OVERWEIGHT AND NON-OVERWEIGHT
ADOLESCENT ATTITUDES TOWARD PHYSICAL ACTIVITY

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By
Melissa M. Taeu

Thesis Committee:
Julienne Maeda, Chairperson
Nathan Murata
Charles Morgan
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

[Signatures]

Chairperson

[Signatures]

[Signatures]
To my husband, Samuel Allan Taeu Jr.,
And to my parents, Spencer and Cydne
Kama'ohia. Thank you for all your love
and support.
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ABSTRACT

The purpose of this study was to investigate the attitudes overweight and non-overweight adolescents have towards physical activity as measured by the Children’s Attitudes toward Physical Activity (CATPA) Inventory (Schutz & Smoll, Carre, & Mosher, 1985). Participants’ (N=133) height and weight were measured and used to calculate their Body Mass Index (BMI). BMI was used to place participants into two groups, at-risk of overweight/overweight and non-overweight. Findings resulted in significant gender differences in the vertigo ($F(1, 130) = 4.897, P = 0.029$) and aesthetic ($F(1, 130) = 5.970, P = .000$) dimensions. These results suggested that boys had more positive attitudes towards the thrill and risk involved in physical activity whereas girls possessed more positive attitudes toward the beauty of movement in physical activity. Significant differences were also found between the at-risk of overweight/overweight and non-overweight groups in the social continuation ($P = 0.016$) and health and fitness - enjoyment dimensions ($P = .008$). These results suggested that at-risk of overweight/overweight adolescents did not have favorable attitudes toward activities for their social nature or for the health benefits.
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CHAPTER I
INTRODUCTION

National US surveys have documented the high prevalence of overweight and obesity during childhood and adolescence, and accompanying secular increases in prevalence over the past few decades (Barlow, Buschbacher, & Jonides, 2002). Twenty-five percent of adolescents in the US are overweight (body mass index [BMI] >95th percentile), and 11% are obese. About 70% of obese adolescents grow up to become obese adults (Akhtar-Danesh, Dehghan, & Merchant, 2005). Nationally, diagnoses of type 2 diabetes in children have increased tenfold in the past 20 years and, they will become adults with a higher risk for heart disease, stroke and high blood pressure. Obesity-associated annual hospital costs for children more than tripled over two decades, rising from $35 million in 1979-81 to $127 million in 1997-99 (Oregon School Boards Association, 2006).

Overweight and obesity in childhood have a significant impact on both physical and psychological health; for example, overweight and obesity are associated with hyperlipidemia, hypertension, abnormal glucose tolerance, and infertility. In addition, psychological disorders such as depression occur with increased frequency in obese children (Akhtar-Danesh, et al., 2005).

In many obese children and adolescents, the most widespread consequences of obesity are psychosocial. Young people are socialized to the importance of appearance early in life. Both boys and girls who perceive themselves to be different from recognized norms report dissatisfaction with themselves, and excess weight is a
common reason for feeling different. Obese preschoolers have a greater frequency and higher levels of emotional distress and psychiatric symptomatology than peers of normal weight while obese adolescents often experience significant depression and low self-esteem (Barlow, et. al., 2002).

Inactivity and activity levels are important biological determinants of obesity and represent major avenues for treating and preventing obesity (Gordon-Larsen, McMurray, & Popkin, 2000). The World Health Organization reports that a lack of physical activity is a major underlying cause of death, disease, and disability and contributes to more than two million deaths annually. The health costs associated with physical inactivity are nearly $1 trillion annually in the United States (Janssen, Khan, MacKelvie, McKay, & Petit, 2003).

Among youth, physical activity is inversely associated with a number of adverse health outcomes, including elevated blood lipids, obesity, and cigarette smoking, while positively associated with cardiorespiratory fitness, high density lipoprotein (HDL) cholesterol, bone mass, and psychological well-being (Dowda, Felton, Pate, Sauder, Trost, & Ward, 2002). Further, participation in physical activity during childhood can aid in the development of motor abilities and lay the foundation for good health (Bouziotas & Koutedakis, 2003). The healthy, physically active student is more likely to be academically motivated, alert, and successful. As children grow older and enter adolescence, physical activity may enhance the development of positive self-concept as well as the ability to pursue intellectual, social and emotional challenges (National Association for Sport & Physical Education, 2003). Cross-sectional studies have shown an association between higher activity levels and lower levels of body fat, increased
bone mineral mass and lower levels of tobacco and alcohol use (Gordon-Larsen et al., 2000). Moreover, because physical activity habits developed early in life are more likely to persist into adulthood, adequate participation in physical activity during childhood and adolescence may be of critical importance in the prevention of chronic disease states later in life (Dowda, et al., 2002).

Over the years many theories have been proposed to identify the determinants of a wide variety of human behaviors, including participation in physical activity. Common to many of these theories is the role of attitude toward a specific behavior. An important factor with respect to understanding any child’s participation in physical activity therefore, may be the attitude held by that child toward this behavior (Kelly, Loyd, Romanella, & Wakat, 1991). More specifically, understanding the factors that determine regular participation in physical activity is a key public health concern. Researchers confirm that the formation of positive attitudes of a young person towards physical activity is an important step towards his or her actual participation in activity (Boben, Erpric, Skof, & Zabukovec, 2004). A better understanding of attitudes surrounding physical activity can play an important role in guiding intervention strategies aimed at maintaining energy balance and reducing obesity prevalence in overweight and non-overweight children (Gordon-Larsen, 2001). However, limited research has approached the study of attitudes toward physical activity. Research is further limited with regard to adolescents’ attitudes toward physical activity. Therefore, the purpose of this study was to investigate the attitudes that overweight and non-overweight adolescents had towards physical activity.
**Purpose of the Study**

The purpose of this study was to investigate the attitudes overweight and non-overweight adolescents at a private co-educational school had towards physical activity as measured by the *Children’s Attitudes toward Physical Activity* (CATPA) inventory (Schutz & Smoll, Carre, & Mosher, 1985).

**Research Questions**

The following research questions were addressed:

1. What are the attitudes of adolescents toward physical activity?
2. Do attitudes toward physical activity differ by grade level?
3. Do attitudes toward physical activity differ by gender?
4. Do attitudes toward physical activity differ between adolescents who are overweight and those of typical weight?

**Definition of Terms**

For the purpose of this study, the following operational definitions were identified to clarify frequently used terms used throughout the study.

**Adolescent Overweight** – The Center for Disease Control and Prevention defined overweight as at or above the 95th percentile of BMI for age (Akhtar-Danesh, et al., 2005).

**At-Risk of Overweight** – Having a body mass index (BMI)-for-age at or above the 95th percentile (Centers for Disease Control and Prevention (CDC), 2006).
**Body Mass Index (BMI)** – Body Mass Index, expressed as weight/height$^2$ (BMI; kg/m$^2$) is commonly used to classify overweight and obesity among adults, and is also recommended to identify children who are overweight or at-risk of becoming overweight (National Center for Health Statistics, 1999).

**CATPA** - Children's Attitudes toward Physical Activity, an inventory designed to assess children's attitudes toward physical activity in seven sub-domains: social growth, social continuation, health and fitness, vertigo, aesthetic, catharsis and ascetic (Schutz et al., 1985).

**Perceived behavioral control** - A person's belief as to how easy or difficult the performance of a behavior is likely to be (Ajzen & Madden, 1986).

**Subjective norm** - The perceived social pressure to perform a behavior (Ajzen & Madden, 1986).

**Limitations**

Limitations of this study centered around particular factors that the investigator had no control over or resulted from delimitations that were set, which may have influenced results of the study and its generalization. The following have been identified as limitations:

The research was limited due to the self-report questionnaire (CATPA) as the responses to questions about his or her behavior, likes, or interests may or may not have been truthful or accurate. Assessing attitudes in adolescents presents three problems. (1) There is a lack of stability of attitudes in adolescents, (2) Validity associated with attitudes is sometimes questionable in adolescent’s knowledge and understanding of a
subject area is not at a high enough level to allow them to make intelligent responses to the attitude statements, and (3) the adolescent's knowledge and understanding of health focused physical activity as distinct from other forms of physical activity is bound to influence their current attitudes (Britwistle, & Brodie, 1991).

This study was also limited by the number of students who were given consent to participate. Their participation was dependent upon parental approval.

