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AN EXPLORATION OF UNIVERSITY STUDENTS' ATTITUDES TOWARDS PHYSICAL ACTIVITY AND THE IMPORTANCE OF PHYSICAL ACTIVITY

A THESIS PROPOSAL TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAI'I IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

IN

KINESIOLOGY AND LEISURE SCIENCE

AUGUST 2008

By
Audrey Dunlavy

Thesis Committee:

Nathan Murata, Chairperson
Julienne Maeda
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We certify that we have read this thesis and that, in our opinion, it is satisfactory in scope and quality as a thesis for the degree of Masters of Science in Kinesiology and Leisure Science.

THESIS COMMITTEE

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Chairperson

Paul K Mack

John Parris.

To all of my family and friends. Thank
you for all the encouragement, support and
love to help me reach my goals and make
my dreams come true.

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ABSTRACT

The purpose of this study was to explore university students who participate and do not participate in physical activity classes and their attitudes towards physical activity, and the importance of physical activity and their opinion toward physical education curriculum. Two research questions were addressed: (1) What are the attitudes toward physical activity of University students who do and do not currently participate in physical activity classes; and (2) What do University students think about the Physical Education Curriculum? A survey research design was used in which 251 participants [ages 18-46] from Elementary Survey of Chemistry, General Chemistry I and General Chemistry II courses at the University of Hawai`i at Mānoa. were surveyed. Results indicated a significant difference in physical activity between participants [$F(1, 250)$ 19.13, $p<.000$] for which those who participate regularly in physical activity appeared to be more favorable in their attitude toward physical activity. Significant differences were noted for those respondents who favored *KLS Act* [$F(1, 250)$, 4.22, $p<.04$] and *Reg Act* [$F(1,250)$, 3.92, $p<04$] participation, since they felt that physical education was an important part of the school's curriculum. Recommendations are also presented for future research.

List of Table of Contents

List of Tables

CHAPTER I

INTRODUCTION

Each year, an estimated 300,000 adults die from obesity, and obesity-related illnesses in the United States (Mokdad, Serdula, Dietz, Bowman, Marks, & Kaplon, 2000). From 1980 to 2004, the prevalence of obesity has increased 15.0% to 32.9%. This prevalence in obesity was determined based on an individual's girth and weight and not height, since height remained stable (Nolte, Franckowaiak, Crespo, & Anderson, 2002). Studies show that weight gain begins in early adulthood, which is typically during university years.

Adults and children have fallen victim to weight gain over the years (Crespo & Arbesman, 2003). Weight gain significantly increases immediately after high school, which may be directly attributed to a decline in physical activity (Irwin, 2007). Weight gain is found to be prevalent in university-aged students because it is a transitional stage in life (i.e., adjusting to new environments while balancing new schedules).

Barriers and causes that stand in the way of allocating time for physical activity consequently causing weight gain are poor nutrition, lack of motivation, school work, job, weather, and social time with friends and family (Gyurcsik, Bray, & Brittain, 2004; Racette, Deusinger, Strube, Highstein, & Deusinger, 2005). Despite these barriers, young adults should engage in physical activity and develop proper nutritional habits in order to ward off the onset of obesity and obesity related diseases such as hypertension, type-2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems, and some cancers such as endometrial, breast and colon (Center for Disease Control, 2002). Both physical activity and proper nutrition are under

the direct control of young adults and they should engage in physical activity based on federal guidelines.

The Surgeon General recommends at least 30-minutes of moderate physical activity daily and even more vigorous activity is suggested as helpful (United States Department of Health and Human Services, 2002). In addition, the National Association for Sport and Physical Education (NASPE) (2004) promotes regular physical activity, maintaining healthy levels of physical fitness, competency in motor skills and movement patterns, responsible personal and social behavior that respects self and others and values physical activity for health, enjoyment, challenge, self-expressions and/or social interactions. These values and habits are to be stressed and taught in physical education classes. It is NASPE's mission to promote and support high quality physical education through research, development of standards and dissemination of information for grades Kindergarten through twelfth grade to set the foundation of living an active life style.

There appears to be five factors that determine the attitude towards physical education in 11th graders who were electing to take physical education as part of their course work. The five factors are curriculum content, teacher behavior, class atmosphere, student self-perceptions, and facilities (Luke & Sinclair, 1991). Curriculum content and teacher behavior were considered to be the most important determinants by students. Results showed that major factors in K-10 physical education experiences contributes to both positive and negative attitudes toward physical education in both male and female students (Luke & Sinclair, 1991).

Research reported that later in life it is the enjoyment of an activity that makes one want to participate in physical activity. It is vital that the development of students'

confidence in their ability to perform physical activity is high so they can continue physical activity through their life (Hildebrand & Johnson, 2001). Physical activity should be an essential part of one's daily routine at all ages. Preventing physical inactivity for university-aged students can be done by convincing them that walking and moderate-intensity physical activity can help maintain a healthy body (Leslie, Fotheringham, Owen, & Bauman, 2001).

While other recent studies (Gyurcsik, Bray, Brittain, 2004; Hildebrand & Johnson, 2001; Irwin, 2007; Kilpatrick, Hebert, Bartholomew, 2005; Racette, Deusinger, Strube, Highstein, & Deusinger, 2005) have addressed issues such as barriers towards physical activity, implications for high school physical education, physical activity maintenance, and motivation others have addressed student attitudes on physical activity. One study conducted Mowatt, DePauw and Hulac's (1988) evaluated student attitudes towards physical activity. Mowatt's et al. objective of the study was to view the opinions of students towards physical activity who were already enrolled in university physical activity classes. Their research showed that students who exhibited positive attitudes towards physical activity engaged in more frequent and intense exercise. Participants were divided into experimental and control groups. The experimental classes received mini-lecture material that covered the scientific basis for the value of exercise, biomechanical considerations, psychological, and physiological benefits. Surveys were used to assess attitudes toward physical activity before and after the experimental period.

