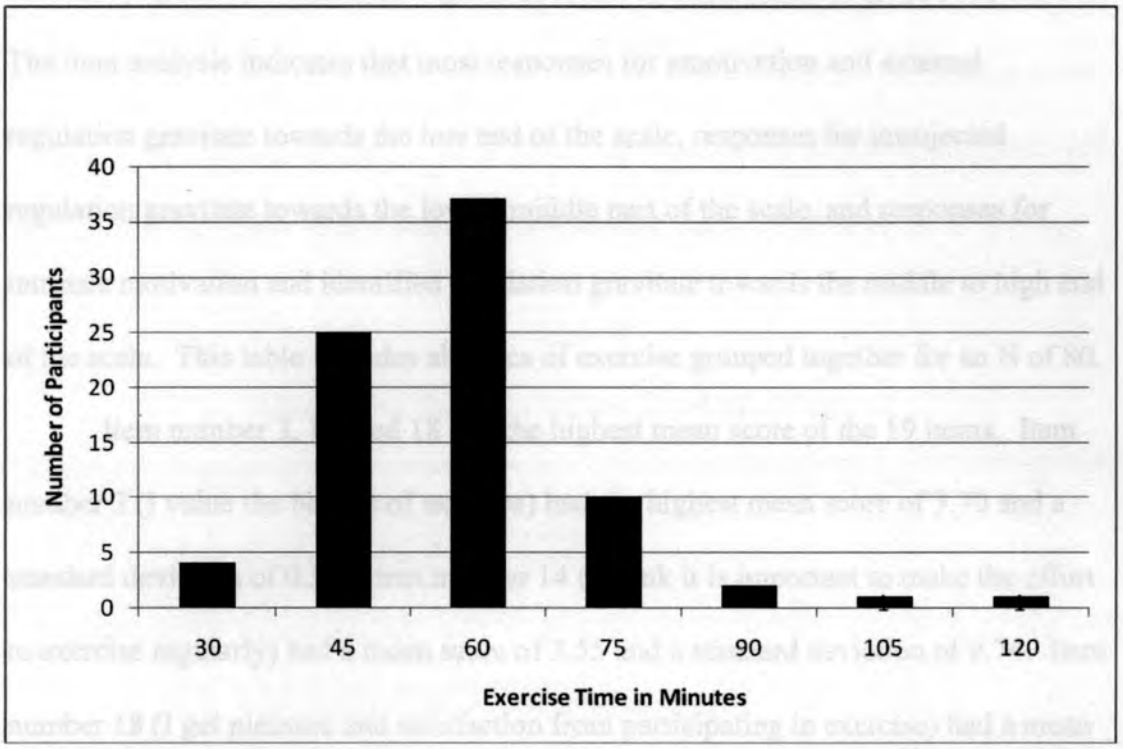

Figure 11

Average Time (in minutes) You Participate in Each Activity Session

Questionnaire Part II–BREQ-2

The five sources of motivation outlined in Table 1 were used to group the data in Table 3. Amotivation, intrinsic motivation, external regulation, introjected regulation, and identified regulation make up the five sources of motivation.

Table 3 gives the mean score and standard deviation for each of the 19 items in the BREQ-2. Amotivation include items numbering 5, 9, 12, and 19. Items identified

as intrinsic sources of motivation include 4, 10, 15, and 18. External regulation includes items numbering 1, 6, 11, and 16. Items identified as introjected regulation include 2, 7, and 13. Identified regulation includes items numbering 3, 8, 14, and 17. The item analysis indicates that most responses for amotivation and external regulation gravitate towards the low end of the scale, responses for introjected regulation gravitate towards the low to middle part of the scale, and responses for intrinsic motivation and identified regulation gravitate towards the middle to high end of the scale. This table includes all types of exercise grouped together for an N of 80.