**Delimitations**

Delimitations of the study centered around particular factors that the investigator had control over which may have influenced the results. The following were identified as delimitations: This study was limited to one private school in the Honolulu area and to boys and girls in grades 5-8.
CHAPTER II
REVIEW OF LITERATURE

This chapter provides an overview of research concerning adolescents who are overweight and their attitudes toward physical activity. In addition, this chapter will focus on the importance of physical activity and Ajzen and Fishbein’s (1975) Theory of Reasoned Action (TRA).

Adolescent Overweight

Childhood overweight has reached epidemic levels in developed countries. The prevalence of overweight among children and adolescents is increasing worldwide (Bjarnason-Wehrens, Christ, Dordel, Falkowski, Graf, Jouck, Koch, & Tokarski, 2005). The prevalence of childhood overweight is high in the Middle East, and in Central and Eastern Europe. In Scandinavian countries for example, the prevalence of childhood overweight is lower when compared with Mediterranean countries, though the proportion of obese children is still rising in both areas (Akhtar-Danesh, et al., 2005). Furthermore, in both developed and developing countries there are proportionately more girls overweight than boys, particularly among adolescents (Akhtar-Danesh, et al., 2005).

Adolescence is a period of heightened concern regarding overweight. The incidence of overweight increases during this age period and tends to persist into adulthood. Ethnic differences in overweight prevalence, absent in infancy and childhood, begin to appear in adolescence, with increased prevalence in African American females that continues through late adolescence and adulthood. Overweight prevalence has also increased in all
ethnic groups in the United States. This trend is particularly significant for African American adolescents (Gordon-Larsen, 2001).

Although the definition of obesity and overweight has changed over time, it can be defined as an excess of body fat. The Centers for Disease Control and Prevention define overweight as at or above the 95th percentile of BMI for age and “at-risk for overweight” as between the 85th to 95th percentile of BMI for age (Akhtar-Danesh, et al., 2005). Excess weight in childhood and adolescence has been found to predict overweight in adults. Overweight children, ages 10 to 14, with at least one overweight or obese parent (BMI>27.3 for women and < 27.8 for men in one study), were reported to have a 79% likelihood of overweight persisting into adulthood (American Obesity Association, 2002). Results from the 1999-2002 National Health and Nutrition Examination Survey (NHANES), using measured heights and weights, indicated that an estimated 16 percent of children and adolescents ages 6-19 years were overweight. The percent of children who are overweight continues to increase. Among children and teens ages 6-19, 16% (over 9 million) are overweight according to the 1999-2002 data, or triple what the proportion was in 1980 (NCHS, 2002).

There are both short-term and long-term risks associated with childhood and adolescent overweight (Barlow, et al., 2002). Obesity is associated with the development of chronic medical conditions including diabetes, heart disease, hypertension and some types of cancers. Children who are overweight or at-risk for overweight are at a dramatically increasing risk for many of these same conditions. For example, the incidence of type 2 diabetes (i.e., 7th leading cause of death in the United States) has increased from 4% in 1990 to approximately 20% in 2000 in children and adolescents.
Research is also showing that overweight children are increasingly being diagnosed with liver disease. In addition, many overweight children have high cholesterol and blood pressure, which are risk factors for heart disease and stroke (NIHCM, 2004).

**Importance of Physical Activity**

With obesity emerging as a major public health crisis, physical activity and sedentary behavior are key targets for altering energy balance in preventing/reducing obesity (Adair, Gordon-Larsen, Nelson, & Popkin, 2005). According to Bjarnason-Wehrens, et al. (2005), obesity and physical inactivity are increasing problems in childhood. The transition from childhood to adulthood marks a striking age-related physical activity decline. It has been hypothesized that a steady decline in physical activity among all age groups has heavily contributed to rising rates of obesity all around the world (Adair, et al., 2005).

To provide a baseline assessment of physical activity levels among children aged 9-13 years, the Centers for Disease Control and Prevention (CDC) conducted the Youth Media Campaign Longitudinal Survey (YMCLS), a nationally representative survey of children 9-13 years and their parents. Data from the survey indicated that 61.5% of children aged 9-13 years did not participate in any organized physical activity during their non-school hours and that 22.6% did not engage in any free-time physical activity (CDC, 2003). A myriad of other studies have shown that sedentary behaviors like watching television and playing computer games are also associated with increased prevalence of obesity (Gordon-Larsen, 2001, Gordon-Larsen, 2000 & Adair, 2005). Ultimately, energy balance
plays a critical role in obesity. Increased intake of foods that are high in fat combined with low physical activity and high levels of inactivity are suspected as major contributors to rising levels of obesity (Gordon-Larsen, 2001). Such behavioral trends highlight a need for effective strategies that promote healthful, sustainable activity levels, and may be addressed through a better understanding of physical activity and sedentary behavior patterning and long-term sustainability (Adair, et al., 2005).

To encourage adoption of active lifestyles, the American College of Sports Medicine (ACSM) developed guidelines for the amount of physical activity required to produce health benefits. The original guidelines for youth and adults that were recommended consisted of three to five sessions of 20 to 60 minutes of continuous, high intensity physical activity per week (Cerny, Epstein, Goldfield, Kalakanis, Paluch, & Roemmich, 2001). In addition, five years after releasing the first physical activity guidelines for children five to 12 years of age, the National Association for Sport and Physical Education (NASPE) has increased the recommended amount. Their recommendations are as follows:

1.) Children should accumulate at least 60 minutes, and up to several hours, of age appropriate physical activity on all, or most days of the week

2.) Children should participate in several bouts of physical activity lasting 15 minutes or more each day

3.) Children should participate each day in a variety of age-appropriate physical activities designed to achieve optimal health, wellness, fitness and performance benefits (National Association for Sport and Physical Education, 2003, p. 1).
Despite guidelines put forth by different organizations, physical activity levels still steadily decrease during adolescence. More specifically, rates of decreasing participation occurs more so among girls than boys (Ayers, Faith, Heo, Leone, & Pietrobelli, 2002). Hendry (1978) identified the importance of body weight or shape to be an important influence on participation in physical activity in young people. A possible explanation for this is that if an adolescent or child cares about his/her physique they will probably engage in physical activity more often to improve his/her body than someone who does not place much value on keeping his/her body in good shape. A lack of motivation has also been identified by Morgan (1977) and Martin (1981) to be a major cause of individuals dropping out of physical activity.

It has been estimated that, depending on the type of physical activity assessment methodology used, there could be between 1.8% and 2.7% per year decline in reported physical activity among boys between 10 and 17 years old. Estimated declines for girls are much more severe, ranging from 2.6% to 7.4% per year (Hobbs & Kohl, 1998).

A national survey found that fewer than 25% of surveyed children participated in at least 30 minutes per day of any type of physical activity (Ayers, et al., 2002). In 1998, 16% of Kindergartners received daily physical education (PE) instruction in school, and approximately 13% received PE instruction less than once a week or not at all (Sturm, 2005). Results of the 2001 Youth Risk Behavior Surveillance System (YRBSS), a national school-based survey of ninth-to 12th-graders conducted by the Centers for Disease Control and prevention (CDC) showed that nearly one half (45%) of high school students did not play team sports during the year; nearly one half (48%) were not enrolled
in a PE class; and PE enrollment dropped from 74% for ninth-graders to 31% for 12th-graders (Sturm, 2005).

Today's youth are considered the most inactive generation in history caused in part by reductions in school physical education programs and unavailable or unsafe community recreational facilities. Approximately 30.3% of children (ages 6 to 11) are overweight and 15.3% are obese. For adolescents (ages 12 to 19), 30.4% are overweight and 15.5% are obese. Overweight prevalence is higher in boys (32.7 percent) than girls (27.8 percent). The percentage of children and adolescents who are overweight and obese is now higher than ever before.

**Attitudes and Physical Activity**

Fishbein and Ajzen (1975) defined 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). To this, an attitude toward something is a learned behavior that is either positive or negative.

Actual participation in activity is dependent on the formation of positive attitudes of a young person towards physical activity. Formation of positive attitudes towards physical activity or individual types of physical activity depends on numerous intertwined factors. According to social psychology, the following factors are considered to significantly influence the formation and changing of attitudes: information and knowledge, personal qualities and characteristics, and belonging to a group. These three factors are also
decisive in the formation and changing of attitudes of young people towards physical activity (Boben, et al., 2004).