Results from Mowatt's et al. study displayed that college students exhibited general agreement that there is a scientific basis for the value of physical activity. College students expressed neutral attitudes about the value of physical education in the public

schools, but thought that is was important to offer classes in physical education. Most college students indicated that it was important to be fit, and that physical activity was important and worth the effort. On the average, females exhibited more positive attitudes towards physical activity than did males. Attitudes toward physical activity did change over the course of the experimental period. And the use of mini-lectures was primarily effective in changing attitudes in those classes in which fitness/conditioning was emphasized.

The current study re-examines university students who were enrolled and are not currently enrolled in a physical activity course and/or who do not participate in at least 30 minutes of physical activity three times a week. The results of this study will not be biased to only those enrolled in physical activity classes therefore targeting those who do and do not participate in physical activity.

The purpose of the study

The purpose of this study was to explore university students who do and do not participate in physical activity classes, their attitudes towards physical activity, the importance of physical activity, and student opinions about Physical Education Curriculum. The following research questions were addressed:

1. What are the attitudes toward physical activity of university students who currently participate in physical activity classes and who do not currently participate in physical activity classes?
2. What do university students think about the Physical Education curriculum?

Limitations

Limitations of this study are centered around particular factors that the investigator had no control over or resulted from delimitations that were set, which have influenced the study's results and its generalizability. The following have been identified as limitations: (1) the research is limited due to the self-report questionnaire as the responses to questions about his or her attitude may or may not be truthful or accurate, and in addition (2) the reliability and validity of the survey used in this study was unobtainable even after consulting the original authors.

Delimitations

Delimitations of the study centered on particular factors that the investigator had control over which may influence the results and generalizability of the study. The following is identified as delimitation: This study was limited to one university in Hawai'i.

CHAPTER II

REVIEW OF LITERATURE

Obesity on the Rise

Obesity is on the rise in America. To put in perspective the seriousness of obesity from 1960 through 1994 height has remained steady in young adults, while their mean weight has increased (Nolte, Franckowiak, Crespo, & Anderson, 2002). Nolte et al. (2002) discovered that 13% men and 17% women would not meet the military screening test for weight. The acceptable weight standards are set high enough to include two thirds of overweight men (Nolte et al. 2002).

Furthermore, The National Center for Health Statistics (NCHS) data from two National Health and Nutrition Examination Surveys (NHANES) show that among adults aged 20-74 years, the prevalence of obesity increased from 15.0% (in the 1976-1980 survey) to 32.9% (CDC, 2004). Prevalence of over weight individuals in ages 12-19 rose from 5.0% to 17.4% throughout this time period. NHANES results shows percentages have not decreased, or leveled off, but have only increased, which elevates concern for obesity; the problem is worsening rather than improving. Healthy People 2010 aims to decrease the obesity rate to less than 15% for entire population.

Obesity is determined by body mass index [BMI]. BMI is calculated as weight in kilograms divided by height in meters squared. Being overweight for children and adolescents is defined as a BMI at or above the sex-and age-specific 95th percentile BMI cut points from the 2000 CDC Growth Charts. Healthy weight for adults is defined as a BMI of 18.5 to less than 25; overweight, is greater than or equal to a BMI of 25, and obesity, is greater than or equal to a BMI of 30 (NCHS, 2007).

Obesity is a health concern since the risk of illness and disease is heightened (CDC, 2002). The possible illnesses and diseases that are a consequence of being obese are hypertension, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems, and some cancers such as endometrial, breast, and colon (CDC, 2007). Chronic disease accounted for five out of the six leading causes of death in 2002 in the United States.

A study conducted by the President's Council on Physical Fitness and Sports surveyed 1,018 "less active people," meaning they fail to engage in exercise vigorously for 30 minutes two times a week. Eleven percent of these people claim they do not exercise at all because of health problems. Even though this number is quite low, there exists a need to promote physical activity among the less active because physical activity is found to improve health (Hart, 1993; CDC, 2002). In addition, this study found that a majority of the less active persons are under 45 years old and 46% have attended college (Hart, 1993).

More specifically, The Hawai'i physical activity and surveillance report states that 49% of Hawai'i's adults did not meet physical activity recommendations of 30 minutes of moderate physical activity five or more days a week or vigorous physical activity for 20 or more minutes three or more days a week (Center for Disease Control, 2007). Thirteen percent of Hawai'i's population did not engage in any physical activity. Consequently, the number of overweight individuals has increased among adults in Hawai'i from 29.7% in 1991 to 33.3% in 2005. Obesity has increased among adults from 10.7% in 1990 to 19.7% in 2005 (CDC, 2007).

There are several causes for being obese. Raitakan, Kimmp, Taimela, Telama, Rasanen, & Vllkari indicated that socioeconomic status, eating habits, sedentary behavior,

environment and physical inactivity are causes for an increase in obesity rates in the United States (1994). In addition, research found that during the transition from high school to college the probability of remaining sedentary was significantly stronger than the probability of remaining active (Raitakan, Kimmo, Taimela, Telama, Rasanen, & Vllkari, 1994). Furthermore, in the United States, approximately 27.4% of 14-17 year-olds walked or rode a bicycle for at least 30 minutes at a time on five or more days of the week, but only 21.2% of the 18-21 year olds did so (CDC, 1994). Physical inactivity is one of the major causes for obesity and health-related problems. As such, it is quite possible that physical activity may positively influence a person's health concerns, reduce obesity rates, and increase quality of life.

Benefits of Physical Activity

Physical activity for all ages, including males and females is one of many daily activities that affect health (Centers for Disease Control, 2007). Major health benefits can be gained with only 30-minutes of brisk walking or raking leaves, 15-minutes of running or 45-minutes of playing volleyball if not seven days a week but close to it (CDC, 2007). Individuals who include and engage physical activity in their daily are likely to gain greater benefits (CDC, 2007). The lack of regular exercise correlates with an increase in obesity rates throughout the country. The Centers for Disease and Control defined physical activity as any bodily movement produced by skeletal muscles that result in an expenditure of energy. More specifically, the Center for Disease Control (2007) stated that physical activity can be divided it into two levels: (1) moderate-intensity, and (2) vigorous- intensity.