Item number 3, 14, and 18 had the highest mean score of the 19 items. Item number 3 (I value the benefit of exercise) had the highest mean score of 3.70 and a standard deviation of 0.58. Item number 14 (I think it is important to make the effort to exercise regularly) had a mean score of 3.55 and a standard deviation of 0.74. Item number 18 (I get pleasure and satisfaction from participating in exercise) had a mean score of 3.36 and a standard deviation of 0.77. Of the three highest means, one of them has been identified as having intrinsic sources of motivation (number 18) while the other two have been identified as having extrinsic sources of motivation (numbers 3 and 14).

The lowest scoring items were 12 (I don't see the point of exercising) and 19 (I think exercising is a waste of time) with mean scores of 0.15 and 0.09 and standard deviations of 0.28 and 0.66 respectively. The next two lowest scoring item were 5 (I don't see why I should have to exercise) and 9 (I can't see why I should bother exercising) with means scores of 0.20 and 0.26 and a standard deviation of 0.56 and

0.82 respectively. All four of the lowest scoring items have been identified as a form of amotivation meaning that no motivation is present.

In summary the statistics show that intrinsic motivation and identified regulation, the two most self-determined forms of exercise and had the highest mean scores, while external amotivation, external regulation, and introjected regulation had the lowest scores and are the least self-determined forms of exercise.

Table 3

Descriptive Statistics (Mean, Standard Deviation)

Sources of Motivation	Item #	Statement	N	Mean	Std. Deviation
Amotivation	5	I don't see why I should have to exercise	80	0.20	0.56
	9	I can't see why I should bother exercising	80	0.26	0.82
	12	I don't see the point in exercising	80	0.15	0.66
	19	I think exercising is a waste of time	80	0.09	0.28
Intrinsic	4	I exercise because it's fun	80	2.89	0.93
	10	I enjoy my exercise sessions	80	3.31	0.74
	15	I find exercise a pleasurable activity	80	3.15	0.93
	18	I get pleasure and satisfaction from participating in exercise	80	3.36	0.77
External Regulation	1	I exercise because other people say I should	80	0.61	0.83
	6	I take part in exercise because my friend/family/partner say I should	80	0.68	0.91
			80	0.30	0.64
	11	I exercise because others will not be pleased with me if I don't	80	0.58	0.92
	16	I feel under pressure from my friends/family to exercise			
Introjected Regulation	2	I feel guilty when I don't exercise	80	2.43	1.19
	7	I feel ashamed when I miss an exercise session	80	1.65	1.39
	13	I feel like a failure when I haven't exercised in a while	80	1.85	1.36
Identified Regulation	3	I value the benefits of exercise	80	3.70	0.58
	8	It's important to me to exercise regularly	80	3.24	0.98
	14	I think it is important to make the effort to exercise regularly	80	3.55	0.74
	17	I get restless if I don't exercise regularly	80	2.49	1.36

Table 4 shows the minimum, maximum, and range of each of the grouped items. The highest score possible for any of the items was a 4 (very true), while the lowest score was a 0 (not true). Table 4 has been organized in the same manner as Table 3, with the five sources of motivation grouped together with amotivation

grouped first followed by intrinsic motivation, external regulation, introjected regulation, and identified regulation.

The shortest range of any of the items occurred for item number 19 (I think exercising is a waste of time). As mentioned, this item also had the lowest mean score. The highest range occurred on 16 different items. They are item number 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 12, 13, 14, 15, 16, 17, and 18 all with a range of four. This indicates a wide range of variability which means responses were scatter across these items.