Improved attitudes toward physical activity have been rated as one of the most, or the most important objective in physical education programs (Schutz, et al., 1985). Macintosh and Albinson (1982), compared attitudes of two groups of eighth grade students (N=670); those opting out of secondary school physical education and those electing to take it. Students who chose not to take part in physical education reported less positive attitudes toward physical activity and physical education and were less pleased with the aspects of the program than students electing to participate.

Alderman (1970) examined attitudes toward physical activity of 136 male and female champion athletes. Kenyon’s Attitude toward Physical Activity Inventory (Kenyon, 1968) was administered to each athlete representing 10 different sports events. Results of the study indicated that males and females were similar in their attitudes. The strongest attitudes the athletes possessed were toward an aesthetic experience (for the beauty in movement) while the ascetic experience (for the long hard training) held the least meaning for the total group. The subjects in this study valued physical activity for the beauty and graceful movements rather than the long training that were involved.

Straub and Felock (1974) compared attitudes toward physical activity of 80 delinquent and non-delinquent junior high school age girls. Samples were drawn from a rural school (N = 30); a large urban school (N = 30); and a correctional institution (N = 20) located in New York State. All subjects were administered Kenyon’s Attitude toward Physical Activity Inventory under controlled classroom conditions. The investigators also collected data on age and weight on a demographic questionnaire. According to the
study, girls from the various settings differed significantly in their attitudes toward physical activity as a social experience. Further analysis revealed that (1) girls in rural schools differed significantly from those in city school in attitudes, (2) attitudes of girls in the rural school did not differ significantly from the girls in the correctional institution, and (3) attitudes of girls in the large urban school differed significantly from those in the correctional institutions. Straub and Felock concluded that delinquent girls, in contrast to non-delinquent girls place less value on these activities, and that poor self-concept may contribute to the delinquent girls’ desire to avoid social intercourse in sport.

Neale, Sonstroem, and Metz (1969) examined the relationship between physical fitness, self-esteem, level of participation in physical activity, and attitudes toward physical activity in 165 adolescent boys. Participants were administered the AAHPERD Youth Fitness Test (AAHPERD), a 10-item self-esteem inventory (Rosenberg, 1965), the Physical Activity Attitude Inventory (Kenyon, 1968), and a questionnaire concerning an estimation of voluntary participation in physical activity. No significant correlation coefficients between self-esteem and measures of voluntary participation or attitudes toward physical activity were reported. The study did, however, provide evidence that merely participating in physical activity was positively related to positive attitudes toward physical activity.

Politino and Smith (1989) conducted a study investigating the relationship between attitudes toward physical activity, gender, and self-concept. The Children’s Attitude toward Physical Activity (CATPA) Inventory (Schutz, Smoll, Carre, & Mosher, 1985) and the Piers-Harris Self-Concept Scale (Piers, 1984) were administered to 80 children who were emotionally disturbed and 390 who were not that ranged from 8 to 13 years of
age. The results indicated that attitudes toward physical activity and self-concept were not associated for normal children but a significant difference was found among the group that was emotionally disturbed. The children who were emotionally disturbed had a more negative attitude toward physical activity and a lower self-concept than the normal population.

Regarding the CATPA subscales, there was a significant difference between normal boys and girls. On the subscale of beauty in human movement as an aesthetic experience, females scored significantly higher than the males. Males had a higher score on release of tension and vertigo than the females.

Britwistle and Brodie (1991) examined attitudes towards physical activity using the CATPA subscales and perceptions of physical education held by a sample of 291 secondary and 316 primary boys and girls. Using analysis of variance techniques, significant differences were found in both the secondary and primary samples. Similar to findings in earlier studies, girls had significantly more positive attitudes toward physical activity than boys. Specifically, girls from both samples were found to have significantly more positive attitudes than boys in the aesthetic domain. Differences were also found in social growth and vertigo scores, with the boys scoring much higher than the girls. These gender differences may be due to the assumption that girls tend to link exercise with looking good, whereas boys link exercise with being strong and fit. All groups ranked health and fitness objectives highly, with a similar pattern of favorable pupil perceptions of physical activity emerging from both samples.

Crawford, Coonan, Leitch, and Worsley (1984) conducted two studies on children’s perceptions of physical activities. The first examined the views of 600 ten-year-olds
drawn from seven regions of Australia; the second examined the views of 528 ten-year-olds from South Australia. Both studies revealed consistent differences between the perceptions of obese and slim children. Obese children evaluated endurance activities more negatively and flexible-coordination activities more positively than slim children. These findings were possibly due to obese children finding sedentary activities more reinforcing than physical activities relative to normal weight children.

**Theory of Reasoned Action (TRA)**

The relationship of attitudes, intentions, and physical activity behaviors justifies looking at attitudes and physical activity. As early as 1862, psychologists began developing theories showing how attitude impacted behavior. Social psychologists theorized that attitude included behavior and cognition and that attitude and behavior were positively correlated. Thomas and Zaniecki were the first psychologists to view attitude as an individual mental process that determined a person's actual and potential responses (Brown, 1999). This is when scientists began to see attitudes as a predictor of behavior.

Identifying the psychological factors that influence physical activity behavior in children and adolescents is an important prerequisite to designing effective intervention programs for this population. A well established theoretical model that was useful for the purpose of this study was the Theory of Reasoned Action (TRA) (Dowda, Felton, Pate, Sauder, Trost, & Ward, 2002).

The Theory of Reasoned Action (TRA) was developed in 1967. During the early 1970’s the theory was revised and expanded by Ajzen and Fishbein. By 1980 the theory
was used to study human behavior and develop appropriate interventions (Brown, 1999). Fishbein and Ajzen (1975) adopted the Theory of Reasoned Action which targeted the individual's intention to perform as being the best predictor of actual behavior. Intention is affected by both the individual's attitude towards the behavior and the individual's subjective norm concerning the behavior (i.e., perception of social pressures for performing).

The TRA states that the predictor of a patient's behavior is the patient's intention to behave in a certain way. A person's intention is a function of attitudes and social norms. In the TRA, attitudes are a function of beliefs. A person who believes that performing a given behavior will lead to positive outcomes will hold a favorable attitude toward performing the behavior (Navuluri, 2001).

Pender and Pender (1986) used the TRA as a framework to study the relationships among attitudes, subjective norms, and intentions to exercise regularly, maintain, or attain recommended weight, and avoid highly stressful life situations in 377 adults. Their study results showed that attitudes were useful in explaining intentions to exercise regularly, maintain or attain recommended weight, and avoid highly stressful situations. Researchers have linked attitude towards adherence to a physical education program, such as a low attitude toward physical exercise leading to low attendance to the program (Anderson, 1990; Atkins, 1990). However, to a lesser extent, there appears to be fewer research examples that isolate particular outside influences and identify them as having lasting influences on one's attitude toward physical activity.

In recent years, many researchers have looked at the effect physical activity has on various psychological domains. Positive effects of regular exercise on areas such as
emotional stability, confidence, mood, depression, type-A personality, independence, assertiveness, intellectual functioning and locus of control have been suggested by many and questioned by others (Hughes, 1984). Research has also, to a lesser extent, been done to explore some of the psychological effects, such as motivation, perception, and enjoyment which affect physical activity participation (Atkins, 1990).

Summary

In the past 30 years, the occurrence of overweight in children has doubled and is now estimated that one in five children in the United States is overweight. Childhood overweight is regarded as the most common prevalent nutritional disorder of US children and adolescents, and one of the most common problems seen by pediatricians (The Obesity Society, 2006).

Overweight is inextricably linked to the surrounding environmental, sociocultural, and behavioral context. Both health education and physical education research have drawn on the work of Fishbein and Ajzen (1975) to investigate health-related behavior. The Theory of Reasoned Action states that performance of a given behavior is primarily determined by an individual's intention to perform that behavior (Dowda, et al., 2002).

Overall, researchers have reported significant differences between boys and girls' attitudes toward physical activity. Girls tended to have significantly more positive attitudes than boys in the aesthetic (beauty in movement) whereas boys held significantly more positive attitudes than girls in the vertigo (activity as a thrill but involving some risks).
Understanding attitudes toward physical activity can play an important role in maintaining or increasing healthy attitudes and behaviors that will help in reducing the prevalence of overweight and obesity. The results of the present study could be of utility to a number of staff at the elementary and secondary schools such as classroom teachers, administrators, physical educators, and counselors. This study is also important since it contributes to the limited research concerning adolescents' attitudes toward physical activity.
CHAPTER III

METHODS

The purpose of this chapter was to discuss the methods that were employed to investigate the attitudes overweight and non-overweight children had towards physical activity. This chapter consists of the following sections: research site, participants, instrumentation, research design, procedural integrity, data collection, data analyses, and a summary.