Moderate-intensity physical activity causes an increase in respiration rate and heart rate. A "perceived exertion" of 11 to 14 on the Borg Scale, 3 to 6 METS or an activity that burns 3.5 to 7 calories per minute (kcal/min). Examples of moderate-intensity physical activity are walking briskly, dancing, swimming, or bicycling on level terrain. Vigorous-intensity physical activity causes an increase in breathing or heart rate making conversation difficult. A "perceived exertion" of 15 or greater on the Borg Scale, greater than 6 METS and any activity that burns more than 7 calories per minutes (kcal/min). Examples of vigorous-intensity physical activity are jogging, high impact aerobic dancing, swimming continuous laps, or bicycling uphill (CDC, 2007).

Participation in physical activity (physical education programs for schools) is a leading indicator in potentially decreasing obesity-related diseases. We should also be cognizant of the fact that physical activity levels tend to decline during adolescence particularly for females (United States Department of Health and Human Services, 1996; 2000). Even more significant is the fact that physical inactivity habits that are developed early on and may persist into adulthood and perpetuate continued physical inactivity (Dowda, Felton, Pate, Saunders, Trost, & Ward, 2002). These data also show that obese children will more than likely become obese adults.

In addition, leading an active lifestyle can lower the likelihood of cancer and also help cancer from recurring (Wright, 2007). According to the American Institute for Cancer (2005), physical activity is associated with lowering the risk of prostate cancer from 10% to 30%, lessen the risk of breast, endometrial and lung cancers from 30% to 40% and lessen the risk of colon cancer from 40% to 50% (2005). Not only can physical

activity prevent from such cancers from occurring, but physical activity can prevent cancer from recurring (Wright, 2007).

Physical fitness has been shown to not only increase weight loss, but to create healthy habits. A study conducted in Australia conducted research on self-regulation from regular physical exercise (Oaten & Cheng 2006). The longitudinal study concluded that over a two month period, there were significant improvements in a wide range of regulatory behaviors. Results showed that participants who exercised showed significant improvements in self-regulatory capacity. While exercising on a regular basis, participants felt less perceived stress and emotional distress while also decreasing the consumption of cigarettes, alcohol and caffeine. Results also showed that participants chose healthier eating habits, had emotional control, were able to maintain household chores, keep commitments, monitor their spending, and they improved their study habits. The study concluded, "...the more people do things, the more those things become automatic and habitual. Thus, exercise might become easier as people get into a routine" (Oaten & Cheng, 2006, p. 730).

Determinants that Affect Physical Activity

It is suggested that the development of students' confidence in their ability to perform physical activity is the most important aspect to carry on physical activity through their life (Hildebrand & Johnson, 2001). Studies show that later in life it is the enjoyment of an activity and one's confidence that makes them want to participate in physical activity. Individual's confidence in an activity can be built in physical education class. Luke and Sinclair (1991) found conflicting situations that are determinants to one enjoying physical education class which can lead someone to disliking physical activity.

A major study by Luke and Sinclair (1991) found gender differences in adolescents' attitudes toward school physical education. The study defined adolescence as, "the period of transition from childhood to adult status, a time ripe with possibilities to become fully functional and capable individual" (Luke & Sinclair, 1991). Also a time for habits and attitudes to be established which makes developing a healthy lifestyle an important factor at this time in life (Luke & Sinclair, 1991). In the study, five main factors were found to be determinants of attitude toward physical education: curriculum content, teacher behavior, class atmosphere, student self-perceptions, and facilities. Out of all the categories, both male and females agreed that curriculum was the most influential determinant of both positive and negative attitudes. Teacher behavior ranked second in the list with self-perception third, atmosphere fourth, and facilities fifth. Running activities were the most disliked activity. The study suggested that teachers should find a new way to present running activities and explore different ways to fitness testing so that high levels of fitness are achieved yet, the students' attitude is still positive towards activity. Luke and Sinclair stated, "Current programs may be meeting short-term goals of improving physical fitness while failing to achieve the goal of lifelong physical activity involvement" (1991, p. 40).

The authors discovered that self-perception was an important contributor to physical activity as it showed to be in Luke and Sinclair's study. At the college level, students were more likely to participate if they had a positive experience in high school (Hildebrand & Johnson, 2001). It was also concluded that college students do not wish to learn new physical activities, but yet want to participate in ones they are familiar which means it is extremely important to have a quality high school physical education program

to help skill-development and create positive experiences for students (Hildebrand & Johnson, 2001). On the contrary, high school and college provides many opportunities for physical activity in the form of physical activity classes, intramural and varsity sports, and easy access to affordable exercise facilities.

Promoting Physical Education

"There are several avenues through which physical educators can further an accurate understanding of just what "physical education" is, and what the discipline has to offer" (Koslow, 1988, p.102). A study on marketing physical education in a university setting took place in 2002. Questionnaires were distributed to 3,307 students who were enrolled in Sport, Fitness and Health Program (SFHP). Classes in the program were sport-related classes such as basketball, volleyball, weight training, aerobics, jogging, and health behavior classes such as CPR, health, diet and exercise. The questionnaire was seeking information on why students enrolled in these particular classes and the quality of the course. The program was to educate and train students about: (a) physiological and psychosocial benefits of sport and physical activity, (b) the dynamics and interplay of physical fitness, health and quality of life, (c) psychomotor skills related to sport, exercise, and leisure, and (d) cognitive and behavioral skills necessary to maintain a healthy lifestyle. Findings concluded that the most critical aspect of a physical education program is learning how to present and deliver an activity in such a satisfactory way that it influences the participants' involvement in a positive overall manner (Armstrong, O'Bryant, & Costa, 2002). It is the physical educator that must take an active role in the educational process (Koslow, 1988).

Silverman and Subramaniam (1999) claim that teacher behavior and content of the curriculum decides a students' attitude in either a positive or negative way. Students who have had positive experiences with their physical education teachers report to show positive attitude toward the subject (Silverman & Subramaniam, 1999). Developing students' confidence in their physical abilities, creating situations for an enjoyable physical activity experience, and developing positive attitudes towards physical activity is key in promoting physical activity (Hildebrand & Johnson, 2001).