Table 4

Descriptive Statistics (Range, Minimum, Maximum)

Sources of Motivation	Item #	Statement	Range	Min.	Max.
Amotivation	5	I don't see why I should have to exercise	4	0	4
	9	I can't see why I should bother exercising	4	0	4
	12	I don't see the point in exercising	4	0	4
	19	I think exercising is a waste of time	1	0	1
Intrinsic	4	I exercise because it's fun	3	1	4
	10	I enjoy my exercise sessions	3	1	4
	15	I find exercise a pleasurable activity	4	0	4
	18	I get pleasure and satisfaction from participating in exercise	3	1	4
External Regulation	1	I exercise because other people say I should	4	0	4
	6	I take part in exercise because my friend/family/partner say I should	4	0	4
	11	I exercise because others will not be pleased with me if I don't	3	0	3
	16	I feel under pressure from my friends/family to exercise	4	0	4
Introjected Regulation	2	I feel guilty when I don't exercise	4	0	4
	7	I feel ashamed when I miss an exercise session	4	0	4
	13	I feel like a failure when I haven't exercised in a while	4	0	4
Identified Regulation	3	I value the benefits of exercise	2	2	4
	8	It's important to me to exercise regularly	4	0	4
	14	I think it is important to make the effort to exercise regularly	4	0	4
	17	I get restless if I don't exercise regularly	4	0	4

Correlation Results

The following section includes a summary of the correlation results. Three separate correlations were performed on the data. Motivation was measured against individual exercise in the fitness center, motivation was measured against group fitness classes, and motivation was measured against the combination of individual exercise in the fitness center and group fitness classes.

Motivation measured against individual exercise in the fitness center. There was a significant correlation between individual exercise in the fitness center and amotivation, external regulation, identified regulation, and intrinsic motivation at the 0.01 level. The strongest correlation was 0.803; which occurred with amotivation. Identified regulation, intrinsic motivation, and external regulation also had significant correlations at 0.702, 0.652, and 0.609 respectively. The weakest correlation calculated, 0.200, was for introjected regulation. Table 5 shows each type of motivation and its relationship with individual exercise in the fitness center.

Table 5

Individual Exercise in the Fitness Center (*Pearson r*)

	Amotivation	External Regulation	Introjected Regulation	Identified Regulation	Intrinsic
Pearson r	.803*	.609*	.200	.702*	.652*
Sig. (2-tailed)	.000	.001	.308	.000	.000
N	28	28	28	28	28

* Correlation is significant at the 0.01 level (2-tailed).

Motivation measured against group fitness classes. The relationship between motivation and group fitness classes was significant at the 0.01 level for identified regulation and intrinsic motivation. The strongest correlation was 0.835. That correlation was found with intrinsic motivation. Identified regulation also had a significant correlation with 0.673. Table 6 shows how group exercise is correlated with each type of motivation.

Table 6

Group Fitness Classes (*Pearson r*)

	Amotivation	External Regulation	Introjected Regulation	Identified Regulation	Intrinsic
Pearson r	.497	.308	-.032	.673*	.835*
Sig. (2-tailed)	.018	.163	.886	.001	.000
N	22	22	22	22	22

*Correlation is significant at the 0.01 level (2-tailed).

Motivation measured against individual exercise in the fitness center and group fitness classes. There was a significant correlation between individual exercise in the fitness center and group fitness classes and intrinsic motivation and identified regulation at the 0.01 level. The strongest correlation was 0.893; which occurred with intrinsic motivation followed by identified regulation with a 0.710. The weakest correlation calculated, 0.249, was for external regulation. Table 7 shows each type of motivation and its relationship with individual exercise in the fitness center and group fitness classes.

Table 7

Individual Exercise in the Fitness Center and Group Fitness Classes (*Pearson r*)

	Amotivation	External Regulation	Introjected Regulation	Identified Regulation	Intrinsic
Pearson r	.377	.249	.250	.710*	.893*
Sig. (2-tailed)	.040	.184	.183	.000	.000
N	30	30	30	30	30

*Correlation is significant at the 0.01 level (2-tailed).

Chapter V

RESULTS

This study was designed to examine students at St. Cloud State University that participated in individual and group exercise programs who were members of the fitness center and group fitness classes to determine to what extent motivation affected exercise choice.