Research Site

The site for this study was at a co-educational, independent K-12 school located in the Honolulu area. The selected school was an independent school for gifted and/or dyslexic children that provided an individualized, integrated learning environment. This site was selected based on several mediating factors (e.g., social economic status, multicultural diversity, location and accessibility).

Participants

Approval for the conduct of this research was obtained from the University of Hawai‘i at Manoa Office of Research Services (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. Verbal consent from the K-8 principal at the selected elementary school was obtained by the researcher to gain permission to perform this study.
The participants for this study were selected based on the World Health Organization's (WHO) definition of adolescence, which is defined as the period of life between 10 and 20 years of age (Wikipedia, 2006). Therefore participants in the 5th, 6th, 7th and 8th-grade levels, consisting of approximately 176 students, were asked to participate. In each grade level there were approximately 46 5th-graders, 39 6th-graders, 51 7th-graders and 40 8th-graders.

Initially 176 students were asked to participate, but because parental consent forms were not returned, 43 students' questionnaires were unable to be used for this study. The final sample of 133 students (i.e., male: n= 92, female: n =41) consisted of 25.6% Asian, 1.5% Polynesian, 18 % white, 0.8 % other, and 54.1 % who marked more than one ethnicity (see Table 1). Of the 133 students, approximately 40 were 5th-graders (14 girls and 26 boys), 29 were 6th-graders (9 girls and 20 boys), 37 were 7th-graders (13 girls and 24 boys) and 27 were 8th-graders (5 girls and 22 boys) (see Table 2). With the participants self-reporting their own diagnosis, the highest diagnosis participation came from those who were either dyslexic (n=39), gifted (n=32) or diagnosed with ADHD (n=27) (See Table 3.)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
<th>% Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>34</td>
<td>25.6</td>
</tr>
<tr>
<td>Polynesian</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>White</td>
<td>24</td>
<td>18.0</td>
</tr>
<tr>
<td>other</td>
<td>1</td>
<td>.8</td>
</tr>
<tr>
<td>More than one</td>
<td>72</td>
<td>54.1</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 2: Participants by Grade and Gender

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th grade</td>
<td>40</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>6th grade</td>
<td>29</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>7th grade</td>
<td>37</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>8th grade</td>
<td>27</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>41</td>
<td>92</td>
</tr>
</tbody>
</table>

Table 3: Total number of participants in each diagnosis category

![Bar Chart]

The ratio of boys to girls at the school was approximately 2:1. Of those students, 41% of the students came from multi-racial backgrounds including those identified as part-Hawaiian, 33% were recognized as Caucasian, 23% were of Asian ancestry, and the remaining 3% were classified as Afro-American, Native Hawaiian, or no ethnicity was indicated. Further, the majority of the students came from families of middle to high social economic status.

Each participant received an assent form in which he/she had to read and sign in order to participate in the study, as well as a consent form that his/her parents/guardians were
asked to sign for his/her participation. A demographic questionnaire was also
administered to each student on the same day that the CATPA questionnaire was
administered. Demographic questions asked for information regarding gender, age, grade
level, ethnic group, and disability (if any). Additionally on the same day of the CATPA
questionnaire, height and weight were taken privately during all participants’ respective
physical education classes. Height and weight information was used to identify children
as at-risk of overweight, overweight or non-overweight.

**Instrumentation**

The CATPA (Schutz et al., 1985) inventory (refer to Appendix B) was employed to
examine adolescents’ attitudes toward physical activity. This inventory is a paper-pencil
self-report questionnaire designed to measure an individual’s feelings about taking part in
physical activity. The CATPA consisted of seven items, each with five bipolar adjective
pairs on a semantic differential scale. The individual completing the questionnaire is to
read each idea and fill in how he/she feels about all the word pairs. A 5-point Likert-type
scale is used when scoring the items with five being associated with the positive adjective
and one with the negative. The instrument contained seven sub-domains:

1. PHYSICAL ACTIVITY FOR SOCIAL GROWTH (Social Growth)
   Taking part in physical activities which give you a chance to meet new people.

2. PHYSICAL ACTIVITY TO CONTINUE SOCIAL RELATIONS (Social Continuation)
   Taking part in physical activities which give you a chance to be with your friends.

3. PHYSICAL ACTIVITIES FOR HEALTH AND FITNESS (Health and Fitness)
Taking part in physical activities to make your health better and get your body in better condition.

4. PHYSICAL ACTIVITY AS A THRILL BUT INVOLVING SOME RISK (Vertigo)
   Taking part in physical activities that could be dangerous because you have to move very fast and must change direction quickly.

5. PHYSICAL ACTIVITY AS THE BEAUTY IN MOVEMENT (Aesthetic)
   Taking part in physical activities which have beautiful and graceful movements.

6. PHYSICAL ACTIVITY FOR THE RELEASE OF TENSION (Catharsis)
   Taking part in physical activities to reduce stress or to get away from problems you might have.

7. PHYSICAL ACTIVITY AS LONG AND HARD TRAINING (Ascetic)
   Taking part in physical activities that have long and hard practices. To spend time in practice you need to give up other things you like to do.

The scores are added in each sub-domain for a maximum total of 25 with the exception of Health and Fitness. The Health and Fitness domain consisted of two inter-sub-domains; value and enjoyment with maximum points of 10 and 15, respectively. It was recommended by the developers of the instrument that scores not be totaled to derive a composite attitude score since the sub-domains represent independent components of attitudes toward physical activity.

The original development of the CATPA began with recognizing the necessity for studying attitudes toward physical activity of elementary school children (Schutz et al., 1985; Simon & Smoll, 1974). The revision was based on a study conducted by Wood (1979) which indicated that three of the original word pairs (bitter-sweet, dirty-clean, steady-nervous) were not well understood by the subjects. These three word pairs were deleted from the current instrument. Also, the original 7-point scale was replaced by a 5-point scale.
The CATPA inventories are at least as strong as most social psychological measures in terms of concurrent validity, and reliability is well established in terms of internal consistency. Reliability coefficients for the, employing Cronbach Alpha, were reported ranging from .80 to .90 (Schutz et al., 1985). A test-retest reliability coefficient (6 weeks) of approximately .60 was reported by Simon and Smoll (1974).

The CATPA was administered by three physical education instructors (2 females and 1 male) which included the researcher. Administration of the CATPA took approximately 15-30 minutes per individual student. Before the participants completed the questionnaire the researcher read the CATPA Administration Instructions (refer to Appendix C) for every class, in his/her homeroom. The participants had few questions regarding the questionnaire. However, if participants did have a question they were instructed to raise their hand and a physical education teacher or the researcher would answer any questions they had.

After the participants completed the CATPA, height and weight measurements were taken privately by the school’s physical education teachers. Physical education teachers were instructed on how to properly use the scale and height measurement instrument the day before testing took place. Students were taken to a private area located in the back of his/her homeroom classroom. Male students in each class were measured first, followed by the females. Male students were measured by the male physical education teacher, and the females were measured by the female physical education teachers. The researcher personally saw and recorded each participant’s height and weight onto his/her questionnaire after the physical education teachers measured each participant. If participants had any questions during the measurement period, the researcher and
physical education instructors were available and ready to privately answer any questions that they may have had.

Body Mass Index (BMI) was calculated from the children’s height and weight in order to obtain an index of the degree of overweight. BMI according to age was used to assess and place participants into two groups, at-risk of overweight/overweight and non-overweight.

Research Design

The research design that was employed in this study was the survey. According to Nelson and Thomas (2001), the survey is a technique of descriptive research that seeks to determine present practices or opinions of a specified population; which can take the form of a questionnaire, interview, or normative survey. Researchers use the survey to obtain information by asking participants to respond to the questions rather than by observing their behavior. The obvious limitation of the survey is that the results consist of what people say they do or what they say they believe, like or dislike (Nelson, & Thomas, 2001).

Procedural Integrity

Procedural integrity was ensured by both the researcher as well as the school’s physical education instructors. Each participant was measured by either a male or female physical education instructor. Participants were instructed to remove their shoes, jackets or extra clothing, as well as how to stand on the scale and against the height measurement instrument. A calibrated electronic scale and portable stadiometer was used to measure
height and weight. As each participant was measured by the physical education instructors, the researcher would observe and double check the height and weight of each child.