Attitude and Physical Activity

Fishbein and Ajzen (1975) define attitude as "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object" (p.6). In other words, an attitude is affective or evaluative in nature and "may be conceptualized as the amount of affect for or against some object" (Fishbein & Ajzen, 1975, p.11). An attitude toward something is a learned behavior that is either positive or negative.

Chatzisarants, Hagger, Biddle, and Smith (2005) examined the stability of the attitude-intention relationship over a 6 week period with 65 males and 81 females aged 20.6 [+ or -] 0.8 years. Attitudes, intentions, self-reported physical activity and perceived behavioral control were at the beginning and end of the 6 weeks. Results indicated that the attitude-intention relationship was stable over time yet it can diminish. Intervention and booster sessions should reinforce positive attitudes during leisure physical activity time to maintain positive attitude (Chatzisarants et al., 2005).

Mack & Shaddox (2004) found intervention and booster sessions proven as successful. Specifically, the authors examined the attitude toward physical activity exercise of university students enrolled in Personal Wellness classes. 1,625 undergraduate students

completed the Attitudes Toward Exercise and Physical Activity (ATEPA) inventory on the first and last day of class. Results from the study show a significant improvement in short-term attitudes towards exercise and physical activity after completing a university-required personal wellness course. Positive pre and post test differences were reported for 11 of the 12 sub-groups with 5 of the 12 being statistically significant. Mack & Shaddox (2004) found that a personal wellness requirement may positively influence attitudes necessary for implementing positive health-related decisions.

Similarly, Mowatt, DePauw and Hulac (1988) evaluated student attitudes towards physical activity. The authors' objective was to view the opinions of students towards physical activity who were already enrolled in university physical activity classes. Participants were divided into two groups: experimental and control. The experimental classes received mini-lecture material that covered the scientific basis for the value of exercise, biomechanical considerations, psychological, and physiological benefits. Surveys were used to assess attitudes toward physical activity before and after the experimental period. Results from their study revealed that students who exhibited positive attitudes towards physical activity engaged in more frequent and intense exercise. Moreover, results from their study displayed that college students exhibited general agreement that there is a scientific basis for the value of physical activity. College students expressed neutral attitudes about the value of physical education in the public schools, but thought that is was important to offer classes in physical education. Most college students indicated that it was important to be fit, and that physical activity was important and worth the effort. On the average, females exhibited more positive attitudes towards physical activity than did males. Attitudes toward physical activity did change

over the course of the experimental period. And the use of mini-lectures was primarily effective in changing attitudes in those classes in which fitness/conditioning was emphasized.

Leenders, Sheerman, Phillip (2003) examined why students enroll in college physical activity courses and what are their health behaviors. A Midwestern university with 60 different physical activity courses offered aims to contribute positively to the students' health and well being and influence long-term behavior positively to produce a healthy lifestyle. Approximately 12,000 students enroll annually in the different elective sport skills and fitness courses. Questionnaires were given to 41 of the activity classes. The questionnaire was divided into three sections: (1) primary reason for enrolling in the course (2) demographic characteristics that included sex, age, height, weight, perception of weight, rank in school, enrollment status, living conditions, and cumulative grade point average and (3) questions related to health behaviors. A total of 2,155 students completed the questionnaire. Results show that the primary reasons participants enrolled in physical activity class were: (a) to learn a new activity (20%), (b) have fun (18%), (c) improve skills (11%), (d) improve fitness (9%), and (e) exercise regularly (9%). Of the 2,155 students who participated in the study, one in three students did not participate in regular physical activity outside of the school physical activity course.

Suminski, Petosa, Utter, and Zhang (2002) compared physical activity patterns among 874 Asians, 332 African, 1,101 White, and 529 Hispanic American college students aged 18 to 25 years. According to self-report responses, 46.7% of the sample did not engage in vigorous physical activity and 16.7% were physically inactive. The results from their study indicate a need for physical activity promotion at the college level.

Summary

Over the years obesity is becoming more prevalent and is a major health concern to the United States. Obesity is a product of a snowball effect that begins with lack of excitement about movement and low self-efficacy which leads to a sedentary life style and ends in obesity. Physical activity has shown to increase the quality of life by lowering risk of cancers, prevent cancers from recurring, decrease stress and the consumption of cigarettes, alcohol and caffeine, having better management skills over daily life task. Studies indicate that attitudes towards physical activity are formed during adolescents in physical education. A number of determinants such as curriculum content, teacher behavior, class atmosphere, student self-perception, and facilities can affect a student's physical education experience which in turn can affect their perception of them-self in physical activity and their enjoyment of physical activity. Studies show that the most critical aspect of a physical education program is learning how to present and deliver an activity in such a satisfactory way that influences the participants' involvement in a positive overall experience.

Research found that over time, attitude towards physical activity can diminish, but intervention and booster sessions should reinforce positive attitudes during leisure physical activity time to maintain positive attitudes. Mack & Shaddox (2004) found that intervention may positively influence positive health-related decisions. Similarly, Mowatt et al. (1988) discovered that experimental classes who received mini-lectures on the benefits of physical activity did change participants attitudes towards physical activity in a positive direction.

In addition to the above findings, Leenders et al. (2003) discovered a high participation rate in physical activity classes among university student. The participants enrolled in physical activity classes to learn a new activity, have fun, improve skills, improve fitness, and exercise regularly. Though participation was high in university physical activity classes, one in three students did not participate outside of class. Suminski et al., (2002) found that 46.7% of college students age 18-25 did not participate in physical activity and 16.7% were physically active.

It is apparent through research that majority of students do not participate in physical activity outside of school physical activity programs. Updating research in the topic of college age students is needed to help discover if students have a positive attitude towards physical activity. Findings from these studies will help determine if intervention is needed to help promote and develop an interest in physical activity and to carry out physical activity for a lifetime.