Summary

The goal of this research study was to understand people' underlying decisions to engage, or not engage in physical exercise, looking specifically at motivation. Students at St. Cloud State University who were members to the fitness center and group fitness classes in the spring of 2010 were surveyed. Correlation statistics were used to determine if a relationship existed between motivation and exercise choice. This study will aid in the body of research regarding self-motivation in exercise participants and shed light on the extent to which motivation influences exercise choice. The results from this study will also assist health organizations understand the differences in individual's motivation and its relation to exercise patterns and choices.

The correlation statistics from this study were used to draw conclusions to the research questions. The researcher divided the 80 returned questionnaires into three

different categories and had three separate correlations run on the data. A correlation was run on individual exercise in the fitness center (N of 28), group fitness classes (N of 22), and the combination of individual exercise in the fitness center and group fitness classes (N of 30). The Cronbach alpha test performed on the BREQ-2 to determine how much measurement error was present in the scores yielded by the questionnaire produced the following alpha scores: amotivation 0.62, intrinsic 0.86, external regulation 0.70, introjected regulation 0.79, and identified regulation 0.77. Generally, tests that yield scores with a reliability of 0.75 or higher are sufficiently reliable for most research purposes (Gall et al., 1996).

Motivation measured against individual exercise in the fitness center saw a significant correlation at the 0.01 level for amotivation, external regulation, identified regulation and intrinsic motivation. Motivation measured against group fitness classes saw a significant relationship at the 0.01 level for identified regulation and intrinsic motivation. Motivation measured against the combination of individual exercise in the fitness center and group fitness classes saw a significant correlation at the 0.01 level for identified regulation and intrinsic motivation.

Conclusions

This section is organized according to research questions posed with the corresponding hypothesis:

1. To what extent does motivation (intrinsic, extrinsic, and amotivation) affect exercise choice in students at St. Cloud State University?

The research shows that motivation does not affect students that participate exclusively in individual exercise in the fitness center. There was a strong correlation with amotivation, external regulation, identified regulation, and intrinsic motivation. A strong correlation with four out of the fives forms of motivation indicates that nothing stands out in terms of these students and their exercise choices and motivation does not have an affect on the exercise decisions of these students.

The research shows that motivation does affect students that participate in group fitness classes and the combination of individual exercise in the fitness center and group fitness classes. Students that participated in these two forms of exercise were strongly correlated with intrinsic motivation and identified regulation, the two most self-determined forms of exercise examined in this study. It is understood that people that fall into either of these categories exercise because it is fun, get pleasure and satisfaction from participating in exercise, value the benefits of exercise, and feel that it is important to exercise regularly.

2. Is there a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in students at St. Cloud State University?

One null hypothesis statement was employed to answer research question two.

A. There is a relationship between motivation type (intrinsic, extrinsic, and amotivation) and exercise choice in students at St. Cloud State University.

The analysis shows no significant correlation between motivation and exercises choice when motivation was measured against individual exercise in the

fitness center. Since there is a relationship between amotivation, external regulation, identified regulation, and intrinsic motivation this leads the researcher to accept the null hypothesis. The analysis shows a significant correlation between motivation and exercise choice when motivation was measured against group fitness classes and also when motivation was measured against the combination of individual exercise in the fitness center and group fitness classes, which leads the researcher to reject the null hypothesis.

In conclusion, the literature states that more autonomous forms of exercise are strongly associated with increased exercise participation while external regulation and amotivation are negatively correlated to participation in exercise. This study did not align with the literature for those that participated exclusively in individual exercise in the fitness center; however this study did align with the literature for those that participated in group fitness classes and the combination of individual exercise in the fitness center and group fitness classes.

Discussion

Motivation explains why a person does something. Why for example, do some people exercise 5-6 times per week for 60 minutes each time while others only exercise 1-2 times per week for 30 minutes each time? This study sought to learn more about peoples' underlying decision to engage or not engage in physical activity and the role that motivation plays in this decision.