During the administration of the CATPA inventory both the researcher and physical education instructors were present to make sure that each student completed the questionnaire properly. The researcher or physical education instructors would check the participants completed questionnaires to make sure that each questionnaire was completed.

**Data Collection**

All participants in grades 5-8 were asked to participate. After written consents were obtained from parents and students, data collection was carried out with the help of three physical education instructors. Participant's who failed to return the consent form, even after follow-up attempts were unsuccessful were allowed to complete the CATPA inventory, but their data were not used.

The students were reminded that their responses did not represent right or wrong answers, that no attempt would be made to identify individuals and their responses, and that the responses in no way would affect their grade in the class. The copies of the instrument and demographic questionnaire were passed out and then collected only after the participants finished.

Administration of the CATPA and measurements for BMI were collected over a 1-week period during the third trimester of the school year. At the selected school, all grade levels were scheduled to participate in physical education once a week, for 45 minutes,
with physical education instructors. The CATPA inventory was administered during the participants' scheduled physical education class time and was completed in their homeroom classroom. Approximately five minutes was allowed for reading the directions to the class and for answering any questions. Participants were given 15 to 30 minutes to finish the CATPA inventory. After the participants completed the CATPA inventory, height and weight measurements were taken privately by the physical education teachers.

Body Mass Index (BMI) was calculated using the Child and Teen BMI Calculator. The BMI number was then plotted on the CDC BMI-for-age growth charts (for either girls or boys) to obtain a percentile ranking. Participants who were less than the 5th percentile were considered underweight, those in the 5th percentile up to the 85th percentile were considered a healthy weight, those in the 85th to less than the 95th percentile were considered at-risk of overweight, and those who were equal to or greater than the 95th percentile were considered overweight (see Table 4). For the purposes of this study, 70.7% were identified as being either underweight or at a healthy weight, with the remaining 29.3% identified as being at-risk of overweight or overweight (see Table 5).

Table 4: CDC Weight Status Category Percentile Range Table

<table>
<thead>
<tr>
<th>Weight Status Category</th>
<th>Percentile Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than the 5th percentile</td>
</tr>
<tr>
<td>Healthy weight</td>
<td>5th percentile up to the 85th percentile</td>
</tr>
<tr>
<td>At-risk of overweight</td>
<td>85th to less than the 95th percentile</td>
</tr>
<tr>
<td>Overweight</td>
<td>Equal to or greater than the 95th percentile</td>
</tr>
</tbody>
</table>
Table 5: Participant Weight Status Category Results

<table>
<thead>
<tr>
<th>Weight Category</th>
<th>Total</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>2</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Healthy Weight</td>
<td>92</td>
<td>69.2</td>
<td>70.7</td>
</tr>
<tr>
<td>At-risk of Overweight</td>
<td>20</td>
<td>15.0</td>
<td>85.7</td>
</tr>
<tr>
<td>Overweight</td>
<td>19</td>
<td>14.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Data Analysis** – One-way analysis of variance ANOVA was used to analyze the differences in attitudes toward physical activity between overweight and non-overweight boys and girls for each of the CATPA sub-domains. All data were analyzed using SPSS for Windows (SPSS, 2006).

**Summary**

The purpose of this study was to investigate the attitudes overweight and non-overweight adolescents at a private co-educational school had towards physical activity as measured by the *Children’s Attitudes toward Physical Activity* (CATPA) inventory (Schutz et al., 1985).

Overall, 133 students participated in this study. There were 92 males and 41 females in grades 5-8. The CATPA was used to assess participants’ attitudes toward physical activity and height and weight measurements were taken to calculate their BMI. BMI was used to identify participants as being at a normal weight or at-risk for overweight or overweight. One-way analysis of variance (ANOVA) was used to analyze the data that were collected.
CHAPTER IV
RESULTS

This chapter presents the analyses of data collected during the conduct of this study. In this connection, the chapter is divided into the following sections: (a) introduction, (b) CATPA results by research question and discussion, and (c) summary.

Introduction
The central purpose of this study was to investigate the attitudes overweight and non-overweight adolescents had towards physical activity as measured by the Children's Attitudes toward Physical Activity (CATPA) inventory (Schutz & Smoll, Carre, & Mosher, 1985). Adolescent attitudes toward physical activity were measured with the CATPA inventory using total scores from each. The seven sub-domains used in the inventory were:

1. PHYSICAL ACTIVITY FOR SOCIAL GROWTH (Social Growth)
   Taking part in physical activities which give you a chance to meet new people.

2. PHYSICAL ACTIVITY TO CONTINUE SOCIAL RELATIONS (Social Continuation)
   Taking part in physical activities which give you a chance to be with your friends.

3. PHYSICAL ACTIVITIES FOR HEALTH AND FITNESS (Health and Fitness)
   Taking part in physical activities to make your health better and get your body in better condition.

4. PHYSICAL ACTIVITY AS A THRILL BUT INVOLVING SOME RISK (Vertigo)
   Taking part in physical activities that could be dangerous because you have to move very fast and must change direction quickly.
5. PHYSICAL ACTIVITY AS THE BEAUTY IN MOVEMENT (Aesthetic)
   Taking part in physical activities which have beautiful and graceful movements.

6. PHYSICAL ACTIVITY FOR THE RELEASE OF TENSION (Catharsis)
   Taking part in physical activities to reduce stress or to get away from problems you might have.

7. PHYSICAL ACTIVITY AS LONG AND HARD TRAINING (Ascetic)
   Taking part in physical activities that have long and hard practices. To spend time in practice you need to give up other things you like to do.

A one-way ANOVA was conducted to analyze the difference in attitudes toward physical activity between at-risk of overweight/overweight and non-overweight adolescent boys and girls in the 5th, 6th, 7th and 8th-grades. Results were tested at the 0.05 level of significance.

**CATPA Results By Research Question**

1. **What are the attitudes of adolescents toward physical activity?**

   Overall all adolescents in this study exhibited positive attitudes toward most of the physical activity sub-domains (see Table 6). Descriptive statistics in Table 6 show that the mean scores of the participants in most of the CATPA sub-domains were relatively high. The highest mean was found in the Health and Fitness Value (4.62 out of 5), followed closely by Social Continuation (4.58 out of 5), Catharsis (4.31 out of 5) and Social Growth (4.14 out of 5). These findings indicate that the participants not only valued activities that improved their health and fitness but also those that allowed them to be with friends and/or make new friends. The benefits of physical activity not only
pertain to health and fitness but also emotionally due to the social nature of physical activity. The Ascetic sub-domain, defined as taking part in physical activities that have long and hard training had the lowest mean score, 3.18 out of 5. It appears that these participants would rather not participate in physical activity if long and hard training were involved. Alderman's (1970) study reported similar results as both sample groups also scored the ascetic low (for the long hard training).

Table 6: Descriptive Statistics for CATPA Scores

<table>
<thead>
<tr>
<th>CATPA Sub-domains</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Growth</td>
<td>133</td>
<td>2.00</td>
<td>5.00</td>
<td>4.1447</td>
<td>.67877</td>
<td>-.444</td>
<td>.404</td>
</tr>
<tr>
<td>Social Continuation</td>
<td>132</td>
<td>3.00</td>
<td>5.00</td>
<td>4.5848</td>
<td>.50982</td>
<td>-1.096</td>
<td>.147</td>
</tr>
<tr>
<td>Health Fitness</td>
<td>133</td>
<td>2.00</td>
<td>5.00</td>
<td>4.6203</td>
<td>.60035</td>
<td>-1.729</td>
<td>2.843</td>
</tr>
<tr>
<td>Health Fitness Enjoyment</td>
<td>133</td>
<td>1.00</td>
<td>5.00</td>
<td>3.9975</td>
<td>.91333</td>
<td>-.692</td>
<td>-.170</td>
</tr>
<tr>
<td>Vertigo</td>
<td>132</td>
<td>1.00</td>
<td>5.00</td>
<td>3.4727</td>
<td>.99901</td>
<td>-.307</td>
<td>-.398</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>133</td>
<td>1.00</td>
<td>5.00</td>
<td>3.3908</td>
<td>1.13107</td>
<td>-.341</td>
<td>.538</td>
</tr>
<tr>
<td>Catharsis</td>
<td>133</td>
<td>1.20</td>
<td>5.00</td>
<td>4.3143</td>
<td>.81176</td>
<td>-1.353</td>
<td>1.978</td>
</tr>
<tr>
<td>Ascetic</td>
<td>133</td>
<td>1.00</td>
<td>5.00</td>
<td>3.1820</td>
<td>1.03410</td>
<td>-.204</td>
<td>-.528</td>
</tr>
<tr>
<td>Valid N</td>
<td>131</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Do attitudes toward physical activity differ by grade level?