CHAPTER III

METHOD

The purpose of this chapter was to discuss the methods that were used to investigate students who do and do not participate in physical activity classes, and their attitudes towards physical activity and the importance of physical activity. This chapter consisted of the following sections: design of the study, participants, survey instrument, data collection, and data analyses.

Site and Participants

Approval for the conduct of this research was obtained from the University of Hawai`i at Manoa Office of Research Serviced (Refer to Appendix A). The primary purpose of this office is to ensure proper protection of the rights and welfare of individuals who participate in a research study. Two hundred and fifty-one [n=251] students [ages 18-46] who complete survey gave consent for their completed survey to be used in the study. These students were enrolled in the following University of Hawai`i at Mānoa courses: Elementary Survey of Chemistry, General Chemistry I and General Chemistry II. The classes selected for this study based on the large enrollment numbers and instructors allowing the researcher to utilize 10-minutes of his/her class time.

Research Design

The research design employed in this study was a survey. According to Nelson, Thompson, and Silverman (2005), the survey is a technique of descriptive research that seeks to determine present practices or opinions of a specific population. Surveys can come in the form of a questionnaire, a personal interview or normative survey.

Researchers use the questionnaire to obtain information by asking participants to respond to questions rather than by observing their behavior. The obvious limitation of the questionnaire was that the results consist of what people say they do or what they say they believe or like or dislike (Nelson, Thompson, & Silverman 2005).

Instrumentation

The survey used in this study was from a previous study conducted in 1988 by members of the Department of Physical Education, Sport, and Leisure Studies at Washington State University. The survey consist of 20 statements to be rated on a five point Likert scale (1 strongly disagree to 5 strongly agree) (Mowatt, Depauw, & Hulac, 1988) (Refer to Appendix B). These statements were divided into three categories described as follows:

1. *General attitudes.* Statements numbered 1, 3, 4, 10, and 20 represent one's personal feelings or attitudes toward physical activity.
2. *Physical education.* Statements numbered 5, 8, 13, 14, 16, and 18 will describe how one sees physical education as an offering in curriculum.
3. *Scientific basis.* Statements 2, 6, 7, 9, 11, 12, 15, 17, 19 describe how one assessed the scientific benefits of exercise.

Data Collection

A pilot study was conducted in a KLS 477: Motor Development and Learning class averaging 20 students. The purpose of the pilot study was to determine on average how long it took the students to complete the survey. This information was used to gauge how much time was needed for data collection. During the pilot study, the teacher distributed surveys to each student. The students were instructed to keep their survey face down on their desk until told to begin and when the survey was complete, to turn it into the teacher. The teacher started a stopwatch and instructed the class to begin taking the survey. The

first survey was completed in five minutes forty-five seconds and the very last survey was completed in nine minutes. The student who finished last was late to class, therefore late to begin the survey. On average the survey took about seven minutes to complete.

Prior to distributing surveys to Elementary Survey of Chemistry, General Chemistry I and General Chemistry II classes, I spoke with the course professors to receive permission to use their class as a part of my study. I informed them that I would need about ten minutes of their class time for students to complete the survey and it is at their discretion to participate. After I gained verbal consent from professors, I went early to classes and distributed surveys as students entered the lecture hall. I made an announcement to the class that I was collecting surveys for my thesis and that it is to their discretion to complete survey. Those who completed the survey, returned the it to me where I was standing in the front of lecture hall.

Reliability and Validity.

For the purpose of reliability and validity of the instrument, I sought information from the respective authors regarding the availability of information on reliability and validity. However, it was brought to my attention that none of the authors were able to provide the necessary information on reliability and validity. It is therefore reasonable to ascertain that this descriptive study be viewed with some caution.

Data Analysis

The survey instrument (Mowatt, Depauw, & Hulac, 1988) was divided into three categories: General attitude, Physical Education and Scientific Basis. Two of the three categories were analyzed: General attitude and Physical Education, as a part of this study.

Descriptive narrative for ethnicity, course, class, gender, enrollment in Kinesiology Leisure Science activity courses (KLS Act), participation in regular physical activity (Reg Act) are reported. Inferential statistics comprise of the one-way analysis of variance [ANOVA], and General Linear Model [GLM].

All data were transferred from paper surveys to Microsoft Excel. The researcher then placed all data from Microsoft Excel to MINITAB 12.0 (MINITAB, 2000) statistical software. The responses are analyzed by general attitudes and physical education, across age, gender, *Reg Act*, and *KLS Act*.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents the analysis of data collected during this study and related discussion. More specifically, this chapter was divided into the following sections: (a) introduction; (b) descriptive and inferential statistics for demographics, University students' attitude on regular physical activity and University students' opinion towards physical education curricula offerings; and (c) results and discussion.

Introduction

The purpose of this study was to explore University students' who do and do not participate in physical activity classes, their attitudes toward physical activity, the importance of physical activity, and student opinions about Physical Education curriculum. Therefore, the following research questions guided this study:

1. What are the attitudes toward physical activity of University students who do and do not currently participate in physical activity classes?
2. What do University students think about the Physical Education curriculum?

Descriptive Narrative and Inferential Statistics for Demographic Variables, Attitudes, and Physical Education

Descriptive statistics for this study included ethnicity, course, class, gender, enrollment in Kinesiology and Leisure Science activity course (KLS Act), participation in regular physical activity (Reg Act), and age. Of the 251 participants 1.6% were Hispanic/Latino, 3.2% African American, 7.2% Pacific Islanders, 17.9% Caucasian, 18.3% Other, and 51.8% Asian American. With regard to course enrolled, the 251 participants were enrolled in either General Chemistry I (n = 55), General Chemistry II

(n = 13), and Elementary Survey of Chemistry (n = 65). These classes were selected due to the large enrollment in each class. Participation from classes varied since this study was strictly voluntary. Given that the aforementioned courses were introductory in nature, the amount of freshman accounted for one and a half of the sampled respondents (n = 129).