People that choose to engage in regular physical activity do so because it is fun, they enjoy their exercise session, they find exercise pleasurable, and they get satisfaction from their participation. These people are intrinsically motivated, meaning that their reason for participation comes from within. People that do not choose to participate in regular physical activity or do not enjoy their activity sessions are extrinsically motivated, meaning that they do not exercise for the pure joy and fun; they exercise because other people say they should, they feel pressure to exercise, or they feel guilt when they do not exercise. A portion of this study did not find this to be true, despite the overwhelming literature.

The correlation results from the individual exercise in the fitness center section did not align with the literature. The Cronbach alpha test performed on the BREQ-2 produced two reliability scores below what is considered acceptable for research purposes–amotivation and external regulation; yielding scores of 0.62 and 0.70 respectively. This could explain why theses two forms of motivation saw a significant correlation at the 0.01 level.

A goal of every University campus recreation should be to offer programs to meet everyone's needs. This research study shows that students at St. Cloud State University that are intrinsically motivated participate in group fitness classes and the combination of individual exercise in the fitness center and group fitness classes. Some people may not enjoy taking part in exercise in a fitness center or group fitness classes, so it is important for the University to promote physical activity not only in

the traditional sense, but also through various leisure experiences. This all comes back to a fundamental question. Why is this important?

Thirty-nine percent of Americans 18 years of age and older do not engage in any leisure-time physical activity (Klein, 2008). This puts many at risk for a number of health problems such as: coronary heart disease, type two diabetes, cancers (endometrial, breast, and colon), high blood pressure, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea, respiratory problems, and osteoarthritis (Center for Disease Control and Prevention, 2009). By creating healthy exercise patterns and choices in college, students can leave the University not only with a wealth of knowledge, but also with physical activities that they enjoy and can carry with them the rest of their lives.

Limitations

Every research study is bound to have some limitations that had to be addressed or overcome in order to complete the study. The limitations of this study are described below.

No distinction between undergraduate and graduate students in the databases. The first limitation encountered by the researcher was the lack of distinction between undergraduate and graduate students in the campus recreation database. The database categorized all students into one category (undergraduate and graduate), so the researcher was unable to gather a sample that included equal representation of

undergraduate and graduate students that belonged to the fitness center and group fitness classes.

No electronic intramural database. The Intramural Sports Department at St. Cloud State University does not keep an electronic database of students enrolled in intramural sports. Students sign-up for intramural sports by listing each team member's first and last name on a handwritten sheet. No contact information besides a first and last name is collected. The intramural team lists provided by the Intramural Director were difficult to read because they were handwritten. In order to find the student's e-mail addresses to contact them about participating in the study, the researcher looked up each student's names in the St. Cloud State University student database. Some common first and last names produced multiple listings, so the researcher was unable to use those participants in the study, as it was unknown to the researcher which particular student with that name participated in intramural sports. The researcher was unable to contact three people about participating in this study because of this specific limitation.

SurveyMonkey scale. The statistical software offered by SurveyMonkey did not allow for a 0 to 4 scale, so the results had to be converted from a 1 to 5 scale to conduct the study and then were changed back to a 0 to 4 scale so the study could follow the scale set by the Behavioural Regulation in Exercise Questionnaire-2.

No response limit on SurveyMonkey. There was no way to limit the number of times a questionnaire could be completed on SurveyMonkey, so it is possible that a participant could have completed a survey more then one time.

Return rate. There were a total of 400 survey instruments sent out to participants. Eighty were returned. The return rate could have been low due to the fact that the study was only available for completion online and no incentives were offered for completing the survey. In the future, incentives could be used in order to increase the return rate.

Recommendations for Further Research

This study was designed to understand people' underlying reasons to engage or not engage in physical activity. Recommendations would include the following:

Survey revised using a broader sample population. This study only examined exercise motivation of a small percentage of students at St. Cloud State University. A similar study could include students that participate in varsity athletics, those that participate in intramurals and sport clubs, those that belong to private health clubs, those that exercise outside, those that exercise from their home, and those that do not exercise at all.