Overall, all grade levels exhibited positive attitudes toward most aspects of physical activity. Results from the CATPA inventory yielded non-significant differences in attitudes towards physical activity between the different grade levels (see Table 7). Four sub-domains of the CATPA were viewed positively by participants at all grade levels (range of 4.05-4.67 out of 5). These were social growth and continuation, valuing health
and fitness, and catharsis. This suggests that these participants all valued health and fitness activities and the social nature that can also accompany physical activity participation.

Interestingly, all of the participants also held similar attitudes toward the rest of the sub-domains. Though their attitudes were not entirely negative, they were not clearly positive either (range of 3.09-3.92 out of 5). These participants may not have fully understood the aspects of the other sub-domains or held undecided views.

Table 7: CATPA Scores for each Grade

<table>
<thead>
<tr>
<th>CATPA Sub-domains</th>
<th>Grade 5</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Growth</td>
<td>4.05</td>
<td>4.12</td>
<td>4.21</td>
<td>4.22</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(.65)</td>
<td>(.65)</td>
<td>(.73)</td>
<td>(.71)</td>
<td>(.68)</td>
</tr>
<tr>
<td>Social Continuation</td>
<td>4.54</td>
<td>4.51</td>
<td>4.67</td>
<td>4.59</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(.55)</td>
<td>(.55)</td>
<td>(.47)</td>
<td>(.47)</td>
<td>(.68)</td>
</tr>
<tr>
<td>Health and Fitness (Value)</td>
<td>4.56</td>
<td>4.76</td>
<td>4.57</td>
<td>4.60</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(.54)</td>
<td>(.47)</td>
<td>(.77)</td>
<td>(.56)</td>
<td>(.68)</td>
</tr>
<tr>
<td>Health and Fitness (Enjoyment)</td>
<td>4.10</td>
<td>3.92</td>
<td>3.89</td>
<td>4.07</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(.90)</td>
<td>(1.01)</td>
<td>(.98)</td>
<td>(.74)</td>
<td>(.68)</td>
</tr>
<tr>
<td>Vertigo</td>
<td>3.55</td>
<td>3.46</td>
<td>3.23</td>
<td>3.71</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(.85)</td>
<td>(.93)</td>
<td>(1.24)</td>
<td>(.87)</td>
<td>(.68)</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>3.54</td>
<td>3.32</td>
<td>3.33</td>
<td>3.33</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(1.10)</td>
<td>(1.10)</td>
<td>(1.18)</td>
<td>(1.21)</td>
<td>(.68)</td>
</tr>
<tr>
<td>Catharsis</td>
<td>4.37</td>
<td>4.17</td>
<td>4.46</td>
<td>4.19</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(.68)</td>
<td>(1.10)</td>
<td>(.64)</td>
<td>(.84)</td>
<td>(.68)</td>
</tr>
<tr>
<td>Ascetic</td>
<td>3.31</td>
<td>3.12</td>
<td>3.09</td>
<td>3.19</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>(.89)</td>
<td>(1.00)</td>
<td>(1.22)</td>
<td>(1.03)</td>
<td>(.68)</td>
</tr>
</tbody>
</table>

3 Do attitudes toward physical activity differ by gender?

Attitudes toward physical activity did significantly differ by gender. Female participants scored higher than their male peers on five of the eight CATPA sub-domains. These sub-domains were; social growth, social continuation, health and fitness enjoyment, aesthetic and catharsis. The males scored higher on three of the CATPA sub-
domains which were; health and fitness value, vertigo and ascetic. However, significant differences were only found for two sub-domains: vertigo and aesthetic. Males scored significantly higher in the vertigo than the females ($F(1, 130) = 4.897, P = 0.029$).

Relative to the aesthetic, females scored significantly higher than the males ($F(1, 130) = 5.970, P = .000$) (see Table 8).

These findings support that of Britwistle and Brodie (1991), Kelly et al., (1991), and Politano and Smith (1989), in that girls tended to have significantly more positive attitudes than boys in the aesthetic (beauty in movement) whereas boys held significantly more positive attitudes than girls in the vertigo (activity as a thrill but involving some risks). These results may be due to the assumption that girls tend to link exercise with looking good, whereas boys link exercise with being strong and fit (Britwistle & Brodie, 1991).

These results also highlight the importance of individualizing physical activities to accommodate gender differences. Males could be encouraged to participate in activities high in vertigo aspects such as tumbling and soccer while the opposite would be true for females, encouraging activities high in the aesthetic dimension, such as dancing or skating.

**Table 8: Inferential Statistics by Gender**

<table>
<thead>
<tr>
<th>CATPA Sub-domains</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4.746</td>
<td>1</td>
<td>4.746</td>
<td>4.897</td>
<td>.029</td>
</tr>
<tr>
<td>Within Groups</td>
<td>125.896</td>
<td>130</td>
<td>.969</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>130.742</td>
<td>131</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>24.177</td>
<td>1</td>
<td>24.177</td>
<td>21.889</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>144.894</td>
<td>131</td>
<td>1.105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>168.871</td>
<td>132</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Note: Significant differences at p<.05
4 Do attitudes toward physical activity differ between adolescents who are at-risk for overweight/overweight and those of typical weight?

Significant differences were found between adolescents who were at-risk for overweight/overweight and those of typical weight. Participants who were at a typical weight scored higher on all of the CATPA sub-domains than their at-risk for overweight/overweight peers. However, only two sub-domains emerged as being significantly different for the two groups. The sub-domains were social continuation ($P = 0.16$) and health and fitness (enjoyment) ($P = .008$) (see Table 9). Due to the two groups being of unequal size, a retest of the social continuation using the Browne-Forsythe statistics were used to compare the means; significant differences ($P = .037$) were confirmed.

These findings suggest that adolescents who were not overweight tended to have more positive views towards physical activity than those who were at-risk of overweight/overweight. Children who are overweight become aware of others' negative views on obesity, which in turn, diminishes their self-esteem. These children may also devalue themselves because they fall short of internalized social standards for acceptable weight and appearance (Crocker, Major, & Steele, 1998). Crawford, et al. (1984) reported consistent differences between the perceptions of obese and slim children. These findings also suggest that those who were at-risk of overweight/overweight tended to have more negative feelings toward physical activities than those who were not overweight. The nature of health and fitness activities would make it more difficult for adolescents who were at-risk for overweight or were overweight to participate. Further, the social nature
of physical activity could also preclude individuals who have weight issues from participating.

The findings presented in this study were vulnerable to limitations and restrictions. The author accepts the known limitations of using BMI as a measure of overweight/obesity and self-report questionnaires to determine the attitudes that adolescents have towards physical activity.

Table 9: Inferential Statistics by Weight Group.

<table>
<thead>
<tr>
<th>CATPA Sub-domains</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Continuation Between Groups</td>
<td>1.495</td>
<td>1</td>
<td>1.495</td>
<td>5.970</td>
<td>.016</td>
</tr>
<tr>
<td>Social Continuation Within Groups</td>
<td>32.555</td>
<td>130</td>
<td>.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Fitness (Enjoyment) Total Between Groups</td>
<td>34.050</td>
<td>131</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Fitness (Enjoyment) Within Groups</td>
<td>5.731</td>
<td>1</td>
<td>5.731</td>
<td>7.193</td>
<td>.008</td>
</tr>
<tr>
<td>Health Fitness (Enjoyment) Total</td>
<td>104.379</td>
<td>131</td>
<td>.797</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Fitness (Enjoyment) Total</td>
<td>110.110</td>
<td>132</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Significant differences at p<.05.

Summary

Overall, adolescents in this study exhibited positive attitudes toward most aspects of physical activity. Significant results were found in both the gender and weight status subgroups. Males and females were found to differ in their attitudes toward physical activity with males scoring higher on the vertigo dimension and the females scoring higher on the aesthetic dimension. Interestingly, males had the lowest mean scores for the
aesthetic dimension and females scored lowest in the vertigo dimension. In the remaining sub-domains there were no significant differences between groups.

At-risk of overweight/overweight participants scored significantly lower in the social continuation and health and fitness sub-domains than those participants who were of typical weight. There were no significant differences in the remaining sub-domains.
CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

This chapter offers conclusions and recommendations for further research as a result of this study. To that end, 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.

Conclusions

With adolescent overweight rising to epidemic levels, the need for effective interventions has never been clearer. Based on the findings of this study and within the limitations and restrictions of the study (e.g., self-report questionnaire and number of participants), several key findings emerged from this research. First, all adolescents overall exhibited positive attitudes toward most aspects of physical activity. Knowing this, the next step is to translate this positive attitude toward greater physical activity for all adolescents overweight or not overweight.

Secondly, gender differences must be recognized when planning physical activities designed for male and female adolescents. Identification of relevant differences among subgroups within this population helps to guide the nature of effective intervention strategies. Results showed that females significantly differed than males when it came to activities which have beautiful and graceful movements (aesthetic). On the other hand, males significantly differed than females when it came to activities that could be dangerous because of the risks involved (vertigo). These findings suggest that, if females
were to participate in physical activities that were of high-risk (vertigo), they may not enjoy or have a positive attitude towards those activities. On the other hand if males were to participate in physical activities that involved beautiful and graceful movements (aesthetic), they may not enjoy or have a positive attitude towards those activities. Understanding these gender differences is important and should be incorporated into weight-loss programs, physical education, and school curriculums.

Lastly, findings from this study showed that adolescents who were at-risk of overweight/overweight differed significantly from adolescents who were not overweight in the social continuation (activities that give you a chance to be with your friends) and health and fitness value (activities that make you health better) sub-domains. These findings suggest that at-risk of overweight/overweight adolescents may not have had positive experiences with their peers during physical activities, which in turn may cause them to not value being with their friends (social continuation) as much as non-overweight adolescents. It is important for administrators, teachers and counselors to be aware of possible situations that may occur to adolescents who are overweight during physical activity (e.g., picked last or teased because of weight) and help prevent or stop those occurrences from ever happening.

Furthermore, these findings suggest that at-risk of overweight/overweight adolescents may not fully understand or see the relevance of the health benefits associated with physical activity for themselves. Teaching and encouraging adolescents of the importance of moderate and vigorous physical activities by families, health practitioners, and schools may help to achieve and maintain active lifestyles that could help adolescents prevent or overcome their being overweight.
Recommendations

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

1. A study utilizing a larger number of subjects should be conducted to investigate the attitudes adolescents have toward physical activity.

2. A study utilizing non self-report instruments designed to study the attitudes adolescents have towards physical activity.

3. A study that has a more comprehensive approach such as through interviews or group discussions to assess the attitudes that children and adolescents have towards physical education and activity.

4. A study that measures the actual physical activity levels of overweight and non-overweight adolescents in relation to his/her attitudes toward physical activity.

Perhaps the most valuable result from this study was the overall positive attitudes that adolescents have towards the seven CATPA sub-domains. In many situations, physical education, weight-loss, and after school programs do not structure physical activities that produce improvements in adolescents overall health and wellness. Physical education instructors, healthcare professionals and educators need to strategically plan and organize
activities that will benefit and help encourage positive attitudes toward physical activities in adolescents.
REFERENCES


National Center for Health Statistics (NCHS) Prevalence of overweight among children


Appendix A:

Approval for Research
Protection of Human Subjects
Assurance Identification/Certification/Declaration
University of Hawai`i at Manoa Research Services
MEMORANDUM

April 18, 2006

TO: Melissa Mahealani Taeu
   Principal Investigator
   Kinesiology & Leisure Sciences

FROM: William H. Dendle
   Executive Secretary

SUBJECT: CHS #14261- "Overweight and Non-Overweight Adolescent Attitudes Toward Physical Activity"

Your project identified above was reviewed by the Chair of the Committee on Human Studies through Expedited Review procedures. The project qualifies for expedited review by CFR 46.110 and 21 CFR 56.110, Category (7) of the DHHS list of expedited review categories.

This project was approved on March 31, 2006 for one year. If in the active development of your project you intend to change the involvement of humans from plans indicated in the materials presented for review, prior approval must be received from the CHS before proceeding. If unanticipated problems arise involving the risks to subjects or others, report must be made promptly to the CHS, either to its Chairperson or to this office. This is required in order that (1) updating of protective measures for humans involved may be accomplished, and (2) prompt report to DHHS and FDA may be made by the University if required.

In accordance with the University policy, you are expected to maintain, as an essential part of your project records, all records pertaining to the involvement of humans in this project, including any summaries of information conveyed, data, complaints, correspondence, and any executed forms. These records must be retained for at least three years from the expiration/termination date of this study.

The CHS approval period for this project will expire on March 31, 2007. If your project continues beyond this date, you must submit a continuation application to the CHS at least four weeks prior to the expiration of this study.

We wish you success in this endeavor and are ready to assist you and your project personnel at any time.

Enclosed is your certification for this project.

Enclosure
**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 (55FR28003, June 10, 1990) 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.

<table>
<thead>
<tr>
<th>1. Request Type</th>
<th>2. Type of Mechanism</th>
<th>3. Name of Federal Department or Agency and, if known, Application or Proposal Identification No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>[X] ORIGINAL</td>
<td>[ ] GRANT [ ] CONTRACT [ ] FELLOWSHIP [ ] EXEMPTION</td>
<td></td>
</tr>
<tr>
<td>[ ] CONTINUATION</td>
<td>[ ] COOPERATIVE AGREEMENT</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Title of Application or Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Overweight an Non-Overweight Adolescent Attitudes Toward Physical Activity&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Name of Principal Investigator, Program Director, Fellow, or Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melissa Mahealani Taeu</td>
</tr>
</tbody>
</table>

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. 1ORG0004169

[] 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.

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

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

[X] 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 [X] Expedited Review on March 31, 2008

[ ] 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 #14281

<table>
<thead>
<tr>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Name and Address of Institution</td>
</tr>
<tr>
<td>University of Hawai'i at Manoa</td>
</tr>
<tr>
<td>2444 Dole Street, Bachman Hall</td>
</tr>
<tr>
<td>Honolulu, HI 96822</td>
</tr>
<tr>
<td>11. Phone No. (with area code) (808) 956-5007</td>
</tr>
<tr>
<td>12. Fax No. (with area code) (808) 539-3954</td>
</tr>
<tr>
<td>13. Email: <a href="mailto:dendle@hawaii.edu">dendle@hawaii.edu</a></td>
</tr>
<tr>
<td>15. Title: Compliance Officer</td>
</tr>
<tr>
<td>16. Signature: ____________________________</td>
</tr>
<tr>
<td>17. Date: April 18, 2008</td>
</tr>
</tbody>
</table>

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Sponsored by HHS

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Appendix B:

CATPA Inventory
Taking part in physical activities which give you a chance to meet new people.

Always think about the idea in the box.
If you do not understand this idea, mark this box [ ] and go to the next page.

1. good : _____ : _____ : _____ : _____ : _____ bad
2. of no use : _____ : _____ : _____ : _____ : _____ useful
3. not pleasant : _____ : _____ : _____ : _____ : _____ pleasant
5. happy : _____ : _____ : _____ : _____ : _____ sad

Taking part in physical activities which give you a chance to be with your friends.

Always think about the idea in the box.
If you do not understand this idea, mark this box [ ] and go to the next page.

1. good : _____ : _____ : _____ : _____ : _____ bad
2. of no use : _____ : _____ : _____ : _____ : _____ useful
3. not pleasant : _____ : _____ : _____ : _____ : _____ pleasant
5. happy : _____ : _____ : _____ : _____ : _____ sad
Taking part in physical activities to make your health better and get your body in better condition

Always think about the idea in the box.

If you do not understand this idea, mark this box [ ] and go to the next page.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>good</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>of no use</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>not pleasant</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>nice</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>happy</td>
<td></td>
</tr>
</tbody>
</table>

Taking part in physical activities that could be dangerous because you move very fast and must change direction quickly.

Always think about the idea in the box.

If you do not understand this idea, mark this box [ ] and go to the next page.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>good</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>of no use</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>not pleasant</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>nice</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>happy</td>
<td></td>
</tr>
</tbody>
</table>
Taking part in physical activities which have beautiful and graceful movements.

Always think about the idea in the box.

If you do not understand this idea, mark this box [ ] and go to the next page.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. good</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>bad</td>
</tr>
<tr>
<td>2. of no use</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>useful</td>
</tr>
<tr>
<td>3. not pleasant</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>pleasant</td>
</tr>
<tr>
<td>4. nice</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>awful</td>
</tr>
<tr>
<td>5. happy</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>sad</td>
</tr>
</tbody>
</table>

Taking part in physical activities to reduce stress or to get away from problems you might have.

Always think about the idea in the box.

If you do not understand this idea, mark this box [ ] and go to the next page.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. good</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>bad</td>
</tr>
<tr>
<td>2. of no use</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>useful</td>
</tr>
<tr>
<td>3. not pleasant</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>pleasant</td>
</tr>
<tr>
<td>4. nice</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>awful</td>
</tr>
<tr>
<td>5. happy</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>sad</td>
</tr>
</tbody>
</table>
Taking part in physical activities that have long and hard practices. To spend time in practice you need to give up other things you like to do.

Always think about the idea in the box.
If you do not understand this idea, mark this box [ ] and go to the next page.

| | good | | | of no use | | | not pleasant | | | nice | | | happy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| bad | useful | pleasant | awful | sad |
Appendix C

CATPA Administration Instructions
CATPA Administration Instructions

This questionnaire is designed to find out how you feel about physical activity. Physical activities are games, sports, and dance, for example, tag, soccer, hockey, ballet, and roller blading.

Each of you has a booklet. Do not open it yet. Please listen carefully to the instructions. (Refer to visual aid).

At the top of each page in your booklet there is a box, and in the box there is an idea. Down below the box are five different pairs of words. You will be marking these word pairs to show how you feel about the idea. This is not a test, so there are no right or wrong answers. Read the idea in the box, for example, REFEREE. Now go down to the first pair of words - Good-Bad. How do you feel about Referees? If you think they are very good, you put a check here (mark at the end of the scale by good), or if you think that they are very bad, you would put a check here (mark at the end of the scale by bad). If you think that Referees are pretty good, but not super good you would put a check here (indicate). Or if you thought that Referees were sort of bad but not really bad you would put a check here (indicate). If you think that Referees are neither good nor bad (i.e. a neutral feeling), then put a check in the middle. If you do not understand the idea in the box, put a check in the “I don’t understand box” on the middle of the page. Then go to the next page. If you understand the idea in the box, but not the word pair, leave the word pair blank, and go on to the next word pair. Do you have any questions?

It is important that you remember several things. First of all put your check in the middle of the space, not on top of the dots. Second, there are five word pairs on each page, so how many checks will you have on each page? (5) There is only one exception, one of the questions has 10 word pairs.

When I tell you to begin, go through the booklet page by page. Read the idea in the box at the top of the page and fill in how you feel about all of the word pairs before you go on to the next page. Don’t go back to a page after you have finished it; and don’t try to remember how you answered the other pages. Think about each word pair by itself. As you go through the booklet, go fairly quickly, don’t worry or think too long about any word pair. Mark the first thing that comes to your mind, but don’t be careless. Remember the idea in the box at the top of each page is a new idea, so think only about that idea.

When you are all finished, put down your pencil and go back through the booklet to make sure you haven’t left anything out by mistake. After you have finished checking, turn your booklet over, and wait until everyone is finished. If you have any questions, raise your hand, and I will come around and help you. You may begin.
## SAMPLE QUESTION

How do you feel about the idea in the box?

<table>
<thead>
<tr>
<th>REFEREES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always think about the idea in the box.</td>
</tr>
<tr>
<td>If you do not understand this idea, mark this box [ ] and go to the next page.</td>
</tr>
</tbody>
</table>

| 1. good | :_____ :_____ :_____ :_____ :_____ | bad |
| 2. of no use | :_____ :_____ :_____ :_____ :_____ | useful |
| 3. not pleasant | :_____ :_____ :_____ :_____ :_____ | pleasant |
| 4. nice | :_____ :_____ :_____ :_____ :_____ | awful |
| 5. happy | :_____ :_____ :_____ :_____ :_____ | sad |
Appendix D

Participant Demographic Questionnaire
Participant Demographic Questionnaire

DO NOT FILL IN THIS SECTION:

Height: _____ Feet _____ Inches
Weight: _____ Lbs.

Directions: Please provide the following information about yourself. Your responses will be kept confidential.

1.) Gender
   □ Male
   □ Female

2.) Grade
   □ 5th Grade
   □ 6th Grade
   □ 7th Grade
   □ 8th Grade

3.) Birthday
   (mm/dd/yy): / /

Please circle the correct number:

   Years old: 9 - 10 - 11 - 12 - 13 - 14 - 15
   Months old: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12

4.) Ethnic Background
   □ African American/Black
   □ Asian
   □ Latino/Hispanic
   □ Native American/Indian
   □ Pacific Islander/Polynesian
   □ Caucasian/White
   □ Other
   □ More than one ethnicity, describe below:

5.) Diagnosis:
   □ Dyslexic
   □ Gifted
   □ Gifted/Dyslexic
   □ Unknown
   □ Other (Please describe below):
Appendix E:

Informed Consent Form
For Parents/Legal Guardians
INFORMED CONSENT FOR PARENTS/LEGAL GUARDIANS

Children and Adolescent's Attitudes Toward Physical Activity
Researcher: Melissa M. Taeu and Dr. Julienne Maeda

Dear Parents/Legal Guardians:
The Purpose of this Research:
As part of the requirements for a Masters degree at the University of Hawai'i, we are conducting a research project which has been designed to find out the attitudes that children and adolescents have towards physical activity. All 5th, 6th, 7th, and 8th grade classes will be asked to participate.

Procedures:
Your child's participation in this project involves answering one brief questionnaire during physical education class, concerning his/her attitudes toward physical activity. Total involvement should take roughly 15 to 30 minutes. As part of the study, measurements, such as height and weight, will be taken privately during all participants' respective physical education classes.

Benefits/Risks:
There are no immediate benefits from participating in this study. However, results from this study will add to more knowledge of factors that could guide program planning for physical education and physical activity programs. Participating in this study will involve no personal risks to your child, and his/her participation will have no bearing on his/her grades. Your child's identity will not be linked to the questionnaire or results.

Privacy:
We will not ask for your child's name. No name will appear on the form or in the researcher's notes. Your child's responses will be included and analyzed as part of the group. Data will be under the supervision and assessed only by the researchers.

Freedom to Withdraw:
You may withdraw your child from answering the questionnaire at any time for any reason. There is no penalty to withdraw from the study. To withdraw, contact the investigator: Melissa Taeu (542-9859).

Approval of Research
This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects, by the University of Hawai'i, and by ASSESTS School K-8 Principal, and by your child's physical education teachers.

Permission:
I have read and understand the informed consent and the conditions of this project. I have had all my questions answered. I hereby voluntarily agree to allow my child: ______________________________ to participate in this project. If I allow my child to participate, I may withdraw him/her at anytime without penalty.

________________________________________  ________________
Signature of Parent or Legal Guardian       Date

Thank you for your cooperation in helping us with our research. A copy of this form will be made upon request.

Should you have any comments or concerns about your treatment in this study, please contact: Committee on Human Studies, University of Hawai'i, 2540 Maile Way, Honolulu, Hi 96822. Phone: (808) 539-3955.
Appendix F:

Assent Form for Students
Dear Student:

During the next week you will be asked to fill out a questionnaire in your classroom during PE time. As part of the requirements for a Masters degree at the University of Hawai‘i, I am conducting a research to find out the attitudes that children and adolescents have towards physical activity. It will take about 15-30 minutes to finish the questionnaire. The questionnaire will ask you different questions about your attitude towards physical activity. I will not ask you to write your name on the questionnaire, your identification will be completely anonymous.

Although there will be no immediate benefits of your participation in this study, the information you provide can be helpful in future planning for physical education and physical activity programs. There are no risks to participating in this study.

As part of the study, measurements, such as height and weight, will be taken privately during your PE time. Your identification for this part will also be anonymous.

Participation is your choice and you can withdraw at any time by telling your PE teachers. Your participation in this study will have no influence on your grades and there will be no penalty if you withdraw.

Permission
I have read and understand what you want me to do for this study. I also understand my right to withdraw at any time. I voluntarily agree to participate.

___________________________  _______________________
Signature of Student               Date

Thank you so much for helping me with my research!

If you have any concerns about your participation, please tell your parents and have them contact: Committee on Human Studies, University of Hawai‘i, 2540 Maile Way, Honolulu, HI 96822. Phone: (808) 539-3955.