There was a relatively equal distribution of males (n=135) and females (n=115) in this study. Of the 251 students who participated, 86% (n=215) did not participate in any KLS activity classes. Contrary to these findings, 68% (n=170) claimed to participate in at least 30 minutes of physical activity at least three times a week. Although over half of the participants claimed to participate in physical activity, 32% participants did not.

University Students' Attitudes Towards Regular Physical Activity

As previously indicated, there were three parts to the survey. For this section, attitude was examined independently of the other categories [i.e., Physical Education and scientific basis]. With this, a one-way Analysis of Variance [ANOVA], General Linear Model [GLM] was used. Results from the one-way ANOVA GLM revealed significant differences in regular physical activity between respondents ($F(1, 250)$ 19.13, $p<.000$) [See Table 1].

Table 1

One-way Analysis of Variance General Linear Model: ATTITUDE versus Reg Act, KLS Act, Ethnicity, Age, Gender, Class, Course

Source	df	Seq SS	Adj SS	Adj MS	F	p
Reg Act	1	231.688	180.596	180.596	19.13	0.000 *
KLS Act	1	23.210	11.314	11.314	1.20	0.275
Ethnicity	5	99.113	58.876	11.775	1.25	0.288
Age	4	18.510	26.267	6.567	0.70	0.596
Gender	1	23.531	10.882	10.882	1.15	0.284
Class	5	88.868	80.821	16.164	1.71	0.133
Course	2	10.899	10.899	5.449	0.58	0.562
Error	231	2180.986	2180.986	9.441		
Total	250	2676.805				

Note.*$p<.05$

More specifically, those who participate regularly in *Reg Act* tended to have more favorable attitudes towards physical activity. This further suggests that those participants' attitude on regular physical activity differed compared to those who did not participate regularly in physical activity. There was a significant difference in those who participated in physical activity with only 14% of the respondents participating in an on-campus physical activity course. It is therefore conceivable that those who do not participate in university physical activity classes may not wish to learn new physical activities, yet want to participate in ones they are familiar with (Hildebrand & Johnson, 2001).

Although results from this study show that more respondents participated in *Reg Act* than those who did not participate in *Reg Act,* previous studies found that University students tended to become less physically active when they enter college (Hildebrand & Johnson, 2001). Similarly, Hart (1993) reported that a majority of the less physically active individuals are less than 45 years old, with 46% having attended college. In addition, prevalence of overweight individuals ages 12-19 rose from 5% to 17.4% with in 14 years. Results of this study are interesting as recent research concluded that obesity is on the rise in Hawai'i with 13% of Hawai'i's population not active, yet the majority of participants in this study seem to hold favorable attitudes toward physical activity (CDC, 2008).

In a similar vein, results from Mowatt's et al. (1988) displayed that college students exhibited positive attitudes towards physical activity. The participants indicated that it was important to be fit and that physical activity was important and worth the effort. Surprisingly, University students' attitudes remain positive towards physical activity despite the increase in obesity and obesity related illnesses.

Findings refute Leenders et al. (2003) since their results found that even though students claim to participate in regular physical activity, only thirteen percent participate in on-campus *KLS Act* classes. The authors discovered that out of 2,155 students who participated in on-campus physical activity classes, only one-in-three students participate in regular physical activity outside of school.

Hildebrand and Johnson (2001) suggested that the development of students' confidence in their ability to perform physical activity is the most important aspect to carry on physical activity through their life and that it is later in life that enjoyment of an

activity makes one want to participate in physical activity. In addition, those students who participated in college level physical activity were more likely to have had a positive experience in high school. This notion could hold true for the participants in this current study.

University Students' Understanding of Physical Education Curricula Offerings

The survey instrument (Mowatt, Depauw, & Hulac, 1988) was divided into three categories. One category examined "Physical Education that described how one viewed physical education as an offering in the curriculum" (p.104). This category was examined independently of the other categories [i.e., attitudes and scientific basis]. With this, a One-way ANOVA GLM found significant differences in participants' understanding of physical education curriculum. Results from the One-way ANOVA revealed significant differences as a function of KLS Act ($F(1, 250)$, 4.22, $p<.04$) and Reg Act (F(1,250), 3.92, $p<04$) [See Table 2].

Table 2

One-way Analysis of Variance General Linear Model: PHYSICAL EDUCATION versus Reg Act, KLS Act, Ethnicity, Age, Gender, Class, Course

Source	*df*	*Seq SS*	*Adj SS*	*Adj MS*	*F*	*p*
Course	2	100.06	67.34	33.67	1.53	0.218
Class	5	40.63	33.82	6.76	0.31	0.908
Gender	2	29.51	42.07	21.03	0.96	0.386
Age	4	42.05	53.66	13.42	0.61	0.656
Ethnicity	5	122.12	82.26	16.45	0.75	0.588
KLS Act	1	121.43	92.85	92.85	4.22	0.041*
Reg Act	1	86.21	86.21	86.21	3.92	0.049*
Error	230	5057.71	5057.71	21.99		
Total	250	5599.73				

Note. *0<.05

Those respondents who favored *KLS Act* felt that physical education was an important part of the school's curriculum. In addition, a significant difference was found in the physical education curriculum for those who favored *Reg Act* participation. These respondents who favored *Reg Act* supported physical education as part of the curriculum. Yet it was interesting to find that even though the majority of respondents (n = 215) did not participate in *KLS Act* courses, many still participated regularly in physical activity (n = 170). The information on *KLS Act* coincides with the information shown in table 2.

Silverman and Subramaniam (1999) found that students who have had positive experiences with their physical education teachers report a positive attitude toward the

subject. In addition, Silverman and Subramaniam (1999) claim that teacher behavior and content of the curriculum decides a student's attitude in either a positive or negative way. Likewise, Luke and Sinclair (1991) found five main factors to be determinants of attitude toward physical education: curriculum content, teacher behavior, class atmosphere, student self-perceptions, and facilities. Most importantly, developing students' confidence in their physical abilities, creating situations for an enjoyable physical activity experience and developing positive attitudes towards physical activity is key in promoting physical activity (Hildebrand & Johnson, 2001).

While 68% of the participants claim to participate in regular physical activity, 32% do not. Contrary to these findings, Suminski et al. (2002) reported out of 2, 836 American college students ages 18-25 years, 46.7% of participants did not engage in vigorous physical activity and 16.7% of participants were physically inactive. Mack and Shaddox (2004) and Mowatt et al. (1988) suggest that for those who are not physically active, intervention programs and booster sessions in universities help encourage physical activity.

Perhaps if students enjoy physical education, then students would understand the benefits of physical activity and therefore participate in physical activity. Students should understand the difference between moderate-intensity physical activity versus vigorous-intensity physical activity and the recommended amount of physical activity such as 30 minutes of brisk walking or 15 minutes of running or 45 minutes of playing volleyball seven days a week or close to it (CDC, 2007).

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

This chapter offers conclusions and recommendations for further research as a result of this study. The chapter is divided into two sections. Section one offers a number of conclusions based on the results of this study and section two identifies areas in which future related research inquiry is recommended.

Conclusion

Overall, university students in this study exhibited positive attitudes towards physical activity. Significant differences were found in attitudes towards physical activity and participation in KLS Activities. In other words, participants favored physical activity, but did not necessarily participate in an on-campus physical activity class.

With adult overweight rising to epidemic levels, the need for more effective interventions has never been clearer. Based on the findings of this study and with in the limitations and restrictions of the study (e.g. survey questionnaire and number of participants), several key findings emerged from this research. First, the majority of respondents had a positive attitude towards physical activity. Knowing this, the next step is to translate positive attitude toward greater physical activity for all university non-active and active students.

Secondly, the majority of the sample population participated in physical activity but does not participate in KLS Act class. This could indicate that respondents chose to use free facilities on university campus or in the community, rather than pay for a physical activity class. Others perhaps enroll in off campus sports programs or use walking, bikes

or skateboards as a form of transportation to equal their 30 minutes or more of moderate physical activity a day.

Lastly, even though obesity in the United States and Hawai'i specifically is on the rise, the majority of the sample population chose to participate in regular physical activity. It could be assumed that those who do not participate in regular physical activity relate to the excuses found in literature such as disliking physical activity do to a traumatizing physical education experience or other physical activity experience, lack of time, money or transportation. Furthermore, these findings suggest that at-risk of overweight adults may not fully understand or see the relevance of the health benefits associated with physical activity for themselves. Teaching and encouraging individuals the importance of moderate and vigorous physical activities may help them achieve and maintain active lifestyles that could help prevent or overcome becoming overweight.

Recommendations

Based on the results of this study and related research the following recommendations are offered:

1. A study that provides the psychometric properties of the survey instrument.
2. A study that investigates university student attitudes toward physical activity across the United States from different colleges and universities.
3. A study that investigates why individuals do not participate in physical activity.
4. A study utilizing a larger number of participants should be conducted to investigate the attitudes of university students towards physical activity.

The most valuable result from this study was the overall positive attitudes that university students have towards physical activity. Researchers and educators need to

continue meeting short-term goals of improving students' physical fitness while also continuing to strive for lifelong physical activity involvement (Luke & Sinclair, 1990).

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Appendix A:

Approval for Research
Protection of Human subjects
Assurance Identification/Certification/Declaration
University of Hawai`i at Mānoa Research Services

UNIVERSITY OF HAWAI'I

Committee on Human Studies

MEMORANDUM

February 13, 2008

TO: Audrey Elaine Dunlavy
Principal Investigator
Kinesiology & Leisure Science

FROM: William H. Dendle
Executive Secretary

SUBJECT: CHS #15851- "An Exploration of University Students' Attitudes Towards Physical Activity, and the Importance of Physical Activity"

Your project identified above was reviewed and has been determined to be exempt from Department of Health and Human Services (DHHS) regulations, 45 CFR Part 46. Specifically, the authority for this exemption is section 46.101(b)(2). Your certificate of exemption (Optional Form 310) is enclosed. This certificate is your record of CHS review of this study and will be effective as of the date shown on the certificate.

An exempt status signifies that you will not be required to submit renewal applications for full Committee review as long as that portion of your project involving human subjects remains unchanged. If, during the course of your project, you intend to make changes which may significantly affect the human subjects involved, you should contact this office for guidance prior to implementing these changes.

Any unanticipated problems related to your use of human subjects in this project must be promptly reported to the CHS through this office. This is required so that the CHS can institute or update protective measures for human subjects as may be necessary. In addition, under the University's Assurance with the U.S. Department of Health and Human Services, the University must report certain situations to the federal government. Examples of these reportable situations include deaths, injuries, adverse reactions or unforeseen risks to human subjects. These reports must be made regardless of the source funding or exempt status of your project.

University policy requires you to maintain as an essential part of your project records, any documents pertaining to the use of humans as subjects in your research. This includes any information or materials conveyed to, and received from, the subjects, as well as any executed consent forms, data and analysis results. These records must be maintained for at least three years after project completion or termination. If this is a funded project, you should be aware that these records are subject to inspection and review by authorized representatives of the University, State and Federal governments.

Please notify this office when your project is completed. We may ask that you provide information regarding your experiences with human subjects and with the CHS review process. Upon notification, we will close our files pertaining to your project. Any subsequent reactivation of the project will require a new CHS application. **Please be aware that unless we are notified otherwise, this will automatically expire 5 years from the approval date.**

Please do not hesitate to contact me if you have any questions or require assistance. I will be happy to assist you in any way I can.

Thank you for your cooperation and efforts throughout this review process. I wish you success in this endeavor.

Enclosure

2540 Maile Way, Spalding 253, Honolulu, Hawai'i 96822-2303
Telephone: (808) 956-5007, Facsimile: (808) 956-8683, Website: www.hawaii.edu/irb

An Equal Opportunity/Affirmative Action Institution

OMB No. 0990-0263

Protection of Human Subjects
Assurance Identification/IRB Certification/Declaration of Exemption
(Common Rule)

Policy: Research activities involving human subjects may not be conducted or supported by the Departments and Agencies adopting the Common Rule (56FR28003, June 18, 1991) unless the activities are exempt from or approved in accordance with the Common Rule. See section 101(b) of the Common Rule for exemptions. Institutions submitting applications or proposals for support must submit certification of appropriate Institutional Review Board (IRB) review and approval to the Department or Agency in accordance with the Common Rule. Institutions must have an assurance of compliance that applies to the research to be conducted and should submit certification of IRB review and approval with each application or proposal unless otherwise advised by the Department or Agency.

1. Request Type	2. Type of Mechanism	3. Name of Federal Department or Agency and, if known, Application or Proposal Identification No.
[ ] ORIGINAL [ ] CONTINUATION [X] EXEMPTION	[ ] GRANT [ ] CONTRACT [ ] FELLOWSHIP [ ] COOPERATIVE AGREEMENT [ ] OTHER:_____	
4. Title of Application or Activity "An Exploration of University Students' Attitudes Towards Physical Activity, and the Importance of Physical Activity"		5. Name of Principal Investigator, Program Director, Fellow, or Other Audrey Elaine Dunlavy

6. Assurance Status of this Project *(Respond to one of the following)*

[X] This Assurance, on file with Department of Health and Human Services, covers this activity:
Assurance Identification No. F-3526, the expiration date September 23, 2008 IRB Registration No. IORG0000169

[ ] This Assurance, on file with *(agency/dept)*_____, covers this activity.
Assurance No._____, the expiration date_____ IRB Registration/Identification No._____*(if applicable)*

[ ] No assurance has been filed for this institution. This institution declares that it will provide an Assurance and Certification of IRB review and approval upon request.

[X] Exemption Status: Human subjects are involved, but this activity qualifies for exemption under Section 101(b), paragraph 2.

7. Certification of IRB Review (Respond to one of the following IF you have an Assurance on file)

[ ] This activity has been reviewed and approved by the IRB in accordance with the Common Rule and any other governing regulations.
by: [ ] Full IRB Review on (date of IRB meeting) _____ or [ ] Expedited Review on (date)
[ ] If less than one year approval, provide expiration date _____

[ ] This activity contains multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by the Common Rule will be reviewed and approved before they are initiated and that appropriate further certification will be submitted.

8. Comments

CHS #15851

9. The official signing below certifies that the information provided above is correct and that, as required, future reviews will be performed until study closure and certification will be provided.	10. Name and Address of Institution
11. Phone No. *(with area code)* (808) 956-5007 12. Fax No. *(with area code)* (808) 956-8683 13. Email: dendle@hawaii.edu	University of Hawaii at Manoa 2444 Dole Street, Bachman Hall Honolulu, HI 96822
14. Name of Official William H. Dendle	15. Title Compliance Officer
16. Signature	17. Date February 12, 2008

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Appendix B:

Survey Instrument

SURVEY INSTRUMENT
(Mowatt, DePauw, & Hulac, 1988)

I am conducting a survey to help explore university student's attitudes towards physical activity and the importance of physical activity and the importance of physical activity. Therefore, I am asking for your participation. The following pages contain a set of statements that are posed to stimulate your thinking about physical activity.

- **Your participation in completing this survey is voluntary.**
- Circle the response that best describes your opinion.
- **There is no right or wrong answer to a statement; and you may skip questions that you do not wish to answer.**
- All responses will be kept confidential.

Some questions about you

Course (1) Into to Sociology (2) General Chemistry I (3) General Chemistry II

Class: (1) FR__ (2) SOPH__ (3) JR__(4) SR__ (5) GRAD__

Gender (1) Female
(2) Male

Age Range (circle one)
(1) 18-24
(2) 25-31
(3) 32-38
(4) 39-45
(5) 46&Up

Ethnicity:
(1) Caucasian
(2) African American
(3) Pacific islanders
(4) Asian American
(5) Hispanic/Latino
(6) Other [please list] _____

Are you currently involved in a university activity driven course? (1) YES (2) NO

Do you participate regularly (at least 30 minutes, three times a week) in physical activity outside of school? (e.g. running, biking, surfing, paddling, weight training)
(1) YES (2) NO

The following are statements about physical activity or physical activity programs. Please circle the answer that best describes your opinion about each statement.

1. It is important to me to be strong and physically fit
5 4 3 2 1

2. Exercise provides an important relief from the stresses of everyday life
5 4 3 2 1

3. I enjoy the physical feeling one gets after strenuous exercise.
5 4 3 2 1

4. Maintaining good physical condition takes more effort than it is worth.

5 4 3 2 1

5. In terms of personal-social development, one may receive more practical benefit from a good physical education class than any other class in the school curriculum.
5 4 3 2 1

6. An active lifestyle is necessary for optimal physical and mental functioning later in life.
5 4 3 2 1

7. Exercise is the best way to insure a youthful looking, agile body.
5 4 3 2 1

8. Physical education classes are a very important part of the school curriculum
5 4 3 2 1

9. Participation in physical activity is essential for a quality life, regardless of sex and ethnic background.
5 4 3 2 1

10. There are lots of things more important in life than one's level of physical fitness.
5 4 3 2 1

11. Proper exercise causes to have good posture and a strong, sturdy body throughout life…
5 4 3 2 1

12. Good health throughout life is related to one's level of physical activity.

5 4 3 2 1

13. Physical education should be offered at every grade level, grades one through college.

5 4 3 2 1

14. Physical education classes, if well-taught, should be a required subject for grades 1 to 12.

5 4 3 2 1

15. Physically active people are more mentally alert than less active people.

5 4 3 2 1

16. If there is a need to reduce the number of courses offered in the school program, physical education should be one of the courses dropped.

5 4 3 2 1

17. Most adults get all the exercise they need just doing normal activities.

5 4 3 2 1

18. Physical activity classes are just as important as academic classes.

5 4 3 2 1

19. There is a scientific basis for the value of physical activity.

5 4 3 2 1

20. Physical activity is of major importance to my life.

5 4 3 2 1