Offer an incentive for competing the survey. The return rate for the survey was low. Only 20% of the students asked to participate in the study did so. Offering

some kind of extrinsic reward such as a prize for students that complete the survey may encourage more people to participate.

Conduct the study at a different time during the year. Many people join a fitness center or group fitness classes as part of a new years resolution or at the beginning of a new semester. This study was conducted in the first part of the spring semester. A study conducted at the end of a semester may present different findings in terms of exercise motivation.

Conduct an additional study five years after the original study. University students have access to a variety of exercise facilities. It would be interested to conduct a study on the same group five years from the initial study to see how exercise patterns and motivation levels have changed.

Recommendations for Practice

The following is a recommendation to St. Cloud State University and the campus recreation program:

Focus marketing efforts on group fitness classes. This study found that students that participate in the group fitness classes had a strong correlation with intrinsic motivation and identified regulation, the two most self-determined forms of exercise examined in this study. Based on what this study found and previous research on group exercise, I believe that it would be in the best interest of campus recreation to channel their marketing efforts to the group fitness classes. It is

understood that people that fall into these categories exercise because it is fun and value the benefits of exercise. Campus recreation is likely to get participates to return each year to their group exercise programs if their students enjoy their exercise sessions and are intrinsically motivated.

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APPENDICES

APPENDIX A

Questionnaire

Questionnaire:
Motivation in Exercise

I: Background Information

Please write your age in the space provided next to question 1. Please check your chosen answer for questions 2-8.

1. Age_____

2. Gender

   _____Female

   _____Male

3. Status in School:

   _____Undergraduate Student

   _____Graduate Student

4. Year in college (if a Graduate student include years in Graduate school only):

   _____1st Year

   _____2nd Year

   _____3rd Year

   _____4th Year

   _____5th Year

   _____6th Year

   _____7 or more years

5. Ethnicity:

_____Caucasian

_____African American

_____Latino American

_____Asian-Pacific Islander

_____Native American

_____Other (please specify):_____

6. Type of Exercise Program (please check all that apply):

_____ Individual Exercise in the Fitness Center

_____Group Fitness Classes

_____Intramural Sports Teams

_____Other (please specify):_____

7. Average number of times you participate in physical activity per week:

_____1-2 times per week

_____3-4 times per week

_____5-6 times per week

_____7 or more times per week

8. The average time (in minutes) you participate in EACH activity session:

_____Less then 20 minutes per session

_____20 minutes per session

_____34 minutes per session

_____60 minutes per session

_____75 minutes per session

_____90 minuets per session

_____105 minutes per session

_____120 minutes per session

_____More then 120 minutes per session

II: Motivation

The statements below are designed to understand peoples' underlying decisions to engage, or not engage in physical exercise. Using the scale below, please check the statement to indicate to what extent each of the following items is true for you.

0 = Not True **2 = Sometimes True** **4 = Very True**

1.	I exercise because other people say I should	0	1	2	3	4
2.	I feel guilty when I don't exercise	0	1	2	3	4
3.	I value the benefits of exercise	0	1	2	3	4
4.	I exercise because it's fun	0	1	2	3	4
5.	I don't see why I should have to exercise	0	1	2	3	4
6.	I take part in exercise because my friend/ family/partner say I should	0	1	2	3	4
7.	I feel ashamed when I miss an exercise session	0	1	2	3	4
8.	It's important to me to exercise regularly	0	1	2	3	4
9.	I can't see why I should bother exercising	0	1	2	3	4
10.	I enjoy my exercise sessions	0	1	2	3	4
11.	I exercise because others will not be pleased with me if I don't	0	1	2	3	4

12. I don't see the point in exercising	0	1	2	3	4
13. I feel like a failure when I haven't exercised in a while	0	1	2	3	4
14. I think it is important to make the effort to exercise regularly	0	1	2	3	4
15. I find exercise a pleasurable activity	0	1	2	3	4
16. I feel under pressure from my friends/family to exercise	0	1	2	3	4
17. I get restless if I don't exercise regularly	0	1	2	3	4
18. I get pleasure and satisfaction from participating in exercise	0	1	2	3	4
19. I think exercising is a waste of time	0	1	2	3	4

APPENDIX B

Cover Letter

February 5, 2010

Dear Participant:

You have been selected to be included in a graduate student's research study regarding motivation to determine to what extent three types of motivation (intrinsic motivation, extrinsic motivation, and amotivation) affect exercise choice, duration, and frequency. You were identified for participation in this study through the Campus Recreation membership database at St. Cloud State University as a member of the fitness center, group fitness classes, or intramural sports teams.

Would you be willing to take a few minutes to complete the questionnaire? **Participation is voluntary**. All participants are free to withdraw consent and to discontinue participation in this study at any time. All data provided will be kept confidential. Only the researcher will be involved in the tabulation of the data. No birthdates, social security numbers, or names will be required. The time required to complete the 27-item questionnaire is approximately 5-10 minutes and is available for completion online at SurveyMonkey.com. Please click on the following link http://www.surveymonkey.com/s/FCF7RP6 and follow the directions listed on the questionnaire.

If you have any questions or concerns, please call me at (651) 587-9575 or e-mail me at sela0402@stcloudstate.edu. Please notify me through phone or e-mail if you would like a copy of the results at the conclusion of this study. Thank you for your time and consideration regarding participation in this study.

Sincerely,
Laura Seidenkranz
(651) 587-9575
sela0402@stcloudstate.edu

APPENDIX C

Human Subjects Approval

Sponsored Programs

St. Cloud State University Institutional Review Board (IRB)

Office of Sponsored Programs Administrative Services 210
Website: stcloudstate.edu/osp Email: osp@stcloudstate.edu Phone: 320-308-4932

Name: Laura Seidenkranz
Address: 10583 116th St. NW
Annandale, MN 55302
Email: sela0402@stcloudstate.edu

Co-Investigator:

IRB APPLICATION DETERMINATION: EXEMPT

Project Title: An examination of motivation (intrinsic, extrinsic, and amotivation) and its affect on exercise choice, duration, and frequency

Advisor: Therese Sheehan

The Institutional Review Board has reviewed your application to conduct research involving human subjects. Your project has been: **EXEMPT**

We are pleased to advise you that your project has been deemed as exempt in accordance with federal regulations. The IRB has found that your research project meets the criteria for exempt status and the criteria for protection of human subjects in exempt research. Please note the following items concerning our exempt policy:

-- Principal Investigator assumes the responsibilities for the protection of human subjects in this project

--Exempt protocols DO NOT need to be renewed.

--Exempt protocols DO NOT require revisions. However, if changes are made to a protocol that may no longer meet the exempt criteria, a new initial application will be required.

--Adverse events (research related injuries or other harmful outcomes) must be reported to the IRB as soon as possible.

--The IRB reserves the right to review the research while it is in progress or when it is completed.

Good luck on your research. If we can be of further assistance, please contact the Office of Sponsored Programs at 320-308-4932 or email jlkuznia@stcloudstate.edu. Please use the SCSU IRB number listed on any of the forms submitted which relate to this project, or on any correspondence with the IRB.

For the Institutional Review Board:

Jodi Kuznia
IRB Administrator
Office of Sponsored Programs

For St. Cloud State University:

Dennis Nunes
Dean, Graduate Studies

OFFICE USE ONLY

SCSUIRB#: 706 - 865
Type of Review: Expedited

Today's Date: 1/29/2010
EXEMPT: 1/28/2010
Expiration Date: