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A study of the Physical Fitness Test in relation to demographics, academic achievement, and students' physical fitness perceptions

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A STUDY OF THE PHYSICAL FITNESS TEST IN RELATION TO DEMOGRAPHICS, ACADEMIC ACHIEVEMENT, AND STUDENTS' PHYSICAL FITNESS PERCEPTIONS

A dissertation submitted in partial satisfaction

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by

Karen Mobilia-Jones

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This dissertation, written by

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under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

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DEDICATION

In memory of my father who instilled in me to be the best that I could be! He always encouraged me to pursue my dreams and to always persevere through thick and thin. The strong work ethic which he inspired in me has paid off!

To my husband, who believes in me and has more confidence in me, than I do in myself. I thank him for his undying patience, support and understanding throughout this journey.

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In addition, I also would like to thank my friends and colleagues for their compassion and assistance throughout this process. I thank the teachers and students who took part in this study for giving of their time to assist me and their parents for allowing them to do so.

I thank each of you from the bottom of my heart!

VITA

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ABSTRACT

This study examines the overall results of the Physical Fitness Test (PFT) and the six fitness areas of the PFT, academic achievement, demographics and self perceptions and the potential impact on students' performance on the PFT. While academic expectations are increasing, the adolescent obesity rate is also increasing, producing a decline in the fitness levels of adolescents. This study is a two phase non-experimental, quantitative investigation of 2009 – 2010 currently enrolled tenth grade high school students as it relates to their performance on the 2008 – 2009 California Physical Fitness Test. Phase one addresses the analysis of extant data which is gathered from 2008 – 2009 Physical Fitness Test (PFT) six fitness areas and academic achievement as measured by grade point averages from students May 2009 semester report card to determine if any correlations may exist as it pertains to overall performance on the PFT. Phase two, which is also quantitative, focuses on descriptive survey research to ascertain currently enrolled tenth grade students' demographic information to include gender, race/ethnicity, parental education level, and the National School Lunch Program to discover if there are any relationships or differences regarding the overall results of the Physical Fitness Test. Students' demographics and self perceptions regarding physical fitness are garnered through a Demographic Information Sheet and the Children and Youth Physical Self-Perception Profile in the form of a computer based survey platform.

It is the intent of this researcher that an increased awareness of the adolescent obesity epidemic be brought to the forefront for educators, parents and students alike. It is critical to identify and examine existing trends in data, which will enable educators to

determine ways in which students can be better prepared and subsequently be successful on the Physical Fitness Test. The literature reveals the potentially enormous effects obesity may have on youth today. According to Graber and Locke, (2007) “Physical educators stand at an historical point in time at which they can either seize the opportunity and contribute to developing the health of our nation’s children through quality physical education, or let the opportunity slip through their hands” (2007, p. 422).

Chapter 1: Introduction

"Today, 17.1% of kids aged 2 to 19 are obese, and almost 30 percent don't exercise enough" (Winterfeld, 2008, p. 22). According to Baskin, Ard, Franklin, and Allison (2005), "Obesity is a major public health problem in the United States" (p. 5). "One in five American children face serious obesity related health risks" (Chartwells, 2007, Fall). According to the Centers for Disease Control and Prevention,

> Recent evidence indicates that the near-epidemic growth rate of adult obesity in the United States has spread its pernicious tentacles to our youths. The overweight rate among school-age children in the United States tripled from about five percent to more than 15 percent between 1980 and 2002. (as cited by Stelzer, 2005, p. 26)

Centers for Disease Control and Prevention (CDC) indicates, "…between 16% and 33% of children and adolescents in the United States are overweight. Moreover, the CDC estimates that less than 50% of adolescents are physically active on a regular basis" (CDC, as cited in Casazza, 2006, Abstract). "Data from two National Health and Nutrition Examination Survey (NHANES;1976–1980 and 2003–2004) show that the prevalence of obesity is increasing for children and adolescents" (CDC, 2007). Among adolescents "ages 12–19 years, prevalence increased from 5.0% to 17.4%" (CDC). "In 1976 – 1980, only six percent of children ages six to eighteen were overweight. By 1988 – 1994, this proportion had risen to eleven percent, and it continued to climb to sixteen percent by 1999 – 2002", according to Godiwalla, Schechter, and Simmons (2005, p. 30). Cawley, Meyerhoefer, and Newhouse (2006), report:

> American children are gaining weight at an alarming rate. Since the 1960s, according to the Centers for Disease Control and Prevention (CDC), the percentage of American six- to eleven-year-olds who fall into the CDC's highest weight classification for children has almost quadrupled. (p. 61)

As stated by the American Heart Association (AHA) and National Association for Sport and Physical Education (NASPE; 2006), "Nationwide, the percentage of high school students enrolled in physical education was 56 percent in 2003 (71% of 9th graders, 61% of 10th graders, 46% of 11th graders, and 40% of 12th graders)" (p. 1). A study in Massachusetts revealed, "Some 14% of school districts report decreasing PE time to accommodate more Math and English. In 1991, 41.6% of high school students participated in daily PE compared with 28.4% in 2003" (Chomitz, et al., 2009, p. 31). According to Lowry, Brener and Lee (2005) "In 2003, only 55.7% of high school students were enrolled in a PE class, only 28.4% were attending PE class daily, and only 39.2% were physically active during PE class" (p. 49). The number of students enrolled in a PE class significantly decreases between eighth and eleventh grades (Beets & Pitetti, 2005). This data reveals the nationwide dramatic increase in obesity and decline in physical activity in American youth over the years.

Physical fitness testing for youth had its beginnings as early as the 1860s (Park, 2008). In January 2008, the state of California mandated that a Physical Fitness Test (PFT) be administered to students in grades five, seven and nine. Although Physical Fitness Tests were administered at the elementary, middle school and high school levels since the early 1980s. This research study will explore the PFT results from the 2008 –

2009 school year in reference to each of the six fitness areas, along with academic achievement, demographics and students self- perception. Although not inclusive this study may provide an increased understanding of the areas educators can focus on to address the adolescent obesity epidemic.

In California, Senate Bills 12 and 965 have been implemented to curtail foods and beverages sold in schools. Senate Bill 12 is the "School Nutrition Standards Bill", also known as the "School Junk Food Ban", which was "signed into State law in 2005 at the Governor's Obesity Summit…all food standards must be implemented in K – 12 schools by July 1, 2007" (Escutia, 2004, p. 1). Senate Bill 965, known as the "High School Soda Ban" was "passed in 2005, commencing on July 1, 2007" stating beverages sold on school campuses must meet specific criteria (Escutia, p. 1). These senate bills are requiring specific nutritional criteria be met in foods and beverages served and made available to students on high school campuses. As of 2005, 34 states across the country enacted or introduced specific foods and beverages that could be purchased in a school setting (Vecchiarelli, Takayanagi, & Neumann, 2006). A study conducted with twelfth grade students at two high schools in the Los Angeles Unified School District revealed that the foods and beverages curtailed on their campuses had an impact on what they ate and drank while at school, but had little impact outside of school (Vecchiarelli, et al.). In addition, a State Joint Resolution (SJR 29) was filed with the Secretary of State on August 20, 2004 to address "food marketing and advertising directed to children" (Kuehl, 2004, p. 1). Each of these legislations has been mandated by the state to address the epidemic of adolescent obesity.

The State not only mandates (via the California High School Exit Exam) students be proficient in reading, writing and mathematics before graduating from high school; the State now deems students be physically fit. The health and physical education curricula are no longer a priority in schools today as greater emphasis is focused on core classes such as math, English, science and social studies (NASPE and AHA, 2006). This change in curricular focus may be a contributor of the obesity epidemic in adolescents. However, as the literature revealed, how one performs academically may very well have to do with how physically fit they are (Arrington, 2007; Ratey, 2008). It appears the relationship between physical fitness and academic performance were not taken into account and the potential consequences were not thoroughly examined. Arrington reports, "…academic performance may be positively affected through added physical activity time in a school setting" (p. 36). Arrington also points out, "… studies strongly suggest the direct relationship between physical fitness and achievement…" (p. 34).

The Shape of the Nation Report is a report written every few years in conjunction with the AHA and NASPE, which provides current information on the status of physical education in each of the states and the District of Columbia (NASPE & AHA, 2006). According to NASPE and AHA in the Shape of the Nation Report (2006):

> The magnitude of this problem, though, has escalated dramatically since the passage of No Child Left Behind (NCLB). The law defines "core academic subjects" as English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography. The omission of certain subjects, including physical education and health education,

> from the list of core subjects has created unintended negative consequences—diminishing time and resources for subjects not identified as core. In order to achieve the objectives of No Child Left Behind, it is critical that all children be provided with a balanced and comprehensive education to be prepared for life in the 21st century. (p. 47)

"The State Board of Education designated the *FITNESSGRAM*® as the required Physical Fitness Test (PFT) to be administered to California students" (California Department of Education(CDE), 2008). The primary goal of the *FITNESSGRAM*® is for students, parents and teachers to gain an awareness of fitness levels of their children or students. As reported by NASPE and AHA (2006),

> The state [California] mandates physical education in grades 1 to 12, but allows local districts to exempt high school students from physical education for any two years in grades 10 to 12. The state requires school districts/schools to assess students' physical fitness levels using the FITNESSGRAM protocol. (p. 15)

The concept of designing a physical fitness 'report card', as was used in other educational disciplines, began in 1977 by Charles L. Sterling (Plowman, et al., 2006). Numerous joint committees and task forces were held from 1958 through 1975 to determine a fitness battery test that would accurately measure the fitness levels of youth. Although a number of proposals were discussed throughout this time the plans were either never ratified or the committees disbanded as a compromise could not be agreed upon. The *FITNESSGRAM*® was finally developed in 1982 when Sterling joined the Cooper Institute staff in Dallas. As of 2006, the *FITNESSGRAM*® was and still is utilized

in thousands of schools worldwide providing valuable information for teachers and parents tracking the health related fitness levels of children and adolescents.

"It is time to promote and support a culture of health and fitness in our schools today," California State Superintendent of Public Instruction Jack O'Connell stated in his January 2005 State of Education address (California Department of Education [CDE], 2005, p. 1). The Physical Fitness Test (PFT) was mandated in January 2008, in an effort to create an awareness of today's youth physical fitness levels. The PFT program, according to California Department of Education (2008a), is a "comprehensive, health-related physical fitness battery developed by The Cooper Institute" (p. 4). The PFT provides results which enable the State to monitor the physical fitness progress of students in California and has assisted in addressing the adolescent obesity epidemic that exists today.

As stated by California Department of Education (2008a), "California *Education Code* Section 60800 requires each school district in California to administer a physical fitness test annually to all students in grades five, seven and nine" (p. 4). The California Physical Fitness Test has been administered in high schools for a number of years. However, the State of California first mandated in January 2008 that students be required to pass the PFT as a part of their graduation requirement. Although the PFT has no consequence in regard to the graduation ceremony in the Antelope Valley Unified School District (AVUHSD) school district, effective January 2008, students who do not pass will be required to enroll in a physical education (PE) class every year subsequent through their senior year until they pass the PFT, per California Education Code 60800.

Background

William J. “Pete” Knight High School (KHS) is located in the Antelope Valley about 60 miles northeast of the Los Angeles basin in Los Angeles County which serves as the setting for this study. KHS is one of eight comprehensive high school sites in the Antelope Valley Union High School District (AVUHSD). The AVUHSD is a Program Improvement (PI) district; however, KHS is not a Program Improvement school, as of the 2008 – 2009 school year. “In California, Program Improvement is the formal designation for Title I-funded schools and LEAs [Local Educational Agency] that fail to make AYP [Adequate Yearly Progress] for two consecutive years” according to California Department of Education (2009b, p. 1). So although KHS is not a school on PI, there are other requirements that are to be met at the district level which were not met, therefore designating the AVUHSD as a PI district. AVUHSD has been on PI status since the 2004 – 2005 school year.

KHS is required to implement the Physical Fitness Test to ninth graders effective January 2008. Students at KHS are required to be enrolled in Physical Education 1 (PE 1) as a freshman and Physical Education 2 (PE 2) as a sophomore as part of their graduation requirement regardless of whether the PFT is passed as a ninth grader. The *FITNESSGRAM*® was previously administered to ninth grade students in said district without consequence. Although not passing the PFT has no consequence regarding graduation status, effective 2008 students who do not pass will be required to be enrolled in PE every year subsequent (11 and 12 grade years) until they pass the PFT.

As a result, juniors or seniors that have not passed the PFT will be enrolled in a PE elective class, which will limit their selection of elective courses.

Problem

Zullig, Ubbes, Pyle, and Valois (2006) posit that, "…the US population has become the most obese in the world" (p. 87). Due to the increase of obesity in children and adolescents, the State of California has taken the position that intervention is required within California schools. As a result "all school districts in California are required to administer the PFT annually to all students in grades five, seven, and nine" (CDE, 2009a, p. 4). Implementing this requirement is one-step in determining the physical fitness levels of students. Educators have a responsibility to investigate the various factors that may attribute to the obesity of youth. As reported in the National Association for Sport and Physcial Education & American Heart Association (2006), "It is not a new concept that subjects such as physical education and health education have to fight for a place and adequate time in a crowded curriculum" (p. 47). According to Arrington (2007), "…many states are facing the elimination of physical education and decreased student health due to academic mandates, when in fact the two may be very closely linked" (p. 3). Similarly, as related specifically to fitness and academic performance, Viadero (2008) cites:

> Seven or eight years ago, studies offered mixed results on the question of whether exercise can boost brain function in children and adolescents. Experts are beginning to contend, however, that the case is getting stronger. "There's sort of no question about it now," said Dr. John J. Ratey, a clinical associate professor of

> psychiatry at Harvard Medical School. "The exercise itself doesn't make you smarter, but it puts the brain of the learners in the optimal position for them to learn". (p. 14)

While academic expectations are increasing, the adolescent obesity rate is also increasing, producing a decline in the fitness levels of adolescents. The literature reveals that lack of physical activity has an impact on academic performance and therefore necessitates that the relationship between physical activity and academic performance be further examined. Although NCLB may have neglected to take into account the absence of physical education in schools and its impact on academic performance, educators must bring the issue to the forefront for further investigation. As reported by NASPE and AHA, (2006):

> We are confident that the information in this latest edition of the Shape of the Nation Report will help bring attention to the need for quality physical education programs that increase the health, academic performance and well-being of all children. (p. 6)

Physical education may be an essential component of youth's curriculum as it relates to their overall academic performance. It is critical to identify and examine existing trends in data, which will enable educators to determine ways in which students can be better prepared and subsequently be successful on the Physical Fitness Test.

Purpose

The purpose of this two-phase, non-experimental comparative and correlational study is to obtain quantitative data regarding the Physical Fitness Test and its

components, demographics, academic achievement and perceptions of students' physical fitness. Both differences and relationships among these variables will be explored.

The first phase of the study consisted of obtaining extant data through quantitative investigations of the similarities and differences, if any, in the PFT results and academic achievement of Knight High School currently enrolled tenth grade students who passed the Physical Fitness Test versus those that did not. This included examining each of the components in the six fitness areas in relation to those that pass versus do not pass in comparison to the overall PFT results. Academic achievement was measured by students' grade point average on their May 2009 semester grade compared against overall PFT results to determine if there is a relationship between academic achievement and PFT performance. In addition data was compiled through student records to obtain information regarding students enrolled in the National School Lunch Program (NSLP). NSLP information has confidentiality provisions which limit the disclosure of eligibility status for students according to Section 9 of the Richard B. Russell School Lunch Act (Bost & Neuman, 2002, pp. 1 - 2). The implication of the confidentiality provision is to limit the disclosure of individual's personal information and is revealed on an as needed basis only, otherwise confidentiality is breached.

In the second phase of the study, demographic information was obtained to determine the demographics of 2009 – 2010 currently enrolled tenth graders, as well as students' perceptions regarding their physical fitness. A Demographic Information Sheet preceded the actual survey (serving as the cover page) requesting information regarding students' gender, race/ethnicity, and level of parent education (see Appendix A). As an

additional source of information students were also asked if they were previously enrolled in PE 1, ROTC or Marching Band to determine students' history of PE classes while enrolled in high school. This demographic information was obtained at the time of the survey. The Children and Youth Physical Self-Perception Profile (see Appendix B) was utilized to measure students' perceptions of their physical fitness levels in relation to their results on the PFT.

Research Questions

A two phase quantitative approach was used to answer the following research questions:

1. To what extent, if at all, are there differences in the Physical Fitness Test (PFT) components passed by currently enrolled tenth graders who did versus those who did not pass the overall PFT as ninth graders?
2. To what extent, if at all, are the differences in the number and the components of the Physical Fitness Test (PFT) passed by currently enrolled tenth graders based on their race/ethnicity, parent education level, National School Lunch Program and gender?
3. To what extent, if at all, is there a relationship between the number of Physical Fitness Test's (PFT) six components passed by currently enrolled tenth graders and their academic achievement during their ninth grade academic year?

4. To what extent, if at all, is there a relationship between currently enrolled tenth graders' perceptions of their physical fitness and their results on the Physical Fitness Test (PFT) during their ninth grade academic year?

Operational Definitions

FITNESSGRAM®: According to the California Department of Education (2008a), "The *FITNESSGRAM*® is a comprehensive, health-related physical fitness battery developed by The Cooper Institute. The primary goal of the FITNESSGRAM® is to assist students in establishing lifetime habits of regular physical activity" (p. 4).

Physical Fitness Test (PFT): The PFT is a required test of physical fitness to be submitted to grades five, seven, and nine in California public schools (CDE, 2008a). The *FITNESSGRAM*® is the required annual PFT for students in AVUHSD. The six components of the PFT are comprised of aerobic capacity, body composition, abdominal strength and endurance, upper body strength and endurance, trunk extensor strength and flexibility, and flexibility. Each of the six components is weighted equally. Students are scored in each fitness area and are classified in one of two ways: Healthy Fitness Zone (HFZ) which is equivalent to passing, or Needs Improvement (NI) which is equivalent to not passing. To pass means to be successful and meet established criteria which are five of six fitness areas. To not pass means to not be successful and have not met established criteria. For the purposes of this study, Healthy Fitness Zone (HFZ) will be considered "passing" the test while Needs Improvement (NI) will be considered "not passing".

Academic achievement: According to the American Educators' Encyclopedia achievement is described as a specific quality or quantity level of an individual

(Dejnozka & Kapel, 1991). According to Merriam-Webster Online Dictionary (2008), academic is defined as “a member of an institution of learning”. Achievement is defined as “accomplishment; a result gained by effort; the quality and quantity of a student’s work” according to Merriam-Webster Online Dictionary. Academic achievement will be measured by grade point average (GPA) on the second semester grade report card from May 2009.

Grade point average (GPA): According to the AVUHSD (2006) Grades and Marking Manual, “The grade point average will be calculated upon a 4.0 scale with the addition of a weighted factor for designated Honors, Pre-IB, International Baccalaureate classes, and Advanced Placement classes” (p. 24).

Demographics: According to the Technical Writing definition of demographics, “In ordinary use, a number of variables are taken into account. Commonly used variables include: race, age, income, disabilities, education level, housing status, employment status, geographic location” (Adar, 2008, p. 1). For the purpose of this study demographics will be representative of Knight High School currently enrolled tenth grade students. The specified demographics included: race/ethnicity, parental education level, NSLP or free and reduced lunch recipient (yes or no), and gender (male or female).

Race and Ethnicity: Race and ethnicity are characterized as Hispanic, Black, White and Other. ‘Other’ will be comprised of American Indian, Asian, Pacific Islander and Filipino in order to protect the anonymity of these students as they represent a relatively low number and may otherwise be easily identified.

Parental education level: Parent education level was categorized as graduate school, college graduate, some college (AA degree), high school graduate, not a high school graduate or unknown/declined to state.

National School Lunch Program (NSLP): Eligible students for the NSLP are those with a family income at or below $26,000 for free lunches, and $37,000 for reduced priced meals for a family of four (Tonn, 2006). The National School Lunch Program is frequently referred to as 'free and reduced lunch'. Students were either categorized as 'yes' they are a recipient of the free and reduced lunch program, or 'no' they are not recipients of the program. For the purposes of this study the terms were used interchangeably.

Key Terms

Obesity: According to the Centers for Disease Control and Prevention, "overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height" (n.d.) Due to the stigma associated with the term obesity, the CDC utilizes the term overweight when referring to obese children and adolescents (Budd & Volpe, 2006).

Adolescence: According to Dorland's Medical Dictionary, adolescence is defined as, "the period between puberty and the cessation of physical growth, roughly from 11 to 19 years of age" (2007). For the purposes of this study, an adolescent is considered an individual between the ages of 13 and 15.

Students: This study examined a cohort of students who matriculated from ninth to tenth grade in August 2009. These students' PFT results and GPA from their ninth

grade year will be compared against their demographics and perceptions of physical fitness obtained in the 2009 – 2010 academic year at which time they were tenth graders at Knight High School.

Perception of physical fitness: According to Pate (1988), physical fitness is "defined as a state characterized by (a) an ability to perform daily activities with vigor, and (b) demonstration of traits and capacities that are associated with low risk of premature development of the hypokinetic diseases (i.e., those associated with physical inactivity)" (p. 174). Perception according to the American Psychiatric Association (1994, 4th ed.), *Diagnostic Statistical Manual IV* (DSM IV) is "The process of organizing and using information that is received through the senses". In this study perception of physical fitness was measured by the Children and Youth Physical Self-Perception Profile (CY-PSPP, see Appendix B) and is described as one's thoughts, feelings or beliefs in relation to their physical fitness.

Importance of the Study

With adolescent obesity on the rise, the PFT is an indicator to determine if students are physically fit. Should the CY-PSPP prove to be a reliable predictor of one's passage on the PFT, this may allow educators to screen students as a means to identify which students would benefit from early intervention. It is the intent of this researcher that an increased awareness of adolescent obesity be brought to the forefront for educators, parents and students alike. As a result of the information obtained in this study, parents and educators will be more informed and better equipped to address the adolescent obesity epidemic which exists today.

This researcher believes this can be achieved by establishing a foundation and utilizing baseline data to determine the fitness levels of tenth grade students with the newly mandated Physical Fitness Test. The issues of adolescent obesity are complex and can be attributed to numerous causes with physical inactivity being one of the leading contributors to the epidemic (Robert Johnson Woodson Foundation, 2007). Due to the multitude of factors/causes that may contribute to adolescent obesity, this data alone may not provide a representative portrayal of one's physical and mental capacity to pass the PFT.

Researching adolescent obesity is of the utmost importance for the health of youth today and in order to assess their life expectancy. As cited by Hardy (2006), "Obesity has reached such proportions that today's children could end up living two to five years less than they might otherwise, according to a 2005 study in the New England Journal of Medicine" (p. 25). Examining this epidemic in regards to the Physical Fitness Test will enable educators to identify students who are at-risk for obesity so that physical education programs can implement the necessary changes to assist students. Identifying relationships and differences in students who pass and do not pass the six fitness areas of the PFT, academic achievement levels, demographic data and the perceptions revealed through the CY-PSPP survey results will enable schools to identify students most at risk.

As poignantly stated by NASPE and AHA, (2006) in the Shape of the Nation report:

> …in a time of increasing health risks and health care costs in our country, prevention is key and exemplary physical education programs must be part of the

> solution for inactivity, obesity, and related chronic diseases. Several facts should be considered when reviewing the results of the 2006 survey: There is no federal law that requires physical education to be provided to students in the American education system, nor any incentives for offering physical education programs. (p. 5)

Guidelines must be established for students, parents and school officials if educators are to address this epidemic. While schools alone cannot address the adolescent obesity epidemic, it may be unlikely that a positive impact is made without the strong support of school policies. Students spend much of their time at school, more so than any other environment away from their homes (Story, Nanney, & Schwartz, 2009). Students also consume one to two meals a day, five times a week while at school and resources such as physical education and health classes, as well as school nurses, are already in place (Budd & Volpe, 2006). It appears that without mandates and policies in place the health of today's youth will be at risk, which in turn jeopardizes students' academic performance. NASPE and AHA (2006) want to remind America that "Physically active, healthy kids learn better!" (p. 8).

The data obtained from this study will provide schools with the knowledge needed to screen and identify populations of students who might benefit from further assistance. For example, should the results indicate that males performance levels on the PFT are in the healthy fitness zone, and females results indicate, need improvement, specific interventions for females may need to be incorporated. Additional research may reveal that genetics, puberty or poverty (Anonymous, Journal Of Physical Education

Recreation and Dance (JOPERD)) play a major role rather than gender alone. Obesity (as determined by the fitness area - body composition) is also an important variable to examine as it is assumed that those who are obese are not physically fit and will not perform well due to the physical nature of the test. This study may clarify that issue, indicating that one does not need to necessarily be physically fit to pass the PFT. Determining if students are failing additional classes may alert school officials that those individuals struggling academically are also apt to struggle with the PFT. Examining specific demographics will assist in narrowing down the population(s) most in need of interventions. Addressing the human aspect (perceptions) of the PFT provides an additional dimension to be explored. Examining students' perceptions from their frame of reference provides this research with the psychological aspect that may influence their performance on the PFT. Given the fact that this is a fairly new requirement being implemented in California it is important that the areas described be examined to determine a baseline.

Limitations

There are numerous physiological aspects of this study that could be examined and therefore considered limitations and delimitations that will not be mitigated within the study, for example genetics and puberty, nutrition, parental influence, socio-economic status, media, advertising and fast food restaurants. This researcher believes that by focusing on the six fitness areas, academic achievement, specific demographics, and students' self-perceptions in relation to physical fitness and the PFT will provide a basic foundation in which school officials can determine which intervention(s), if any,

are appropriate. These deliberate boundaries have been set so school sites will have a basic foundation in which to begin formulating plans. The researcher has chosen variables which student's have immediate knowledge of and are most reliable and readily accessible within the context of a school setting.

During the adolescent years many youngsters experience peer pressure and self-esteem issues. In regards to physical education classes, this can play a major role due to the self-conscious nature of adolescent life. For example, many adolescents are very in tune and insecure regarding their body physique. Therefore, certain individuals may be reluctant to wear the required PE attire for their physical education class and be self-conscious about their appearance, which in turn may affect PFT performance. Students may not want to be as competitive with the opposite sex to stay in favor with certain individuals, which in turn may also affect PFT results.

Questionnaires can pose limitations as described by Creswell (2003), "…their responses will reflect their reading and writing skills and, perhaps, their misinterpretation of one or more questions" (p. 185). As a result, the Children and Youth Physical Self-Perception Profile (CY-PSPP) may pose the limitations described. The time of day for testing may also influence the results of the PFT test. Students enrolled in physical education classes earlier in the day versus later in the day or vice-a-versa may be affected as determined by the weather or alertness. Availability of students is greater during the school day as opposed to conducting the survey outside of the school day. Also, since the survey was conducted on a computer, some students have different comfort levels with technology which may affect the results one way or another.

An additional limitation may be if students do not pass the test the first time and are required to test a second time. If the test is not administered by the same PE teacher this potentially could be a limitation although all teachers administering the PFT are required to have a credential in physical education and attend a formal training and adhere to identical HFZ/NI (pass/fail) guidelines.

Assumptions

One may presume that when conducting survey research involving human perceptions and views, numerous assumptions may come into play. Students may respond in a socially desirable manner in which they feel the researcher wants to hear. It is also assumed that students will not exaggerate or embellish their responses to impress the researcher. Creswell (2003) contends, "…recognizing that we cannot be "positive" about our claims of knowledge when studying the behavior and actions of humans" (p. 7). It is also assumed that students will be candid and genuine when responding to the survey. When dealing with school records and documentation, human error is always a possibility. The researcher assumes tenth grader's perceptions of physical fitness are not influenced by whether or not they were present at KHS in the prior year; therefore all tenth graders with granted permission and consent will participate in the study.

Data is reported by districts and school sites, not by individual test takers names. This researcher makes the assumption that although the PFT results are not individually identifiable, the district will follow state guidelines to protect the property and accessibility of this data.

Chapter 2: Literature Review

Introduction

The exploration of the literature in regards to the different variables of this study provided the researcher with a profound awareness of the various facets that may affect students' performance on the Physical Fitness Test (PFT). The literature review examined each of the variables set forth in Chapter 1, in the research questions section, beginning with an overview of the history of physical education and literature on the obesity epidemic, followed by each variable. The variables are as follows: six fitness areas of the PFT, academic achievement, demographics, and self-perceptions. The literature revealed there is not a plethora of empirical data on which to base guidelines for physical activity (Hills, King & Armstrong, 2007). However, this researcher exposed literature that supports and opposes how each of the variables has an effect, if any, on the performance of the Physical Fitness Test.

History

History reveals that the first ancient Olympiad was held in 776 BC; while the first modern Olympics were held in 1896 in Athens, Greece. Classic works by Jean-Jacques Rousseau in 1764 reinforced the importance of physical education to support intellectual development (Guedes, 2007). During the nineteenth century the "importance of exercise for enhancing children's physical and intellectual well-being" began to gain some attention (Park, 2008, p. 530).

Physical education, (often referred to as 'gymnastics' during its time) began to emerge in the late 1800s as a professional field (Park, 2008). Charles Beck from

Germany became the first physical education teacher at Round Hill School in 1825. His physical education classes were in gymnastics and based on the German system. In 1873, although gymnastics in France had increased ten-fold, it was not seriously considered as exercise. In 1889 at the "Paris Exposition Universelle" it was announced "A Congress will be held in Paris for studying the aims and advantages of athletic sports and their physical, moral, and social effects on education" (Park, 2008, p. 523). Germany, Sweden and England were responsible for laying the foundation for physical education in the United States. In 1824 Catherine Beecher was the first American to implement physical education programs for children in the United States (Overview of Physical Education, n.d., p. 1). In 1866, California became the first state to pass legislation regarding physical education. From 1897 – 1925 numerous other states across the nation followed suit mandating physical education laws and/or passing legislation which required some form of physical training in the school systems (Sather, 2003).

History also reveals President Eisenhower in 1955 formed the Council on Youth Fitness, which was later reformed by President Kennedy in 1961 to become known as the President's Council on Physical Fitness and Sports. The American Alliance for Health, Physical Education, Recreation (AAHPER) published a youth fitness test manual in 1958. Minor revisions were made to the test from 1958 through 1975. During the early 1970's disagreement mounted regarding the philosophy behind the test and a joint committee was established in 1975 to determine if revisions were warranted. Extensive review from key stakeholders at the national convention in 1976 determined revisions were necessary. The focus now was to "set as a basic goal the relating of physical fitness

to functional health and not sport performance" (Plowman, et al., 2006, p. S7). Numerous proposals were discussed but a compromise for a unified test could not be agreed upon and therefore committees disbanded. *FITNESSGRAM*® representatives were committed to a research evidence based, health-related fitness test.

In 1989 the first education summit was held by then President George H. Bush and the nation's governors. While in 1999 the Elementary Secondary Education Act (ESEA) was reauthorized placing the focus on the well being of the whole person in health and physical education classes (Johnson & Deshpande, 2000). The ESEA is the cornerstone of federal support for public education. Physical education over the last two decades focused on a multi- activity approach exposing students to multiple physical activities, although the relevance of multiple activities has come into question and much debate (Cothran, 2001).

In 2000, Congress approved the Physical Education for Progress (PEP) Act, which provides grants to enhance or expand existing physical education programs for K-12 grade levels (Ed.gov, 2008). According to the Physical Education for Progress Act (PE Central, n.d.),

> In Fiscal Year [FY] 2001, the PEP bill was approved for $5 million. In FY 2002, Congress allotted $50 million; $60 million in FY 2003; $70 million in FY 2004; $73.4 million in FY 2005; $72 million in FY 2006; and $72.7 million in FY 2007. (p. 1)

In March 2002, the official name of the Physical Education for Progress (PEP) Act became known as the Carol M. White Physical Education Program (PEP). Over the years

funding has been made available through federal grants to assist in meeting Physical Education (PE) state standards. So although Physical Fitness Tests were being administered at the elementary, middle school and high school levels, it was not mandated in California until January 2008.

"Childhood obesity with its associated metabolic complications is emerging as a global health challenge of the 21st century" (Caprio, et al., 2008, p. 2211). According to Penney & Chandler (2000) physical education in the 21st century needs to move to a more *"thematically oriented, rather than activity-based curriculum"* (p. 77). This approach shifts from lessons or units based curricula taught in isolation to defining themes involving collective activities geared toward core learning. The National Curriculum for Physical Education in England proposes this approach terming it *'core strands of learning'* (Penney & Chandler, p. 78). As stated by Crum (1993), "the essence of physical education [in the 21st century] is not "learning to move" but "moving to learn""(as cited by Penney & Chandler, p. 77).

Obesity Epidemic

Health care costs have become a major concern since the increase in adolescent obesity. According to Kuehl (2004), "In California, annual obesity-attributable medical expenditures were estimated at $7.7 billion in 2003" (p. 1). The literature reveals that youths today are at risk for the following health related problems: heart attacks, strokes, type 2 diabetes, colon cancer, gout and other health related issues which may also appear later in life (Anonymous, 1993; Hill & Turner, 2007). According to Winterfield (2007), author for State Legislatures, "Our children and youths are at risk for developing type 2

diabetes, heart disease, high blood pressure, high cholesterol and even asthma" (p. 36). According to Judge & Jahns (2007), "Overweight during childhood and particularly during adolescence is related to increased morbidity and mortality in later life, as overweight children and adolescents tend to become overweight adults" (p. 673). There is ample evidence to suggest the youth of our country are at risk of obesity in epidemic proportions. "…today's generation of children will be the first for over a century for whom life expectancy falls" (Hills, et al., 2007, p. 533).

Environmental and technological factors in our society have changed over the last quarter of a century resulting in less active adolescents and contributing to an increase in adolescent obesity (Farias, et al., 2009; Hills, et al., 2007; Jebb & Moore, 1999; Johnson & Deshpande, 2000). Digital games, computers, and watching television promote sedentary lifestyles which are also associated with adolescent obesity (Rey-Lopez, et al., 2008). "Most experts agree that the causes of overweight are environmental, related to living in a world that allows easy access to food and encourages inactivity" (Müller, Danielzik, & Pust, 2005, p. 250). Several studies indicate a relationship between television viewing hours and an increase in obesity for children and adults (Andersen, et al., 1998; Gortmaker, et al., 1996; Kautiainen, et al., 2005; Patrick, et al., 2004). However, a study of nearly 2,000 ninth grade students of varying ethnicities reports a weak association between television viewing and BMI or physical activity (Robinson & Killen, 1995). The findings in regards to video game usage in relation to obesity were dependent upon energy expenditure for various video games used. Although controversial, the use of computers and video games if they do not replace physical

activity, are not as detrimental as television viewing as it relates to weight gain (Dowda, et al., 2001; Kautiainen, et al., 2005; Rey-Lopez, et al., 2008).

Marketing and advertising has a strong influence over today's youth. Kuehl (2004) states, "Children see 40,000 commercials each year, 50% of which are for foods and beverages" (p. 1). In California, Governor Schwarzenegger has required that schools change their food and beverage offerings to promote a healthy and balanced lifestyle as indicative of Senate Bills 12 and 965. As indicated by Senate Joint Resolution 29, the media, food, and marketing industries are being asked to abide by responsible advertising directed at children (Kuehl).

Family dynamics are also different from past generations, as there are more single parent family homes and if both parents are in the home usually both are employed (Silva, 2006). Often times adolescents are responsible for preparing their own meals and look for a quick easy, often unhealthy, solution. Neumark-Sztainer (2006) stated, "Family meals appear to play an important role in helping adolescents make healthier food choices and avoid engaging in unhealthy weight control and binge eating behaviors" (Abstract). "If you have two overweight parents, there's a 60- to 80-percent chance of kids being overweight, where if you have two lean parents, that risk is 9 percent" Campbell said (as cited by Strandberg, 2008).

With an increase in school violence and gang activity perpetrating youth over the last decade parents tend to be more reluctant to have their children ride their bikes or walk to school (Hills, et al., 2007; Rey-Lopez, , et al., 2008). Also depending on the area in which one resides, adults are more hesitant to allow their children to play in the

neighborhood or at the local park after school or after dark (Graber & Locke, 2007). Hence, safety issues may inhibit opportunities for physical activity in society today.

Also in regard to the obesity epidemic, this researcher used body mass index (BMI) as depicted by the FITNESSGRAM® to measure obesity and normal weight. "This test [BMI] is not an estimate of body fat. Instead, it provides information on the appropriateness of a student's weight relative to his or her height" (CDE, 2007, p. 5). According to definitions set forth by the Centers for Disease Control and Prevention (as cited by Patrick et al., 2004) "body mass index for age percentiles are divided into 2 categories: normal weight (<85th percentile) and at risk for overweight (≥85th percentile)" (p. 385). "In the United States, the 85 and 95 percentiles of body mass index for age and sex based on nationally representative survey data have been recommended as cut off points to identify overweight and obesity" (Barlow & Dietz, 1998, p. 1).

The requirement of two years of physical education (PE) classes at Knight High School is one avenue to keep students active while at school. However, just because a student is enrolled in a PE class does not mean they are participating, and therefore the teachers must ensure students are active during class time. This necessitates teachers engaging students in physical activities for the entire class period. As cited by Graber and Locke (2007) "…even those [teachers] who rigorously promote physical fitness, do not keep students active…for 50% or more of the class as promoted by the Healthy People 2010 objectives" (p. 417). A study of middle and high school students by Fairclough & Stratton (2005) reports, "…during regular PE classes, students spent between 27% and 47% of class time in MVPA [moderate to vigorous physical activity]" (p. 231). Physical

education is defined as acquiring the skills and knowledge to perform various physical activities, while fitness is correlated with one's overall state of health (Farmington Middle School West (FMSW), 2005; Webb, n.d.).

Fitness Areas

Ninth grade students are required to pass five of the six fitness areas of the *FITNESSGRAM*® in order to pass the PFT, or be considered in the Healthy Fitness Zone (HFZ). Students with disabilities are also required to take the test, although certain accommodations may be provided if cited in their Individualized Educational Program (IEP) or Section 504 Plan. IEP's and 504 plans are legal documents which are devised for students with disabilities depicting modifications and/or accommodations needed for students based on teachers, school psychologists, parents and students determinations to provide students with a least restrictive educational environment. All ninth grade students are administered the PFT whether or not they are currently enrolled in a physical education class. Make up opportunities must be made available within the testing window. The testing window for the PFT is February 1 through May 31, as scores must be reported to the state annually by June 30th (CDE, 2008a).

Dr. John Ratey (2008) in his book, *SPARK – The Revolutionary New Science of Exercise and the Brain*, refers to how the effects of high scores on the *FITNESSGRAM*® relate to higher academic test scores. A study in Illinois indicates that there is a positive correlation between students passing the *FITNESSGRAM*® and academic achievement, in particular in the areas of Math and Science (Chomitz, et al., 2009).

According to the CDE (2008b), the *FITNESSGRAM*® is composed of six fitness areas as shown in Figure 1.

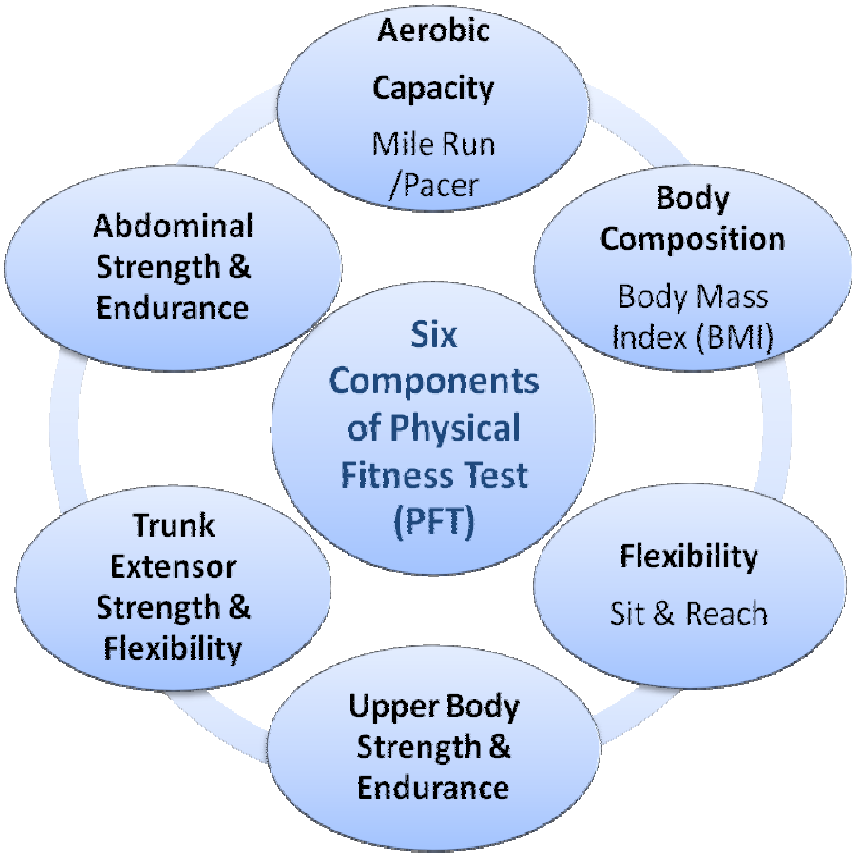

Figure 1: Components of the PFT

Conversion tables depicting HFZ ranges in all six fitness area are found in the Instrumentation section of this document. Each of the six components is weighted equally.

Aerobic Activity

"The aerobic capacity fitness area refers to the maximum rate that oxygen can be taken into and used by the body during exercise" (CDE, 2009a, p. 11). Students at Knight

High School are given a choice of performing either the 20 meter Progressive Aerobic Cardiovascular Endurance Run (PACER) or the mile run to satisfy the aerobic capacity component of the PFT.

Body Composition

Body composition is measured by body mass index (BMI) according to the FITNESSGRAM®. According to definitions set forth by the Centers for Disease Control and Prevention (as cited by Patrick et al., 2004) "body mass index for age percentiles are divided into 2 categories: normal weight (<85th percentile) and at risk for overweight (≥85th percentile)" (p. 385).

Abdominal Strength and Endurance

Abdominal strength and endurance are measured by curl-ups, similar to what is known as a sit up with knees bent and without placing one's hands behind their head (CDE, 2009a).

Trunk Extensor and Flexibility

The trunk extensor is measured by students laying face down on a floor mat with their arms extended along their sides. Students are then asked to lift their upper body (trunk) upward and the distance from the floor to the height of their chin off the floor is measured in inches (CDE, 2009a).

Upper Body Strength

Upper body strength is measured by standard push-ups (CDE, 2009a). Similar to what is known as a push-up in laymen's terms.

Flexibility

The Sit and Reach test measures the flexibility of the joints, predominantly the hamstrings (CDE, 2009a). In laymen's terms, one is sitting on a floor mat with legs extended and students are to reach with their fingertips and touch their toes.

Academic Achievement

A study conducted of elementary and primary school principals when ranking the importance of physical education classes in comparison to other academic classes offered during the school day, revealed that "64% of the principals ranked physical education last out of all academic subjects, and 31% did not view it as an academic area" (Siegel, 2007, p. 10). The study also surmises the viewpoints of the principals stating if they (principals) are not being held accountable for the test scores, it is more important to put their time and resources elsewhere. Many school resources are used for remedial classes offered in English and math classes, where principals are held accountable for scores in these subject areas. However, with the new Physical Fitness Test mandate, administrators and PE teachers are being held accountable for student performance in physical education classes as well. This discrepancy may in part be due to the degree of accountability.

In California, the differences in discrepancy may be due to the fact that if students do not score well on the California Standardized Tests (CST), or on the California High School Exit Exam (CAHSEE) schools and students have an immediate consequence, which increases the accountability factor. CST scores can affect schools Adequate Yearly Progress and Academic Performance Index, which may put the school at risk for

Program Improvement status where the state becomes involved in the day-to-day operations of the school. In regards to the CAHSEE, if students do not pass both the English and math areas they will not graduate nor receive a diploma. Whereas, with the PFT the consequence for not passing is that students are required to be enrolled in a PE class until they pass or until their fourth year of high school. If they do not pass the PFT in the four years, they are still eligible for a high school diploma. Yet, according to the literature physical fitness enhances academic performance (Arrington, 2007; Dwyer, Sallis, Blizzard, Lazarus & Dean, 2001; Viadero, 2008).

Teachers express concern that physical education classes reduce the time they have to review core subject areas. Due to the testing requirements, teachers feel accountable for students test results and therefore feel more pressure to prepare their students. Therefore, similar to principals, some teachers do not view physical education classes as a necessary part of the curriculum, especially at the high school level. However, as noted by Taras (2005), "There is evidence to suggest that short-term cognitive benefits of physical activity during the school day adequately compensate for time spent away from other academic areas" (p. 218).

Physical Education coaches from a case study conducted at Naperville Central High report "we create the brain cells…it's up to the other teachers to fill them in" (Ratey, 2008, p. 19). This study graded students based on their target heart rate zones, not their athletic ability during PE class. In his book, *SPARK – The Revolutionary New Science of Exercise and the Brain*, Dr. John Ratey addresses "how physical activity influences the brain" (Ratey, p. 33). The books premise stems from the belief that

"physical activity sparks biological changes that encourage brain cells to bind to one another" and that "exercise provides an unparalleled stimulus, creating an environment in which the brain is ready, willing, and able to learn" (p. 10). The studies conducted throughout the book reveal a correlation between fitness and academics. According to these studies, without time for physical education in the schools, students will not be prepared nor perform well academically. The studies reveal - students who are physically fit perform better academically. Similarly Taras (2005) reveals, "Physical activity improves general circulation, increases blood flow to the brain, and raises levels of norepinephrine and endorphins — all of which reduce stress, improve mood, induce a calming effect after exercise, and perhaps as a result improve academic achievement" (p. 214). Although other studies claim that academic benefits of physical education are "based on a shallow scientific foundation" (Sallis, et al., 1999, p. 128). While Dwyer et al. (2001) reports that much of the research in the area of physical fitness and its effects on academic achievement reveals inconsistent results. "Thus, the general conclusion is that physical activity and fitness are weakly correlated with academic performance among girls and boys aged 7 to 15 years" (p. 235).

In addition, students' feelings of connectedness to their school, suggests powerful predictors in academic outcomes and adolescent health (McNeely, et al., 2002). An article written by Cohen, et al., (2009) states the affects school climate can have on student success both academically and psychologically. The findings in their research revealed, "…positive school climate is associated with and predictive of academic

achievement, school success…" (Cohen et al., p. 180). "High school dropouts report not having a strong interest or sense of belonging in school" (Wilson, 2004, p. 298).

Demographics

The term demographics can be defined to include numerous aspects of a population. According to the Technical Writing definition of demographics, "In ordinary use, a number of variables are taken into account. Commonly used variables include: race, age, income, disabilities, education level, housing status, employment status, geographic location" (Adar, 2008, p. 1). For the purposes of this study specific demographics were chosen based on information that student's have immediate knowledge of and are most reliable and readily accessible within the context of a school setting.

Race and Ethnicity

Obesity has increased in all ethnic, racial and socio-economic groups and in both sexes in the U.S. (Caprio, et al., 2008). "The Centers for Disease Control reported that in 2000 the prevalence of obesity was 19% of non-Hispanic black children and 20% of Mexican American children, compared with 11% of non-Hispanic white children" (Caprio et al., p. 2212). In the Consensus Statement by Caprio and Associates information revealed that there may be underlying genetic components in regards to race and ethnicity; there may be fundamental metabolic disparities by race and ethnicity; and biological differences in the development of obesity by race and ethnicity.

A study conducted in Los Angeles County public schools, grades 5, 7 and 9 revealed there is a higher prevalence of obesity among Latinos and African American

children which were consistent with prevalence studies nationally (Lee, De, & Simon, 2006). This study also revealed there is a higher prevalence of obesity among males than females in all racial/ethnic groups, except for African Americans where the prevalence was higher for females. A U.S. study of children in grades 6 through 10 revealed that African American youth consumed more sweets and fast food items and exercised less in comparison to white counterparts (Ding & Parks, 2007) A nationally representative sample of 8, 10 and 12 graders conducted over a three year period (2003, 2004, and 2005) showed Hispanic and Black youths were less likely to participate in intramural and varsity sports than their white counterparts (Johnston, Delva & O'Malley, 2007).

There is much debate as to the definition of the terms race and ethnicity. According to Lee (2008),

> There are historic and more recent differences between these terms, with "race" carrying a biological connotation in historic biomedical research of genetic homogeneity based on physical attributes (e.g. skin color), while "ethnicity" has been promoted more recently as a more culturally-oriented alternative classification term, identifying persons and populations by common aspects of social, religious, dietary and other less biological variables. (p. 8)

While Caprio, et al. (2008) clearly states, "The assumption that race reflects only biological distinctions is inaccurate", "…both race and ethnicity are constantly evolving concepts" (p. 2211). For the purpose of this study the terms were used together given that they have shared characteristics.

Parental Education Level

According to Child Trends Data Bank (n.d.) data revealed that parents that are more involved (attending school meetings and events) in their child's school activities tend to have a higher level of education. "For example, in 2003, 80 percent of students whose parents had a Bachelor's degree or above had parents who attended a school event, compared with 42 percent for students whose parents had less than a high school education" (p. 2).

A nationally representative sample of youth ages 10 to 15 study showed that adolescent's body weight was higher if their parents did not have a high school education (Ding & Parks, 2007). This was attributed to the possible limited education parents had on the effects of exercise and eating habits. Parents that are knowledgeable about nutrition and exercise and are health conscious may pass these values on to their children. A study conducted by Wendt (2009) shows similar findings revealing adolescents that are overweight tend to have less educated parents which is attributed in part to the possible quality and quantity of time spent with their children.

A longitudinal study in Finland provided 9th grade students with a survey and then followed up with the same participants 32 years later to determine if adolescent factors predicted adult education levels. The study revealed adolescents that spent their spare time on hobbies or physical activities were more prone to end up with a higher education than those that spent most of their leisure time watching television or spending time with friends (Huurre, Aro, Rahkonen & Komulainen, 2006). The results surmised that the more structured activities promoted physical and psychological well being which

in turn benefitted them academically during their adolescent years providing the drive and motivation to continue their education.

National School Lunch Program

The school lunch program was established by President Harry Truman in 1946. Today more than 29 million children partake in the program with 95% of schools participating nationwide. “Then, the problem was undernutrition, and now it’s overnutrition” referring to the increased obesity rates of children (Tonn, 2006, p. 1). Eligible students are those with an annual family income at or below $26,000 for free lunches, and $37,000 for reduced priced meals for a family of four (Tonn, 2006).

The following excerpt explains the importance of confidentiality when revealing information regarding students who are eligible for the National School Lunch Program (NSLP). Exhibit 2-8: USDA Guidance on Implementing the NCLB Act, from Bost and Neuman (2002), states,

> Section 9 of the Richard B. Russell National School Lunch Act (NSLA) establishes requirements and limitations regarding the release of information about children certified for free and reduced price meals provided under the National School Lunch Program. The NSLA allows school officials responsible for determining free and reduced price meal eligibility to disclose aggregate information about children certified for free and reduced price school meals. The statute, however, does not allow the disclosure of any other information obtained from the free and reduced price school meal application or obtained through direct certification. School officials must keep in mind that the intent of the

> confidentiality provisions in the NSLA is to limit the disclosure of a child's eligibility status to those who have a "need to know" for proper administration and enforcement of a Federal education program. As such, we expect schools to establish procedures that limit access to a child's eligibility status to as few individuals as possible. (pp. 1 - 2)

The results of a study conducted at three high schools outside a metropolitan area found that foods offered through the school lunch program were in direct competition with other competitive food items described as foods sold at the school snack bar and student store without meeting the nutritional guidelines set forth for NSLP foods (Snelling, Korba & Burkey, 2007). The results revealed students chose competitive foods over NSLP prepared foods. This study recommends nutritional guidelines be placed on competitive foods sold in the cafeterias as well, to assist in addressing the childhood obesity epidemic. Yet, a study conducted in Los Angeles public schools by Lee, et al (2006) revealed, "…the percentage of students enrolled in free or reduced-price meal programs was positively associated with overweight" (p. 120).

Gender

The adolescent years can be a very trying time for many youth. Hormones trigger growth spurts and emotionality, which in turn causes changes in body composition, mood, and emotions that males and females are not accustom to. This is also a time when many youth begin to establish their own independence and identity. During adolescence, females tend to gain body fat, whereas males tend to gain muscle (Ge, Elder, Regnerus, & Cox, 2001). "The experience of puberty drives girls further from their ideal body types

and brings boys closer to theirs" (Smith, 2002, p. 12). Self-perceptions of adolescence also change in regards to their body physique for both males and females. "Males exhibited higher body image satisfaction than females, and females indicated a larger discrepancy between their current body shape and ideal body shape than males" (Porter, 2008, p. ix).

A survey of 300 adolescents by Ammouri, Kaur, Neuberger, Gajewski, & Choi, (2007), revealed, "…male adolescents were more active than female adolescents" (p. 117). Males tend to engage in physical activity for the competitive component involved, whereas females engage in activity for weight management. The study also revealed that males tend to show more interest in team sports and females in aerobics or dance (Ammouri, et al.).

A Canadian study of 157 ninth through twelfth grade male and female students was conducted presenting the gender differences that exist in regards to physical activity using a seven point, Likert-type scale ranging from 1, strongly disagree, to 7, strongly agree. The findings indicated that the reason females engage in physical activity is "frequency of activity with friends…suggesting that peer support is a more powerful influence on physical activity participation in girls compared to boys" (Trinh, Rhodes, & Ryan, 2008, p. 83). During the high school years physical activity tends to decrease, especially among females (Fahlman, et al., 2006).

According to Ge, et al. (2001), "Obesity appears to have a much stronger, more negative, effects on girls, making them more likely to be emotionally distressed, socially isolated, and concerned about their appearance" (as cited by Crosnoe, 2007, p. 244). As

noted by Zullig et al., (2006) “Societal pressures often influence females more than males to be more concerned about their weight, resulting in a higher prevalence of distorted body image and more stringent weight-control goals” (p. 87). In addition, a study in Scotland of over 1200 adolescent females between the ages of thirteen and fifteen found that obesity was associated with psychological distress (Gray & Leyland, 2008). There is a greater stigma associated with female obesity (Ge, et al.).

Self-Perceptions

How one views oneself overall is a key component of one’s perceptions of their abilities. One’s perceptions of one’s self, impacts their self-esteem. Therefore factors involving how self esteem can impact one’s perceptions are explored. As previously cited, according to the DSM IV (1994, 4th ed.) perception is “The process of organizing and using information that is received through the senses”. The DSM IV defines self-concept as “the subjective perception of the self”; and self efficacy or self-esteem is defined as “one’s belief in his or her own ability”. Psychologist Albert Bandura is known for his work in the area of self-efficacy. He defines self-efficacy as “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1995, p. 2). Walz (1991) describes self esteem as feelings of self worth and satisfaction level of one’s self.

Individuals who are overweight or obese may experience a multitude of emotions (Pyle, et al., 2006). Often times they are not invited to attend, or shy away from various events whether these are school activities or neighborhood gatherings. Quite frequently, individuals who are overweight have self-esteem and/or self-image issues that lessen

their confidence when engaging with others (Smith, 2002). Changes in body weight due to puberty may increase the risk of one's perception and/or feeling of being overweight. One's perception of being overweight may affect their self esteem regardless of their actual weight, especially with female adolescents. If an individual is or feels overweight this may inhibit them both socially and psychologically to participate in physical activity. As a result, often time's adolescents that are self conscious of their weight may feel isolated or alienated against (Welk & Joens-Matre, 2007).

The power of positive thinking supplies an edge over others who have negative self-talk (Caprara & Steca, 2005). This phenomenon is especially present during adolescent years due to hormonal changes that occur during puberty (Richards, Boxer, Petersen, & Albrecht, 1990). Research reveals poor health may attribute to adolescent low self-esteem, poor body image, psychological and social problems, and possibly depression (Escutia, 2004; Kelley, 2009; Welk & Joens-Matre, 2007). "Girls' perceptions of their own attractiveness decline from fourth through eleventh grades, whereas boys' perceptions of attractiveness remain relatively positive and stable" (Smith, 2002, p. 12). Research reveals that regular physical activity benefits adolescent health and can improve levels of self concept and self esteem (Lowry, et al., 2005).

School climate may also be a predictor of students' absenteeism, and self-esteem according to the Center for Social and Emotional Education. "Both school climate and individual teachers have an impact on students' self-esteem. School climate is defined as perceptions of students regarding policies, motivations, and attitudes in general" (Hoge, Smit, & Hanson, 1990, p.117). As stated by Walz (1991) and supported by the

California Task Force to Promote Self-Esteem, "School climate plays an important role in the development of the self-esteem of students. Schools that target self esteem as a major school goal appear to be more successful academically as well as in developing healthy self-esteem among students" (1990, p. 5). A review by Hills, et al., (2007) reveals young children benefit psychologically from physical activity reducing symptoms of depression and showed improvements in self-esteem, quality of sleep and ability to focus.

Ratey (2008) reveals the positive impact physical activity can have on one's self-esteem. PE classes at Naperville Central High have been transformed beyond fitness revealing the positive impact physical activity can have on mood, social skills and self-esteem. A study from the National Longitudinal Study of Adolescent Health revealed that participation in sports was associated with an increase in positive self beliefs, a positive sense of self and positive self image compared to adolescents not participating in sports (Dodge & Lambert, 2009). "Perhaps membership on a sports team provides one with a supportive social context that improves psychological well-being" (Dodge & Lambert, p. 822).

Summary

The literature suggests that there are numerous facets which may contribute to the obesity epidemic effecting youth today. In California, Governor Arnold Schwarzenegger and State Superintendent O'Connell have been vocal proponents of health and nutrition in schools over the past several years. California is addressing the issue at the state level, which signifies that individuals are becoming more aware of the problems associated

with adolescent obesity including a shorter life expectancy as well as other numerous health issues (Baskin, Ard, Franklin, & Allison, 2005; Chartwells, 2007; Hardy, 2006;). The adolescent obesity epidemic has become a threat to adolescents' health; therefore the government has intervened at the site level by mandating physical education and specific criteria for food and beverage be made available on high school campuses. This is evident by Senate Bill 601 mandating students receive 400 minutes of physical education every ten school days, Senate Bill 12 the "School Nutrition Standards Bill" and Senate Bill 965, known as the "High School Soda Ban" (Escutia, 2004, 2005).

> In the newsletter, Eat·Learn·Live, Chartwells (2007) states, "In addition to dangerous health implications, evidence suggests that nutrition and physical activity are directly related to academic achievement. Children who do not get adequate nutrients have lower test scores, greater absenteeism, more difficulty concentrating and lower energy levels" (p. 1). A study conducted in California with over 250,000 ninth graders who scored a six on the FITNESSGRAM® showed these students scored twice as high on academic tests such as the Standardized Achievement Test as their unfit counterparts (Ratey, 2008).

The literature reveals a prospective link between obesity and self perceptions and its' effects on self esteem which in turn may negatively impact academic performance. The social and psychological ramifications of being overweight may have a greater impact than the health consequences alone, in regards to adolescents self-esteem and as a result their self-perception. According to Brownwell and Wadden, "…society does not

tolerate excess weight. The effects of this overt and covert pressure to be thin can be powerful and permanent" (as cited by Strauss, 2000, p. 5).

This researcher examined the six fitness areas of the PFT, academic achievement, demographics and self perceptions and there potential impact on students' performance on the PFT. While not exhaustive, the literature reveals the potentially enormous effects obesity may have on youth today. According to Graber and Locke (2007), "Physical educators stand at an historical point in time at which they can either seize the opportunity and contribute to developing the health of our nation's children through quality physical education, or let the opportunity slip through their hands" (p. 422).

Chapter 3: Methods

Research Design

This study is a two phase non-experimental, quantitative investigation of 2009 – 2010 currently enrolled tenth grade students at Knight High School. Phase one addressed the analysis of extant data obtained from school records regarding currently enrolled tenth grade students'. The extant data gathered was from 2008 – 2009 Physical Fitness Test (PFT) six fitness areas and academic achievement as measured by grade point averages from students May 2009 semester report card to determine if any correlations may exist as it pertains to overall performance on the PFT. Due to confidentiality provisions, free and reduced lunch eligibility was also obtained through extant data. Phase two, which is also quantitative focused on descriptive survey research to ascertain currently enrolled tenth grade students' demographic information to include gender, race/ethnicity, and parental education level, to establish any relationships and differences regarding the Physical Fitness Test. Students' demographics and self perceptions regarding physical fitness were garnered through the Demographic Information Sheet and the Children and Youth Physical Self-Perception Profile in the form of a computer based survey platform, Survey Monkey.

Rationale

The PFT is a mandated test in the AVUHSD and across California. The FITNESSGRAM® is the state designated measurement tool to assess physical fitness within the AVUHSD. Therefore, it is important that one investigate the student results of the PFT by examining each of the six components of the test as well as the overall PFT

results. The literature reveals there is a potentially strong correlation between physical fitness and academic achievement. Therefore, this researcher chose to examine academic achievement by measuring students grade point average at the same point in time that the PFT is completed (May 2009). The demographics selected (gender, race/ethnicity, and parental education level) were based on information that students have immediate knowledge of and are most reliable and readily accessible within the context of a school setting as depicted on the Demographic Information Sheet. As an additional point of interest students' history of PE classes enrolled in such as PE 1, ROTC, or Marching Band were ascertained.

The researcher also felt it was important to examine students' perceptions of physical fitness, as this component will provide an emotional and/or psychological aspect that may or may not have an effect on students PFT results. "Frequently we fail to systematically ask for student input. We must welcome and elicit student voice" (Jenkins, Jenkins, Collums & Werhonig, 2006, p. 220). Involving student feedback through a survey adds a personal dimension to the study. Taking into account students perceptions of their experiences with their personal fitness levels will provide an additional personal perspective to this research from their frame of reference regarding physical fitness.

As a result a two-phase approach was selected which enabled the researcher to provide an in-depth investigation as to PFT results and its components, academic achievement, demographics, as well as the students' self-perceptions. This approach allowed the researcher to investigate and analyze the results of potential relationships and differences of adolescent fitness in regards to the PFT. As a result of the findings in this

study, it is the intent to increase awareness and to inform educators of possible interventions that may be beneficial.

Participants

The sampling method used was a census of the 2008 – 2009 entire ninth grade (currently enrolled 2009 – 2010 tenth grade) population at KHS. The rationale for utilizing this procedure is that the Physical Fitness Test is required to be administered annually at each school district in California to all students in grades five, seven and nine. KHS is comprised of grade levels nine through twelve; hence, the sample selected includes all ninth graders, during the 2008 – 2009 school year, currently enrolled as tenth graders. Tenth grade students are enrolled in PE 2 as a graduation requirement; hence regardless of student's physical fitness in ninth grade they are required to be enrolled in PE 2. ROTC and Marching Band classes fulfill the P.E. requirement, therefore arrangements through the PE department were made to invite students enrolled in ROTC and Marching Band to participate in the study as well, if they so choose. KHS has only five to seven students enrolled in the adaptive physical education class therefore this population was not represented in this study.

According to the California Basic Educational Data System (CBEDS) as of October 1, 2008, 3378 students were enrolled at KHS. KHS had over 125 teachers and over 100 classified support staff during this time. The 2008 – 2009 ninth grade class (currently enrolled tenth graders) at Knight High School serves as the population and sample size for the first phase of this quantitative study. The 2008 - 2009 ninth grade class was comprised of 449 females and 506 males, between the ages of 13 and 15,

totaling 955 students, which were enrolled at KHS on October 1, 2008. In regards to the survey research phase of the study (phase two), participants consisted of 2009 – 2010 currently enrolled tenth grade students who previously completed the PFT during their ninth grade school year (2008 – 2009).

The ethnic breakdown of the ninth grade population in the 2008 – 2009 and currently enrolled tenth grade population in the 2009 – 2010 school years is provided in Table 1.

Table 1
9th Grade Enrollment Information 10/01/08 vs. 10/07/09

Ethnicity	Student Enrollment '08 – '09 v. '09 – '10	9th grade vs. 10th grade % School Wide
Hispanic	656 v. 671	68.69% v. 69.89%
Black	173 v. 171	18.11% v. 17.81%
White	98 v. 88	10.26% v. 9.16%
Other	28 v. 30	2.91% v. 3.12%
Total Students	955 v. 960	99.97% v. 99.98%

Table 1 describes the difference in enrollment by ethnicity of ninth graders in 2008 – 2009 and of tenth grade students in 2009 – 2010. There is not a significant difference in the number of students enrolled for each ethnic group, nor in the total number of students enrolled in 2008 – 2009 versus 2009 – 2010. Although they may not be the same exact students the numbers indicate similar ethnicities and total enrollment.

Surveying the entire 2009 – 2010 tenth grade class enabled the researcher to obtain a broader picture of student demographics and self-perceptions in regards to physical fitness and the PFT. All currently enrolled tenth grade students were given the opportunity to participate in the survey regardless of whether or not they were enrolled and took the PFT at KHS in the prior year.

Human Subjects

Approval of the study and access to the participants was obtained from the Deputy Superintendent (see Appendix C) of the Antelope Valley Unified High School District. Access to KHS software, and facilities and tenth grade students was obtained from the Principal at Knight High School (see Appendix D). Approval from Pepperdine's Institutional Review Board was also required. Participants will experience very minimal risks which will be no greater than what they may experience in their daily lives as students. Minimal risks for a high school student may include boredom and/or fatigue. No drugs, medications, medical procedures or medical devices will be used to conduct this study. Students were linked to data only by their school assigned identification number. There was no compensation for participants.

Test results, which are required to be reported to the state, are available for public view by school site not individual student names via the California Department of Education (CDE) website each fall. The state, upon request, will issue a specific password to district administrators for access to individual site scores.

"The general opt-out provision of California Education Code Section 60615 does not apply to the PFT" (CDE, 2008a, p. 5). An 'opt-out' provision allows parents to

request in writing that their son/daughter ‘opt-out’ of the testing requirement, which is not permitted with the PFT. Waivers however may be permitted stating students are required to test each school year until they pass the PFT, but are not required to be enrolled in a PE class during their junior and senior years. Accommodations for students with disabilities can be offered, provided it is documented in the students Individualized Educational Plan or students with Section 504 Plan, both of which address students with special needs.

Participants are minors and therefore parental consent is required. All currently enrolled tenth grade students prior to conducting any research received an information letter which included a Permission Slip in both English and Spanish (see Appendix E) and be offered the opportunity to participate in the study. At the time of the study, students were also given an Informed Consent form (see Appendix F) asking their permission to consent to the study. The number of parental permission slips returned and student informed consent forms received at the time of the study determined the sample of the currently enrolled tenth grade class to be represented for the study. In regards to the data obtained through the survey, all documentation (demographic data and CY-PSPP results) was kept securely locked in a filing cabinet at the researcher’s place of residence. All electronic files were password protected and kept only on this researcher’s home computer and one USB drive. Tenth grade students were identified by their student identification number as opposed to their actual name. No specific individual student names were used in this study to protect the confidentiality and privacy rights of each

minor student. Findings from this study will be retained for five years as required and may be used by only this researcher for further studies.

According to California Education Code Section 60800, all school districts in California are required to submit their data electronically to the state contractor, Educational Data Systems (EDS) by June 30th each school year. As stated in the CDE Program Overview 2008 – 09, "Reports of Summary Results are provided to the Governor and the Legislature and are made available on the Physical Fitness Testing Web page at http://www.cde.ca.gov/ta/tg/pf/" (CDE, 2009a, p. 11). "Schools are also required by law to include the PFT results in the School Accountability Report Card (SARC)", (CDE, 2008a, p. 7).

Procedures

Data collection for the first phase of the study occurred at William 'J' Pete Knight High School (KHS) via the Schools Administrative Student Information (SASI) and PowerSchool (PS) software programs, and the cde.gov website of currently enrolled tenth grade students. PFT results of 2008 – 2009 were required to be submitted to the state by June 30, 2009. The data was obtained by this researcher once the results were released by the state in approximately December 2009. Data was then separated according to the variables: overall PFT results, six fitness area components of the PFT, academic achievement (grade point average), and National School Lunch Program (NSLP). The data was then exported to a Microsoft Excel and/or Access spreadsheet for analysis.

The second phase of the study was comprised of currently enrolled tenth grade students in the 2009 – 2010 school year and was identified by their student identification

number. The researcher visited all tenth grade Physical Education (PE) classes prior to conducting any research. The researcher invited tenth grade students to participate in the survey and were given an information letter which included a parent permission slip (in English and Spanish) to take home to their parents in a sealed envelope. The permission slip abides by district guidelines. AVUHSD Administrative Regulation 5022(a), states a student's parent or guardian is to provide written consent before any personal information is obtained from their student who is beyond what is needed in an educational setting. All tenth grade students also received a Tele-Parent message (see script, Appendix G) at their home, in both English and Spanish, within one week prior to the letters going home to inform parents of the study. A Tele-Parent message is an automated phone system that enables administrators to convey information to a specified population. Students were given five school days to return the permission slip to their P.E. teacher, who then gave them to the researcher. Both the permission slip and Tele-Parent message was translated in Spanish due to the number of Spanish speaking parents of students enrolled at KHS. Once parent permission was been obtained, these students were given an additional opportunity to opt out of the study, at the time of the study when their consent was sought via the Student Informed Consent form (Whitehead, 1995). Students received a hard copy of the Instructions to the Children (see Appendix H) which was also read aloud by the researcher explaining the directions for completing the survey (Whitehead). The survey was presented electronically through the Survey Monkey software platform. The data was sorted according to tenth grade students' Demographic Information Sheet and self-perceptions as determined by the CY-PSPP survey. The internet is having an enormous

effect on the industry of survey research and will most likely continue to improve over time (Couper, 2000). Knight High School students have been previously exposed to survey platforms regarding overall school issues including campus climate, Healthy Fitness Survey and specific programs offered on campus.

The survey was conducted in a well-lit, uninterrupted, classroom lab setting at the school site and was conducted over a 2 to 5 week period, with each student completing the survey during the period in which they are enrolled in their PE 2 class, ROTC, or Marching Band classes. Arrangements were made with the Department Chair of the Physical Education department in collaboration with all PE 2 teachers, ROTC and Marching Band to have all tenth grade students surveyed during the school day.

Students were escorted to the computer lab on their specified day by their PE 2 teacher. Passes were issued to students enrolled in ROTC or Marching Band releasing them to the computer lab during a specified period to participate in the survey. The survey process took approximately 45 minutes to complete from beginning to end including any instructions to be given. Students were handed the Student Informed Consent form upon entering the computer lab. The consent form was read aloud to the students introducing the researcher and explaining the survey. The Survey Monkey component of the survey began by completing the Demographic Information Sheet with the researcher reading aloud the Instructions to the Children, followed by the 36 question CY-PSPP questionnaire (Whitehead, 1995). Each period is 53 minutes in duration. Any students who may require additional time were granted additional time during this same time period. Students with IEP's or 504 plans that were granted permission by their

parents, and had signed the student consent form were allowed to complete the survey to the best of their ability. If accommodations such as needing additional time or need to sit in the front of the class were needed these accommodations were granted.

Students who were not granted permission by their parents were invited to the KHS library during the class period. Students who received parent permission but then elect not to participate were asked to sit quietly or may study quietly, and turn in a blank questionnaire at the end of the period so they won't stand out from the other students taking the test (Whitehead, 1995).

Instrumentation

This researcher employed four instruments to be used as data collection for this study. They included the FITNESSGRAM®, grade point average, demographic information sheet and the Children and Youth Physical Self-Perception Profile (CY-PSPP).

FITNESSGRAM®

The State Board of Education designated the *FITNESSGRAM®* as the instrument to administer the Physical Fitness Test for California students. After much debate, "The *FITNESSGRAM* developers have concluded that criterion-referenced standards should be used when interpreting the *FITNESSGRAM* scores. These standards have also been referred to as health criterion-referenced standards because of their link to the child's health status" (Morrow & Zhu, 2008, chapter 7, p. 3). "The important comparison in criterion-referenced testing is whether or not the student has achieved the standard and not how well the student compares to one's peers" (Morrow & Falls, n.d., p. 47).

"Considerable effort was spent to select items (and protocols) that were safe, reliable and valid for the *FITNESSGRAM* battery" (Plowman, n.d., p. 94). In regards to aerobic capacity, "The reliability and validity of *FITNESSGRAM* aerobic capacity standards have been found to be moderately high and acceptable….found to be above 85% in children and young adults" (Cureton & Plowman, n.d., p.78). In regards to the Trunk Lift test, "In all cases test-retest reliability for a single trial was found to be high (.85 - .96)" (Plowman, n.d., p. 101). With regard to the push-up, "Jackson, Fronme, Plitt, and Mercer (1994) reported excellent reliability for the 90° push-up with college age subjects although the females did the push-ups from their knees" (Plowman, p. 103).

The *FITNESSGRAM®*, according to the CDE (2008b), is composed of six fitness areas: Aerobic Capacity, Body Composition, Abdominal Strength and Endurance, Upper Body Strength and Endurance, Trunk Extensor Strength and Flexibility, and Flexibility. The tables below represent the lowest and highest healthy fitness zone range of scores needed by males and females in order to pass (HFZ) in each area.

Aerobic capacity. "The aerobic capacity fitness area refers to the maximum rate that oxygen can be taken into and used by the body during exercise" (CDE, 2009a, p. 11). Students at Knight High School are given a choice of performing either the 20 meter Progressive Aerobic Cardiovascular Endurance Run (PACER) or the mile run to satisfy the aerobic capacity component of the PFT. Aerobic capacity for the PACER progressively gets more difficult with each lap. Whereas the mile run is based on running performance. For the purpose of this study aerobic capacity was measured by the 20 meter PACER or the One-Mile Run as depicted by the FITNESSGRAM® (CDE, 2009a,

p. 11), to determine if one falls within the healthy fitness zone. Highest and lowest ranges for males and females differ as determined by age as illustrated in Table 2 and Table 3.

Table 2
Healthy Fitness Zone for 20-Meter PACER

Age	Females # laps	Males # of laps
13	23 – 51	41 – 83
14	23 – 51	41 - 83
15	32 – 51	51 - 94

Table 3
Healthy Fitness Zone for One-Mile Run

Age	Females minutes: seconds	Males minutes: seconds
13	11:30 – 9:00	10:00 – 7:30
14	11:00 – 8:30	9:30 – 7:00
15	10:30 – 8:00	9:00 – 7:00

Body Composition. For the purpose of this study body composition was measured by body mass index rates as depicted by the FITNESSGRAM® (2008 – 09 Physical Fitness Test (PFT) – Overview Packet, (CDE, 2009a, p. 13), to determine if one falls within the healthy fitness zone. Highest and lowest ranges for males and females differ as determined by age as illustrated in Table 4.

Table 4
Healthy Fitness Zone for Body Mass Index

Age	Females BMI	Males BMI
13	24.5 – 14.9	23.0 – 15.1
14	25.0 – 15.4	24.5 – 15.6
15	25.0 – 16.0	25.0 – 16.2

Abdominal strength and endurance. "Abdominal strength and endurance are important in promoting good posture and correct pelvic alignment" (CDE, 2009a, p. 14). For the purpose of this study abdominal strength and endurance was measured by the curl-up as depicted by the FITNESSGRAM® (CDE, 2009a, p. 14), to determine if one falls within the healthy fitness zone. Highest and lowest ranges for males and females differ as determined by age as illustrated in Table 5.

Table 5
Healthy Fitness Zone for Curl-Up

Age	Females # completed	Males # completed
13	18 – 32	21 – 40
14	18 – 32	24 – 45
15	18 – 35	24 – 47

Trunk Extensor Strength and Flexibility. "…risks of developing back pain are greater with age, awareness and attention to trunk musculature at an early age is

important to reduce future risks" (CDE, 2009a, p. 15). For the purpose of this study trunk extensor strength and flexibility was measured by the trunk lift as depicted by the FITNESSGRAM® (CDE, 2009a, p. 15), to determine if one falls within the healthy fitness zone. Highest and lowest ranges for males and females differ as determined by age as illustrated in Table 6.

Table 6
Healthy Fitness Zone for Trunk Lift

Age	Females inches	Males inches
13	9 – 12	9 – 12
14	9 – 12	9 – 12
15	9 – 12	9 – 12

Upper Body Strength and Endurance. "Upper body strength and endurance is an important fitness area contributing to in maintaining functional health and good posture" (CDE, 2009a, p. 15). For the purpose of this study upper body strength and endurance was measured by the push-up as depicted by the FITNESSGRAM® (CDE, 2009a, p. 16), to determine if one falls within the healthy fitness zone. Highest and lowest ranges for males and females differ as determined by age as illustrated in Table 7.

Table 7
Healthy Fitness Zone for Push-Up

Age	Females # completed	Males # completed
13	7 – 15	12 – 25
14	7 – 15	14 – 30
15	7 – 15	16 – 35

Flexibility. "Flexibility of the joints, both in the upper and lower body, is an important component of health-related fitness" (CDE, 2009a, p. 17). For the purpose of this study flexibility was measured by the sit and reach as depicted by the FITNESSGRAM® (CDE, 2009a, p. 18), to determine if one falls within the healthy fitness zone. Highest and lowest ranges for males and females differ as determined by age as illustrated in Table 8.

Table 8
Healthy Fitness Zone for Sit and Reach

Age	Females inches	Males inches
13	10	8
14	10	8
15	12	8

Grade Point Average

Student's grade point average (GPA) was used as the instrument to measure academic achievement. Student's grade point average is calculated twice a year, at the end of each semester. AVUHSD has two semesters per school year, one from August through December and January through May. For the purposes of this study students grade point average was obtained from the second semester, May 2009. According to the AVUHSD guidelines, GPA is based on a 4.0 scale with a weighted factor for advanced courses such as Honors, Pre-International Baccalaureate, International Baccalaureate, and Advanced Placement classes.

Demographic Information Sheet

The Demographic Information Sheet served as the instrument to determine student's demographic information. This researcher designed this sheet to obtain basic demographic information, similar to what is found on standardized tests. The Demographic Information Sheet was also used as the cover page for the CY-PSPP.

Four demographic variables have been selected: gender, race/ethnicity, parental education and the National School Lunch Program (NSLP). Each of these demographics is displayed on the Demographic Information Sheet (except NSLP) of the survey to obtain information on each of the variables. NSLP information was obtained through extant data due to the confidentiality provisions previously mentioned.

Gender. Gender is characterized by male or female. Gender may also be characterized as a boy or girl.

Race and ethnicity. Race and Ethnicity is characterized as Hispanic, Black, White, American Indian, Asian, Pacific Islander, Filipino and Other. 'Other' will be comprised of American Indian, Asian, Pacific Islander, Filipino and Other in order to protect the anonymity of these students as they represent a relatively low number and may otherwise be easily identified.

Parental education level. Parental education level was categorized as graduate school, college graduate, some college, high school graduate, not a high school graduate or unknown/declined to state.

Children and Youth Physical Self-Perception Profile (CY-PSPP)

The Children and Youth Physical Self-Perception Profile (CY-PSPP; Welk, Corbin & Lewis, 1995; Whitehead, 1995) was used for this study, which is based on the Physical Self-Perception Profile (PSPP) designed to study factors that may influence overall self-worth (Fox & Corbin, 1989; Welk & Ecklund, 2005). The revising of the phraseology of the instrument was proposed by Whitehead (1995) designed to be used for children and became the current version of the CY-PSPP.

The Children and Youth Physical Self-Perception Profile was used "to assess students' levels of perceived ability in physical education" (Bryan, 2006, p. 19). The CY-PSPP has a total of 36 questions containing six sub-categories with six questions per category (see Appendix B). The categories are as follows: "Sport/Athletic Competence, Condition/Stamina Competence, Attractive Body Adequacy, Strength Competence, Physical Self Worth (PSW), and Global Self Worth (GSW)" (Harter, 1988; Whitehead, 1995). The *Manual for the Self-Perception Profile for Children*, was used as the scoring

instrument to assist with the scoring of the CY-PSPP (Harter). Students chose which they are most like between two contrasting statements as to which statement describes them the best. Once the student has selected the statement that best describes them, they are to then indicate whether the statement is "really true" for them or "sort of true" for them as indicated on the Instructions to the Children (see Appendix H; Whitehead, 1995). Responses are scored from one to four on each item, with a score of four indicating the highest level of perceived ability.

Sample CY-PSPP survey questions are displayed in Table 9.

Table 9
Sample CY-PSPP Questions

	Really true for me	Sort of true for me	SAMPLE	*BUT*	SAMPLE	Sort of true for me	Really true for me
		X	Some kids would rather play outdoors in their spare time	*BUT*	Other kids would rather watch T.V.		
1.			Some kids do very well at all kinds of sports	*BUT*	Other kids don't feel they are very good when it comes to sports.		
2.			Some kids are often unhappy with them-selves	*BUT*	Other kids are pretty pleased with themselves.		

(table continues)

	Really true for me	Sort of true for me	SAMPLE	*BUT*	SAMPLE	Sort of true for me	Really true for me
3.			Some kids are proud of themselves physically	*BUT*	Other kids don't have much to be proud of physically.		

(Whitehead, J. R., 1995)

A study of high school students in North Dakota and Arizona, where the aim of the study was the evaluation of factorial validity in regard to the CY-PSPP scales revealed, "The factorial validity of the CY-PSPP scales was supported by these analyses" (Eklund, Whitehead & Welk, 1997, p. 254). In regards to validity, "as with any psychometric instrument, the task of establishing validity is a never-ending process…hence further research is warranted" (Eklund et al., p. 255).

Analysis

The first phase of the study consisted of obtaining extant data through quantitative investigations of the correlations and differences, if any, in the PFT results disaggregated by whether currently enrolled tenth graders passed each individual component in the six fitness areas to address research question number one. This entailed examining each of the components in the six fitness areas in relation to those that pass versus do not pass in comparison to the overall PFT results (see Appendix I). Academic achievement was measured by students' grade point average on their May 2009 semester grade compared against overall PFT results to determine if there is a relationship between academic achievement and PFT performance addressing research

question number three (see Appendix J). In addition data was compiled through student records to obtain information regarding students enrolled in the National School Lunch Program (NSLP).

In the second phase of the study, a Demographic Information Sheet was used to obtain the demographics of 2009 – 2010 currently enrolled tenth graders, to determine if any differences exist among students PFT results and their demographics addressing research question number two (see Appendix K). Demographics are represented by gender, race/ethnicity, and level of parent education. The Demographic Information Sheet preceded the actual survey serving as the cover page. In addition currently enrolled tenth grade students overall results on the PFT and students' perceptions of their physical fitness were examined to determine if a relationship exists as measured by the CY-PSPP to address research question number four (see Appendix L).

The data was coded and prepared for computerized analysis using the Statistical Package for the Social Sciences (SPSS) statistical software program. Descriptive statistics and other appropriate analysis were ordered, including (a) Pearson chi square test to examine the overall PFT results versus the six components, and a distribution to examine the number of components passed versus which components passed, and (b) t-test for gender and NSLP, and analysis of variance (ANOVA) to examine ethnicity and parent education level, as well as a Pearson chi-square test for each of the variables examined, to address research questions one and two. In regard to research questions three and four, a Pearson product correlation and Pearson chi square tests were employed to determine if there were any significant differences between the overall PFT

results and grade point average, as well as any differences between overall PFT results and CY-PSPP results. This data was then analyzed in conjunction with the extant data described in phase one of the study to determine the overall findings.

Chapter 4: Results

The general research findings for each research question are delineated in this chapter. For each research question, descriptive statistics and inferential statistics were employed and are described and displayed throughout this chapter. The Physical Fitness Test (PFT) results from the 2008 - 2009 school year were released by the Antelope Valley Union High School District office to the respective school sites in December 2009.

Two different data bases were utilized to conduct this study: a data-base of Schools Administrative Student Information (SASI) from the 2008 – 2009 school year which represents students enrolled as ninth graders last school year and the data-base of PowerSchool (PS) from this school year which represents currently enrolled tenth graders at Knight High School (KHS) in 2010. Therefore, sample sizes vary depending on the variables analyzed. All extant data was garnered from the 2008 – 2009 State Physical Fitness Test (PFT) results which comprise 860 students. Students who participated in the Children and Youth Physical Self Perception Profile (CY-PSPP) survey represent the currently enrolled tenth graders which comprised 653 participants.

All extant data was obtained through school records while the survey data was obtained from a web-based survey platform. This data was then imported into Microsoft Excel and SPSS for data analysis. *SPSS for Psychologists* (4th edition) was used for interpretation of statistical findings (Brace, Kemp, & Snelgar, 2009). Percentages for data gathered are rounded to the nearest one-hundredth.

Research Question 1

Research question number one asks, "To what extent, if at all, are the differences in the components of the Physical Fitness Test (PFT) passed by currently enrolled tenth graders who did versus did not pass the overall PFT as ninth graders?"

Descriptive Statistics

Data was obtained through school records identifying 860 total students. Since students only need to pass five of the six components some students may choose to not participate in one of the components, although they are encouraged to attempt all six components by their P.E. teachers conducting the test. Therefore the figures represented in Tables 10 and 11 below, may not represent a total of 860 students. Out of a possible 860 students, 620 (72.09%) students passed the overall PFT with a passing score (Healthy Fitness Zone – HFZ) of five or six of the test's six components. While 232 (26.98%) failed the overall PFT (Needs Improvement – NI) of five or six of the tests six components.

In regard to component one of the PFT, students were given the option of attempting the Pacer or Mile Run, therefore total results in these two areas were combined. A total of 263 (31.31%) students chose to participate in the Pacer while 577 (68.69%) chose to participate in the Mile Run.

Table 10 displays each component of the PFT and the number of students who passed or failed overall in comparison to each individual component. For example, 16 students who failed the PFT passed the Pacer/Mile, while 125 students who passed the PFT failed the Pacer/Mile.

Table 10
PFT Results and Individual Components

	Individual Components	Overall PFT results Passed (HFZ)[a] (score of 5 or 6)	Overall PFT results Failed (NI)[b] (score of 4, 3, 2 or 1)
1 =	Pacer/Mile		
	Pass	491 (57.09%)	16 (1.86%)
	Fail	125 (14.53%)	208 (24.19%)
2 =	BMI		
	Pass	552 (64.19%)	43 (5.00%)
	Fail	66 (7.67%)	182 (21.16%)
3 =	Curl Up		
	Pass	613 (71.28%)	213 (24.77%)
	Fail	7 (.81%)	10 (1.16%)
4 =	Trunk Lift		
	Pass	613 (71.28%)	218 (25.35%)
	Fail	7 (.81%)	9 (1.05%)
5 =	Push Up		
	Pass	613 (71.28%)	170 (19.77%)
	Fail	3 (.35%)	47 (5.47%)
6 =	Sit /Reach		
	Pass	597 (69.42%)	170 (19.77%)
	Fail	21 (2.44%)	59 (6.86%)

Note. a. HFZ means “healthy fitness zone”, which is pass
b. NI means “needs improvement”, which is fail

Table 11 represents the distribution of the number of components passed (1 – 6) in relation to each individual component. For example, 112 students passed five of the six components, one of them being the Pacer/Mile component. Of the students who passed two components, none of them passed the Pacer/Mile.

Table 11
Distribution – Number of Components vs. Individual Components

Components	Passed all 6	Passed 5	Passed 4	Passed 3	Passed 2	Passed 1
N = 852	*n* = 379	*n* = 241	*n* = 155	*n* = 60	*n* = 13	*n* = 4
1 Pacer/Mile	379 (44.48%)	112 (13.15%)	13 (1.53%)	2 (.23%)	0	1 (.12%)
2 BMI	379 (44.48%)	173 (20.31%)	34 (4.00%)	6 (.70%)	1 (.12%)	2 (.23%)
3 Curl Up	379 (44.48%)	234 (27.46%)	151 (17.72%)	55 (6.46%)	6 (.70%)	1 (.12%)
4 Trunk Lift	379 (44.48%)	234 (27.46%)	150 (17.61%)	56 (6.57%)	12 (1.41%)	0
5 Push Up	379 (44.48%)	234 (27.46%)	146 (17.14%)	23 (2.70%)	1 (.12%)	0
6 Sit/Reach	379 (44.48%)	218 (25.59%)	126 (14.79%)	38 (4.46%)	6 (.70%)	0

Inferential Statistics

A Pearson chi square test was employed to determine if there are statistically significant differences between the overall PFT results and the individual components of

the PFT.

In regard to the overall PFT results and the individual components at a significance level of .05, the null hypothesis for each of the six components are rejected (p = <.001), suggesting that there are differences between the individual components of the PFT and the overall pass and fail rates of the PFT as indicated in Table 12.

Table 12
Chi Square – PFT Overall and PFT Individual Components

	Value	*df*	Asymp. Sig. (2-sided)
Pearson Chi Square	852.000[a]	5	.001
N of Valid Cases	852		

Note. a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 1.09.

The analysis showed that 3 cells had expected count less than 5, so an Exact Option significance test was selected for Pearson's chi-square. There are differences between the individual components of the PFT and the overall pass and fail rates of the PFT: χ^2 (5, N = 852) = 852.000, p = <.001, as represented in Table 13.

Table 13
Chi Square with Exact Option – PFT Overall and PFT Individual Components

	Value	*df*	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi Square	852.000[a]	5	.001	.001
Likelihood Ratio	997.749	5	.001	.001

(table continues)

	Value	*df*	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Fisher's Exact Test	971.922			.001
N of Valid Cases	852			

Note. a. 3 cells (25.0%) have expected count less than 5.The minimum expected 1.09.

Research Question 2

Research question two examines what differences, if any, exist in the number and the components of the Physical Fitness Test (PFT) passed by currently enrolled tenth graders based on their race/ethnicity, parent education level, National School Lunch Program participation, and gender.

Descriptive Statistics

Of the possible 860 student scores reported, the ethnicity, National School Lunch Program (NSLP) and gender are displayed by the number of PFT components in Table 14. Table 14 identifies student's ethnicity in relation to the number of PFT components passed. It also distinguishes those students who are enrolled in the NSLP versus students who are not enrolled, in relation to the number of PFT components passed. In addition, Table 15 and 16 identifies student's gender in relation to the number of PFT components passed. The data indicated eight overall outliers which were: two were documented for medical excuses, four due to absences (two of which were scored as an F (fail)), and two as determined by the students' Individualized Educational Program; therefore were excluded from the analysis.

Table 14
PFT Components and Demographics

Demographics	Passed all 6	Passed 5	Passed 4	Passed 3	Passed 2	Passed 1
Ethnicity						
Black *n* = 148	46 (31.08%)	53 (35.81%)	29 (19.59%)	14 (9.46%)	3 (2.03%)	1 (.01%)
Hispanic *n* = 606	284 (46.86%)	151 (24.92%)	117 (19.31%)	38 (6.27%)	9 (1.49%)	3 (.50%)
White *n* = 80	32 (40.00%)	31 (38.75%)	6 (7.50%)	8 (10.00%)	1 (1.25%)	-
Other *n*= 26	17 (65.38%)	6 (23.08%)	3 (11.54%)	-	-	-
NSLP						
Yes *n* = 539	243 (45.08%)	151 (28.01%)	97 (18.00%)	38 (7.05%)	7 (1.30%)	3 (<1%)
No *n* = 313	136 (43.45%)	90 (28.75%)	58 (18.53%)	22 (7.03%)	6 (1.92%)	1 (<1%)
Gender						
Female *n* = 403	153 (37.96%)	119 (29.53%)	85 (21.09%)	36 (8.93%)	7 (1.74%)	3 (<1%)
Male *n* = 449	226 (50.33%)	122 (27.17%)	70 (15.59%)	24 (5.35%)	6 (1.34%)	1 (<1%)

Race and ethnicity. The race and ethnicity data in Table 14 above, reveals approximately 88% (23 out of 26) of the "Other" populations passed the PFT (scoring a 5 or 6), approximately 78% (63 out of 80) of the White population, approximately 70% (435 out of 606) Hispanic, and approximately 66% (99 out of 148) of the Black population passed. The Black (19.59%; 29 out of 148) and Hispanic (19.31%; 117 out of 606) populations were comparable in passing four of the six components, as were the

Black (9.46%; 14 out of 148) and White (10.00%; 8 out of 80) populations in passing three of the six components.

National school lunch program. Approximately 72% of the students (394 out of 545) enrolled in the National School Lunch Program passed the PFT. Approximately the same percentage of students not enrolled in the program also passed the PFT.

Gender. Approximately 10% more males (77.50%; 348 out of 449) than females (67.49%; 272 out of 403) passed the PFT with a score of a five or six (see Table 14).

The 2008 - 2009 PFT revealed a total of 860 scores reported: 406 females and 454 males. The total number of females that passed the PFT is equal to 272 students and males' passing is equal to 348. Table 15 depicts the percentage of females that passed the PFT by ethnicity.

Table 15
Females by Ethnicity

	Total passed = 272	
Ethnicity		% passed PFT (scored 5 or 6)
Black (*n* = 77)	52	67.75%
Hispanic (*n* = 284)	184	64.79%
White (*n* = 33)	24	72.72%
Other (*n* = 12)	12	100%

Note. *N* = 406

The data indicate White females (24 out of 33) passed at approximately a 5% higher rate than Black females (52 out of 77), and approximately 8% higher than female Hispanics (184 out of 284). Black females (52 of 77) in comparison to Hispanic females (184 of 284) passed at approximately 3% higher rate and 5% less than their White female (24 out of 33) counterparts. The "Other" population represents a minimal number of overall participants (12 out of 12) and therefore may not have an impact on the overall female population results in relation to overall PFT performance.

Table 16
Males by Ethnicity

Total passed = 348		
Ethnicity		% passed PFT (scored 5 or 6)
Black (*n* = 71)	47	66.20%
Hispanic (*n* = 322)	251	77.95%
White (*n* = 47)	39	82.98%
Other (*n* = 14)	11	78.57%

Note. *N* = 454

The total number of males that passed the PFT is equal to 348 students. Table 16 depicts the percentage of males that passed the PFT by ethnicity. Approximately 83% (39 out of 47) of the White male population passed the PFT, while 78.57% (11 out of 14) Other, 77.95% (251 out of 322) Hispanic and 66.20% (47 out of 71) Black male populations passed the PFT.

Parent education level. In regard to parent's education level, the data indicate 70% (119 out of 170) of the students whose parents do not have a high school diploma passed the PFT, while students whose parents graduated from high school or received a higher level of education had a 2% - 18% greater rate of passing the PFT. The parents' level of education of students who scored in the Healthy Fitness Zone (pass) compared to those that Need Improvement (fail) on the PFT overall are identified in Table 17 below. Not all students answered this particular question in regard to their parent education level resulting in 23 unanswered questions.

Table 17
PFT Overall and Parent Education Level

Parent Education Level		PFT Passed (HFZ[a])		PFT Failed (NI[b])	
				(table continues)	
Graduate School	(*n* = 53)	45	84.91%	8	15.09%
College Graduate	(*n* = 34)	30	88.24%	4	11.76%
Some College	(*n* = 139)	101	72.66%	36	25.90%
High School graduate	(*n*= 159)	119	74.84%	39	24.53%
Not a high school graduate	(*n* = 170)	119	70.00%	50	29.41%
Unknown/declined to state	(*n* = 282)	197	69.86%	83	29.43%

Note. n = 837
a. HFZ means "healthy fitness zone", which is pass
b. NI means "needs improvement", which is fail

Inferential Statistics

A Pearson chi square test was employed to determine if there were statistically

significant differences between the overall PFT results for each of the variables listed below, as well as a t-test and an analysis of variance (ANOVA).

Race and ethnicity. In regard to overall ethnicity at a significance level of .05, the Pearson's chi square test was employed indicating the null hypothesis is not rejected (*p* value = .070), leading to the conclusion that no differences among ethnicities and the overall PFT results exist: χ^2 (3, N = 854) = 7.066, p = .070, as represented in Table 18.

Table 18
Chi Square – PFT Overall and Ethnicity

	Value	*df*	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.066[a]	3	.070
N of Valid Cases	854		

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected counts is 7.12

The results of the One-way Analysis of Variance (ANOVA) procedure indicate there is not a difference among ethnicities and their pass/fail rates on the overall PFT (F(3, 850) = 2.364, p >.05) as represented in Table 19.

Table 19
Analysis of Variance for PFT Overall and Ethnicity

	SS	DF	MS	F	Sig
Between Groups	1.406	3	.469	2.364	.070
Within Groups	168.477	850	.198		
Total	169.883	853			

Note. n = 853

Since there are no significant differences a Scheffe Multiple Comparison test was conducted. These findings were confirmed by the Scheffe Multiple Comparison test (Table 20) indicating there are no differences among ethnicities and their overall PFT pass/fail scores.

Table 20
Scheffe Multiple Comparison – PFT Overall and Ethnicity

(I) Ethnic Rev	(J) Ethnic Rev	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hispanic	2	.043	.041	.774	-.07	.16
	3	-.076	.53	.565	-.23	.07
	4	.163	.089	.341	-.41	.09
Black	1	-.043	.041	.774	-.16	.07
	3	-.119	.062	.298	-.29	.05
	4	-.207	.095	.192	-.47	.06
White	1	.076	.053	.565	-.07	.23
	2	.119	.062	.298	-.05	.29
	4	-.087	.101	.861	-.37	.19
Other	1	.163	.089	.341	-.09	.41
	2	.207	.095	.192	-.06	.47
	3	.087	.101	.861	-.19	.37

Note. 1 = Hispanic, 2 = Black, 3 = White, 4 = Other

While assuming that variances among the four ethnic subgroups do not significantly differ the data suggests that one's ethnicity does not play a factor in one's ability to pass the PFT.

National school lunch program. In regard to the National School Lunch Program (NSLP) at a significance level of .05, there is evidence to fail to reject the null hypothesis (*p* value = .967), supporting that there are no differences between enrollment

in the NSLP and non-enrollment as it relates to students overall pass and fail rates on the PFT (see Table 21).

Table 21
Chi Square – PFT Overall and NSLP

	Value	*df*	Asymp. Sig. (2-sided)
Pearson Chi-Square	.067[a]	2	.967
N of Valid Cases	860		

Note. a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.20.

The analysis showed that 2 cells had expected count less than 5, so an Exact Option significance test was selected for Pearson's chi-square. There are no differences between being enrolled in the NSLP and not being enrolled, and the overall pass and fail rates of the PFT: χ^2 (1, N = 854) = .039, p = .844, as represented in Table 22.

Table 22
Chi Square with Exact Option – PFT Overall and NSLP

	Value	*df*	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.039[a]	1	.844	
Continuity Correction[b]	.014	1	.907	
Likelihood Ratio	.039	1	.844	
Fisher's Exact Test				.874
Linear-by-Linear Assoc.	.039	1	.844	
N of Valid Cases	845			

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 85.76.

An independent *t*-test showed that there were no differences in NSLP enrollment and the overall PFT pass and fail rates (t = -.197, df = 852, p = .422, as represented in Table 23.

Table 23
T-Test – Overall PFT and NSLP

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
Overall Score P/F F=1 P=2	*F*	Sig.	*t*	*df*	Sig. (2-tailed)	M	*SEM*	Lower	Upper
Equal variances assumed	.154	.695	-.197	852	.844	-.006	.032	-.068	-.056
Equal variances not assumed			-.196	647.357	.844	-.006	.032	-.069	-.056

Gender. In regard to overall gender differences, a chi square was employed, at a significance level of .05, supporting there is evidence to reject the null hypothesis (p value = .007) indicating that in relation to the overall PFT results males pass more frequently than females as indicated in Table 24.

Table 24
Chi Square – PFT Overall and Gender

	Value	*df*	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.019[a]	2	.007
N of Valid Cases	860		

Note. a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.83

The analysis showed that 2 cells had expected count less than 5, so an Exact Option significance test was selected for Pearson's chi-square. There are differences in gender and the overall pass and fail rates of the PFT: $\chi^2(1, N = 854) = 10.000$, $p = .002$, as represented in Table 25.

Table 25
Chi Square with Exact Option – PFT Overall and Gender

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.000[a]	1	.002	.002	.001
Continuity Correction[b]	9.520	1	.002		
Likelihood Ratio	9.999	1	.002	.002	.001
Fisher's Exact Test				.002	.001
Linear-by-Linear Association	9.989[b]	1	.002	.002	.001
N of Valid Cases	854				

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 110.42.
b. The standardized statistic is 3.160.

An independent *t*-test showed that there are differences ($p = .002$) in gender and the overall PFT pass and fail rates as represented in Table 26.

Table 26
T-Test – Overall PFT and Gender

Gender 1=F 2=M	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	*t*	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.006	.939	-3.177	852	.002	-.121	.038	-.196	-.046
Equal variances not assumed			-3.175	418.937	.002	-.121	.038	-.196	-.046

Parent education level. In regard to the parent education levels at a significance level of .05, there is evidence to accept the null hypothesis (*p* value = .335) indicating there are no differences between parent education levels in relation to passing the overall PFT: χ^2 (6, *N* = 854) = 6.850, *p* = .335, as represented in Table 27.

Table 27
Chi Square – PFT Overall and Parent Education Level

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.850[a]	6	.335
N of Valid Cases	854		

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.21.

The results of the One-way Analysis of Variance (ANOVA) procedure indicate there is not a difference in parent education levels in relation to the pass/fail rates of the PFT (*F*= (6, 847) = 1.142, *p* > .05), as represented in Table 28.

Table 28
Analysis of Variance for PFT Overall and Parent Education Level

Overall Score P/F F=1 P=2

	SS	DF	MS	F	Sig.
Between Groups	1.363	6	.227	1.142	.336
Within Groups	168.520	847	.199		
Total	169.883	853			

Note. n = 853

Since there is no significant difference a Scheffe Multiple Comparison test was conducted. The findings were confirmed by the Scheffe Multiple Comparison test (Table 29) indicating there is no difference among parent education levels and students overall PFT pass/fail scores.

Table 29
Scheffe Multiple Comparison – PFT Overall and Parent Education Level

(I) ParentEd	(J) ParentEd	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Grad School	2	-.093	.128	.997	-.55	.36
	3	.052	.109	1.000	-.34	.44
	4	.036	.108	1.000	-.35	.42
	5	.085	.108	.996	-.30	.47
	6	.086	.106	.995	-.29	.46
	7	.105	.118	.992	-.32	.53
College Grad	1	.093	.128	.997	-.36	.55
	3	.145	.085	.823	-.16	.45
	4	.129	.084	.885	-.17	.43
	5	.178	.084	.607	-.12	.48
	6	.179	.081	.561	-.11	.47
	7	.198	.097	.649	-.15	.54

(table continues)

(I) ParentEd	(J) ParentEd	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Some College	1	-.052	.109	1.000	-.44	.34
	2	-.145	.085	.823	-.45	.16
	4	-.016	.052	1.000	-.20	.17
	5	.033	.051	.999	-.15	.22
	6	.034	.047	.998	-.13	.20
	7	.053	.070	.997	-.20	.30
High School Grad	1	-.036	.108	1.000	-.42	.35
	2	-.129	.084	.885	-.43	.17
	3	.016	.052	1.000	-.17	.20
	5	.049	.049	.986	-.13	.22
	6	.050	.044	.974	-.11	.21
	7	.069	.069	.986	-.18	.31
Not High School Grad	1	-.085	.108	.996	-.47	.30
	2	-.178	.084	.607	-.48	.12
	3	-.033	.051	.999	-.22	.15
	4	-.049	.049	.986	-.22	.13
	6	.001	.043	1.000	-.15	.16
	7	.020	.068	1.000	-.22	.26
Decline to State	1	-.086	.106	.995	-.46	.29
	2	-.179	.081	.561	-.47	.11
	3	-.034	.047	.998	-.20	.13
	4	-.050	.044	.974	-.21	.11
	5	-.001	.043	1.000	-.16	.15
	7	.019	.065	1.000	-.21	.25
Unan-swered	1	-.105	.118	.992	-.53	.32
	2	-.198	.097	.649	-.54	.15
	3	-.053	.070	.997	-.30	.20
	4	-.069	.069	.986	-.31	.18
	5	-.020	.068	1.000	-.26	.22
	6	-.019	.065	1.000	-.25	.21

Note. 1 = Grad School, 2 = College Grad, 3 = Some College, 4 = High School Grad, 5 = Not High School Grad, 6 = Decline to State/Unknown, 7 = Unanswered question.

Research Question 3

Research question three examines to what extent, if at all, there is a relationship between the number of Physical Fitness Test's (PFT) six components passed by currently enrolled tenth graders and their academic achievement during their ninth grade academic year.

Descriptive Statistics

The results in Table 30 identify grade point average in relation to the number of components passed on the PFT. Students earning a .00 to .09 grade point average represent 12.67% of the sample studied. Students earning 1.0 to 1.9 grade point average represent 26.76%, 2.0 to 2.9 represent 33.92%, 3.0 to 3.9 represent 22.54%, and students with above a 4.0 grade point average represent 4.11% of the population studied. As grade point average increases, from .00 to above 4.00, so do the percentages (25.93% to 71.43%) of students passing all six components of the PFT. However this is only true for all six components passed.

Table 30
PFT Components and Grade Point Average

Grade Point Average	Passed all 6	Passed 5	Passed 4	Passed 3	Passed 2	Passed 1
.00 - .99 *n* = 108	28 (25.93%)	34 (31.48%)	29 (26.85%)	12 (11.11%)	5 (4.63%)	0 (0.00%)
1.00 – 1.99 *n* = 228	86 (37.72%)	66 (28.95%)	50 (21.93%)	21 (9.21%)	3 (1.32%)	2 (.88%)
2.00 – 2.99 *n* = 289	132 (45.67%)	96 (33.22%)	41 (14.19%)	16 (5.54%)	4 (1.38%)	0 (0.00%)

(table continues)

Grade Point Average	Passed all 6	Passed 5	Passed 4	Passed 3	Passed 2	Passed 1
3.00 – 3.99 *n* = 192	108 (56.25%)	37 (19.27%)	33 (17.10%)	11 (5.73%)	1 (.52%)	2 (1.04%)
4.00 ≥ *n* = 35	25 (71.43%)	8 (22.86%)	2 (5.71%)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)

Note. *n* = 852

Figure 2 below indicates the percentages passed and failed by grade point average. Students' earning a 1.0 to 1.9 grade point average pass the PFT at a rate of 66.38% (152 out of 229), and fail at a rate of 33.62% (77 out of 229). Students' earning a 2.0 to 2.9 grade point average pass the PFT at 80% (228 out of 285), and fail at a rate of 20% (57 out of 285). Students' earning a 3.0 to 3.9 grade point average pass the PFT at a rate of 75.52% (145 out of 192), and fail at a rate of 22.48% (47 out of 192). Students' earning a 4.0 or greater grade point average pass the PFT at a rate of 91.67% (33 out of 36), and fail at a rate of 8.33% (3 out of 36).

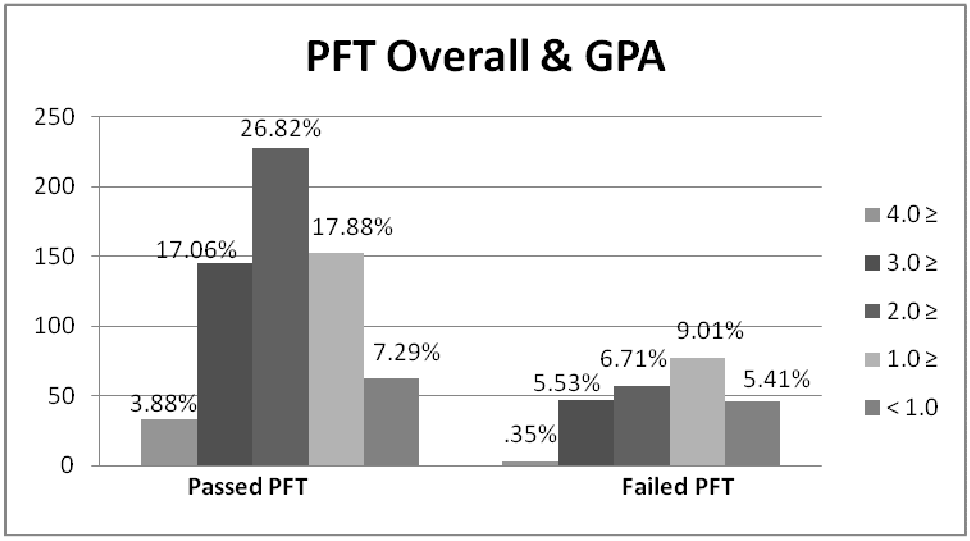

Figure 2: Overall PFT and Grade Point Average

Inferential Statistics

A Pearson chi square test was employed to determine if there are significant differences between the overall PFT results and academic achievement. In regard to academic achievement as measured by grade point average at a significance level of .05, there is evidence to reject the null hypothesis (p value = <.001) indicating that there are differences between grade point average and overall PFT results. χ^2 (4, N = 854) = 30.147, p = <.001, as represented in Table 31.

Table 31
Chi Square – PFT Overall and Grade Point Average

	Value	*df*	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.147[a]	4	.001
N of Valid Cases	854		

Note. a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.86.

The Pearson product correlation represented below indicates the correlation is significant at the 0.01 level.

Table 32
Pearson Product Correlation – PFT Overall and Grade Point Average

Correlations		Cum HF GPA	Overall Score P/F F=1 P=2
Cum HF GPA	Pearson Correlation	1	.182**
	Sig. (1-tailed)		.000
	N	860	854
Overall Score P/F F=1 P=2	Pearson Correlation	.182**	1
	Sig. (1-tailed)	.000	
	N	854	854

Note. **. Correlation is significant at the 0.01 level (1-tailed).

Research Question 4

Research question four examines to what extent, if at all, is there a relationship between currently enrolled tenth graders' perceptions of their physical fitness and their results on the Physical Fitness Test (PFT) during their ninth grade academic year. The total number of students who participated in the CY-PSPP survey is represented by the number of parent permission slips and student consent forms signed and returned to the researcher representing 2009 – 2010 tenth grade students. These same students were then cross referenced with the 2008 – 2009 PFT results yielding data from 432 students who were analyzed in pursuit of this research question. Students were cross referenced to provide a clearer representation of identifying those students who took the PFT in 2008 – 2009 with those same students who completed the CY-PSPP in 2009 - 2010. The researchers' intent is to compare perceived physical fitness (CY-PSPP survey mean scores) with actual fitness level (as determined by State PFT results 2008 – 2009).

Students' perceptions of their physical fitness were measured by the Children and Youth Physical Self-Perception Profile (CY-PSPP). The CY-PSPP contains 36 questions with six sub-categories: "Sport/Athletic Competence, Condition/Stamina Competence, Attractive Body Adequacy, Strength Competence, Physical Self Worth (PSW), and Global Self Worth (GSW)" (Harter, 1988; Whitehead, 1995;). The *Manual for the Self-Perception Profile for Children* was used as the scoring instrument to assist in the scoring of the CY-PSPP (Harter). According to Harter, calculating the mean scores overall and for each sub-category is representative of an adolescent profile according to a scale that ranges from 1.0 to 4.0. A mean score of four indicates a high perceived competence or adequacy of

one's physical fitness while a mean score of a one reflects a low perceived competence or adequacy adolescent profile.

Descriptive Statistics

The data displayed in Table 33 represents a mean score and standard deviation for each of the six sub-categories on the Children and Youth Physical Self-Perception Profile overall.

Table 33
Mean Score and Standard Deviation – CY-PSPP Sub-Category Overall

Categories	*M*	*SD*
Sport/Athletic Competence	2.74	1.01
Condition/Stamina Competence	2.70	1.02
Attractive Body Adequacy	2.69	1.00
Strength Competence	2.64	0.90
Physical Self Worth	2.90	0.99
Global Self Worth	3.11	0.97

The data reveal students ranked highest (3.11) in Global Self Worth indicating the student is generally happy with the way he/she is as a person (Harter 1988). Students ranked second to highest in Physical Self Worth (2.90) which identifies students overall self worth. The Sport/Athletic Competence ranked (2.74) next indicating ones' perceived level of competence in sport (Harter, 1988). Condition/Stamina Competence (2.70) indicates ones' perceived level of exercise and physical conditioning which ranked fourth (Harter). Next was the sub- category, Attractive Body Adequacy (2.69). The attractive

body adequacy category identifies how students interpret their overall physical appearance i.e. perceived bodily attractiveness (Harter). Strength Competence ranked the lowest (2.64) of the six sub-categories identifying students perceived muscular development and physical strength (Harter). This data reveals a .47 difference (3.11 versus 2.64) among mean scores among all six sub-categories.

Table 34
Pass and Fail Results with Mean Score & Standard Deviation – CY-PSPP Sub-Category

Sub-Category	Pass		Fail	
	Mean	Standard Deviation	Mean	Standard Deviation
Sport/Athletic Competence	2.83	0.98	2.58	1.01
Condition/Stamina Competence	2.62	1.01	2.36	0.99
Attractive Body Adequacy	2.89	0.94	2.32	1.00
Strength Competence	2.63	0.84	2.68	0.92
Physical Self Worth	3.03	0.93	2.55	1.00
Global Self Worth	3.19	0.91	2.93	1.01

The data in Table 34 reveals similar results as in Table 33, such that Global Self Worth remains the highest ranked for students who passed or failed the PFT. All sub-categories for means of students who passed the PFT are higher than those that failed, except in the area of Strength Competence (2.63 versus 2.68).

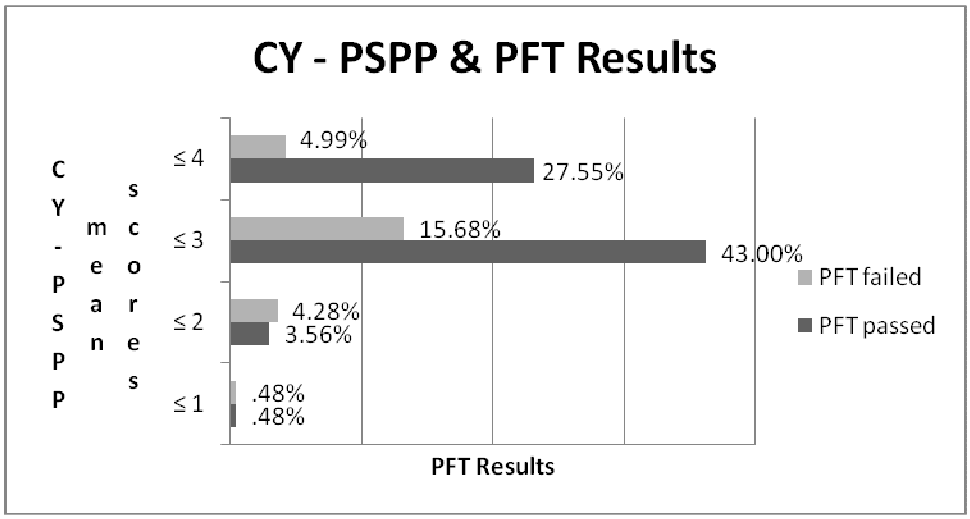

Figure 3: PFT Overall and CY-PSPP Mean Score Results

Figure 3 above represents students mean scores; ≤ 4 indicates a high perceived competence or adequacy of one's physical fitness, while a mean score of ≤ 1 reflects a low perceived competence or adequacy adolescent profile. For example, 116 (27.55%) students who passed the PFT have a high perceived competence or adequacy of their physical fitness level. While 21 (4.99%) students who had a high perceived fitness level, failed the PFT. Some students double answered questions and/or did not answer one or more of the 36 survey questions.

Inferential Statistics

A Pearson chi square test was employed to determine if there are statistically significant differences between the overall PFT results and the CY-PSPP survey mean scores. At a significance level of .05, there is evidence to reject the null hypothesis (*p* value = .001), which supports that there are differences in the CY-PSPP survey mean score results and the overall PFT results. χ^2 (2, N = 436) = 13.942, p = .001, as represented in Table 35.

Table 35
Chi Square – PFT Overall and CY-PSPP Mean Scores

	Value	*df*	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.942[a]	2	.001
N of Valid Cases	436		

Note. a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is.75.

The analysis showed that 2 cells had expected count less than 5, so an Exact Option significance test was selected for Pearson's chi-square. There are differences in the CY-PSPP survey mean scores and the overall pass and fail rates of the PFT: χ^2 (2, N = 436) = 13.942, exact p = <.001, as represented in Table 36.

Table 36
Chi Square with Exact Option – PFT Overall and CY-PSPP

	Value	*df*	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	13.942[a]	2	.001	.000
Likelihood Ratio	14.686	2	.001	.000
Fisher's Exact Test	14.749			.000
N of Valid Cases	436			

Note. a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .75.

The Pearson product correlation represented below indicates the correlation is significant at the 0.01 level.

Table 37
Pearson Product Correlation – PFT Overall and CY-PSPP

Correlations		Mean Score	Overall Score
Mean Score	Pearson Correlation	1	.271**
	Sig. (2-tailed)		.000
	N	436	434
Overall Score	Pearson Correlation	.271**	1
	Sig. (2-tailed)	.000	
	N	434	434

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

Other Findings of Interest

As an additional source of information, one of the questions listed on the Demographic Information Sheet asked if students were previously enrolled in PE 1, ROTC or Marching Band to determine students' history of PE classes while enrolled in high school. Approximately 90% of the students were enrolled in a P.E. 1 class during their ninth grade year as indicated in Table 38.

Table 38
CY-PSPP Survey – Demographic Information Sheet

In 9th grade were you enrolled in any of the following:		
Answer Options	Response Rate	Response Count
PE 1	90.8%	593
Marching Band	3.4%	22
ROTC	5.8%	38
answered question		653
skipped question		11

According to Table 38, fewer than 10% of the students sampled were enrolled in classes other than P.E. 1 as a ninth grader. Therefore this particular survey question suggests that the majority of students were enrolled in a physical education class (P.E. 1).

Summary of Results

Research Question 1

In relation to the research question posed, 620 of 860 students passed the overall PFT with a passing score (Healthy Fitness Zone – HFZ) of five or six. Students passing with a score of a five totaled 241, and students passing with a score of six totaled 379. Students scoring a one, two, three or four are reported as Needs Improvement (NI) which indicates they did not pass the PFT. Students scoring as NI totaled 234.

The findings in Table 10, show that more students Need Improvement in the areas of the Pacer/Mile (208) and Body Mass Index (182) than in any other component (Curl Up = 10; Trunk Lift = 9, Push Up = 47; Sit/Reach = 59). Of the students who did pass the overall PFT the data indicates a comparable number of students were able to pass the Curl-Up (613), Trunk Lift (613), Push-Up (613) and Sit/Reach (597) resulting in approximately a 70% passing rate for each of the individual components. While the BMI resulted in a 64% passing rate and the Pacer/Mile was at a 57% passing rate. The distribution of individual scores as represented in Table 11 show similar findings. 173 students passed the BMI, while 112 students passed the Pacer/Mile when passing five of the six components. The findings in Tables 10 and 11 indicate the Curl-Up, Trunk Lift, Push-Up and Sit/Reach were comparable as represented by higher passing rates, whereas

the Pacer/Mile and Body Mass Index may have proven more challenging for students as represented by lower passing rates.

The chi square test for the overall PFT and the individual components revealed similar findings. The chi square test indicates there are differences (p = <.001) among students overall pass/fail rates on the PFT and the individual components of the PFT.

Research Question 2

Race and ethnicity. Overall 88% (23 out of 26) of the 'Other' population passed the PFT (score of five or six), followed by 78.75% (63 out of 80) of the White population passed the PFT, 71.78% (435 out of 606) of the Hispanic population and 66.89% (99 out of 148) of the Black population were successful in passing the PFT with a score of five or six. There is approximately a 22% disparity (88.46% and 66.89%) in regard to ethnicity of students passing the PFT. The Black and Hispanic populations were comparable, 19.59% and 19.31% respectively, in passing four of the six components. The chi square test employed concludes that one's ethnicity does not have an impact on one's overall performance on the PFT. The ANOVA and Scheffe Multiple Comparison procedures indicate similar findings, p = .001.

National school lunch program. Of the 860 scores reported 545 students were enrolled in the National School Lunch Program (63%) and 315 students (36%) were not. The results indicate approximately 71% of the students enrolled and approximately 71% of students not enrolled in the NSLP passed the PFT with a score of five or six (refer to Table 14). Therefore the data does not reflect a difference between students who are enrolled in the school lunch program and those that are not enrolled, as related to the

number of PFT components passed and overall PFT results (p = .067). The t-test findings indicate similar findings, p =.422.

Gender. Overall 49.78% (226 out of 454) of males passed all six components of the PFT, compared to 37.69% (153 out of 406) females (refer to Table 14). Males with a score of five or six resulted in 76.65% (348 out of 454) passing rate, while 67.00% (272 out of 406) of the females passed with a score of five or six. So while there were approximately 12% more males passing all six components, there was an approximate 9% disparity from males to females scoring a five or six.

The chi square test employed concludes there is evidence to support there are differences in gender (p = .007) which may impact one's overall performance on the PFT. The t-test findings indicate similar findings, p = .001.

In regard to gender and ethnicity the data indicates 1.55% more females than males in the Black population passed the PFT. While males passing rates were higher than females for both the Hispanic and White populations, with a 13.16% and 10.26% difference, respectively.

Parent education level. In regard to parent education levels for students who passed the PFT versus those that did not pass, students passing rates were at least twice as high in each of the parent education level categories. There is an approximate 5% increase from those without a high school diploma to those with a high school diploma in regard to the overall passing rate on the PFT. The chi square (p = .335) and ANOVA procedures (p = .336) indicate there is no significant impact of parents' level of

education on a student's performance on the PFT. The Scheffe Multiple Comparison test indicated similar findings.

Research Question 3

The chi square test indicates that there are differences in academic achievement and passing the PFT (p = <.001), therefore one's grade point average may play a role in one's performance on the PFT. The Pearson product correlation also indicated the correlation is significant at a 0.01 level. While the findings in Table 30 reveal, as grade point average increases so do the passing percentages on the PFT for students who pass all six components. These findings only hold true for students passing all six components of the PFT.

Research Question 4

In regard to the CY-PSPP sub-categories, Table 33, mean scores from highest to lowest (3.11 to 2.64) indicate only a .47 difference suggesting students overall perceptions in each of the sub-categories: Sport/Athletic Competence, Condition/Stamina Competence, Attractive Body Adequacy, Strength Competence, Physical Self Worth and Global Self Worth, do not differ greatly. If 2.0 is considered the average mean score students indicated that in each of the sub-categories their perceptions of Sport/Athletic Competence, Condition/Stamina Competence, Attractive Body Adequacy, Strength Competence, Physical Self Worth and Global Self Worth rank above the average. Table 34 reveals all sub-categories for means of students who passed the PFT are higher, except in the area of Strength Competence (2.63 versus 2.68).

When viewing Figure 3 one may infer that one's' perceived physical fitness is comparable to one's PFT results, noting 116 (27.55%) students passed the PFT (actual fitness level) and had a mean score of ≤ 4, while 21 (4.99%) with the same mean score failed the PFT (perceived fitness). Although the chi square test supports that there are differences (p = < .001) and the Pearson product correlation indicates the correlation is significant at a .0.01 level for the CY-PSPP survey mean score results and the overall PFT results revealing that one's perceived fitness level may not be indicative of one's actual fitness level. However, findings from the study (see Figure 3) suggest that one's perceived fitness level may be comparable to their actual fitness level as measured by the PFT.

Conclusion

In conclusion, the descriptive and inferential statistics obtained concurs with the findings of the study in regard to the overall PFT and the individual components, NSLP, and gender. Whereas, it appears there may be discrepancies according to the statistical data and findings of the study in regard to race/ethnicity, parent education level, grade point average and perceived physical fitness in relation to PFT performance. The results and potential discrepancies will be further explored and discussed in Chapter 5.

Chapter 5: Discussion

The intent of this study was to create and promote an increase in the awareness of the adolescent obesity epidemic that exists today. With adolescent obesity on the rise, the Physical Fitness Test (PFT) is an indicator, as mandated by the State for 5, 7 and 9 grade students, to determine if students are physically fit. The *FITNESSGRAM*® is the state designated measurement tool to assess physical fitness. This study was conducted at Knight High School (KHS), one of eight comprehensive school sites in the Antelope Valley Union High School District (AVUHSD). Students enrolled as ninth graders during the 2008 – 2009 school year and currently enrolled tenth grade students (2009 – 2010) were the represented population for the study.

More specifically, this study examined the overall PFT and its' individual components, demographics (ethnicity, parent education level, National School Lunch Program (NSLP), and gender), academic achievement, and perceptions of students' physical fitness all in relation to ones' overall performance on the PFT. This quantitative study approach allowed the researcher to investigate and analyze the results of potential relationships and differences of adolescent fitness in regards to the PFT. As a result of the findings in this study, it was the intent of the researcher to increase awareness and to inform educators of possible interventions that may be beneficial to increase adolescent fitness. The research questions selected by the researcher established a foundation and utilized baseline data to determine fitness levels, as measured by the PFT, of currently enrolled tenth grade students at Knight High School.

A discussion of each of the research questions findings are analyzed and explored in this chapter as supported by the literature. Also presented in this chapter are the limitations, implications of the study, and recommendations for further research.

Research Question 1

Research question one asked, "To what extent, if at all, are there differences in the Physical Fitness Test (PFT) components passed by currently enrolled tenth graders who did versus those who did not pass the overall PFT as ninth graders?" No prior research is known by this researcher to have specifically examined the individual components of the PFT in relation to the overall pass and fail rates of the PFT.

The results of the statistical analysis indicated that there are differences among the six individual components of the PFT (Pacer/Mile measures aerobic activity; Body Mass Index (BMI) measures body composition; Curl-Up measures abdominal strength and endurance; Trunk Lift measures trunk extensor and flexibility; Push-Up measures upper body strength; Sit and Reach measures flexibility) and the overall PFT. The data from the 2008 – 2009 PFT results suggested that students struggled more in the areas of the Pacer/Mile and BMI than the other four areas. These results concur with the November 30, 2009 California Department of Education News Release, by State Superintendent, Jack O'Connell which revealed the following:

Table 39
2008 – 2009 Percentage of 9th Grade Students in California by PFT Component

Physical Fitness Test Areas	# of Grade 9 Students	% of Grade 9 Students in HFZ
Aerobic Capacity	470,094	63.0%
Body Composition	470,094	69.8%
Abdominal Strength	470,094	86.0%
Trunk Extensor Strength	470,094	90.6%
Upper Body Strength	470,094	76.8%
Flexibility	470,094	80.9%

The overall State results are aligned with the findings found in this study in regard to the passing rates (HFZ) of the Pacer/Mile and BMI components of the PFT, noting that 9th grade students percentage of passing is less in these two areas. The International Task Force on Obesity identifies the BMI as a practical tool to define and measure obesity (Taras & Potts-Datema, 2005).

One may infer that students may experience more difficulty passing the Pacer/Mile and BMI due to the cardiovascular requirements placed on the body for the Pacer/Mile or height and weight ratio requirements for the BMI. Students must pass five of the six components, so if students are confident they will not pass one area they should be encouraged to focus on and pass all other areas; hence pass the PFT.

Another aspect to possibly consider for the differences found are that the other four components of the PFT - Curl-Up, Trunk Lift, Push-Up, and Sit and Reach, may be

deemed similar to ‘floor exercises’, where students body composition and cardiovascular abilities are not exerted.

Research Question 2

Research question two asked, “To what extent, if at all, are the differences in the number and the components of the Physical Fitness Test (PFT) passed by currently enrolled tenth graders based on their race/ethnicity, parent education level, National School Lunch Program and gender?”

Race and Ethnicity

The literature reveals that obesity has increased across all ethnic, racial and socio-economic groups in the United States (Caprio, et al., 2008). The results of the statistical analyses from this study indicated that one’s’ race/ethnicity is not correlated to passing the overall PFT. However, the data from the 2008 – 2009 PFT results indicated approximately 66% of the Black students, approximately 70% of the Hispanic students, approximately 78% of the White students and approximately 88% of the ‘Other’ population passed five or six components of the PFT. This suggests there are differences in passing rates based on one’s ethnicity. However, this researcher acknowledges the fact that the population of this study is of predominantly Hispanic students and therefore represents an unequal sample of race/ethnicity.

There could be numerous explanations for the variance among students of diverse ethnicities performing differently on the PFT. The literature from the Consensus Statement by Caprio and Associates reveals there may be genetic underlying components, metabolic disparities and/or biological differences in the development of obesity by race

and ethnicity (Caprio, et al., 2008). Additional literature supports that socio-economic status among ethnicities may play a factor in obesity due to perceived barriers, food choice availability, and the expense of nutrition and fitness based resources (Fahlman, Hall, & Lock, 2006; Lee, 2008). A nationally represented, three year study showed that Hispanic and Black youths were less likely to engage in intramural and varsity sports (Johnston, Delva, & O'Malley, 2007). These elements, individually or in combination, may be factors which hinder one's performance on the PFT. Therefore, one may conclude that although one's race/ethnicity should have no correlation with their performance on the PFT, there may be additional factors that need to be explored in order make a strong determination on whether one's ethnicity influences performance on the PFT. One may ask, 'Is an increased prevalence of obesity, as determined by race/ethnicity, a factor in one's performance on the PFT?'

Parent Education Level

The parent education level of currently enrolled tenth grade students was garnered through the PFT 2008 – 2009 results. Students were asked to select the highest level of education their parent had obtained. If, for example, one parent was a high school graduate and the other parent a college graduate they were asked to select, college graduate. The options were: Graduate School, College Graduate, Some College, High School Graduate, Not a High School Graduate or Unknown/Declined to State. Not all students answered this particular question in regard to their parent education level resulting in 23 unanswered questions.

The statistical analyses revealed that the parent education level of a student is not a factor in one's performance on the PFT. However, the responses from the 2008 – 2009 PFT results indicate students whose parents graduated from high school or received a higher level of education had a 2% to 18% greater rate of passing the PFT (see Table 17). The PFT results are supported by the literature in so far as adolescent obesity increases with low levels of parent education (Ding & Parks, 2007; Jebb & Moore, 1999; Wendt, 2009).

One could infer that socio-economic status, described in the race/ethnicity section above, also plays a factor with one's parent education level, i.e. the higher the socio-economic status, the higher the level of education.

National School Lunch Program

Statistical evidence was found supporting that there are no differences in student performance on the PFT whether enrolled in the NSLP or not. The 2008 – 2009 PFT results also concur with these findings. As a matter of fact, approximately 72% of the students enrolled in the NSLP passed the PFT with a score of five or six, and approximately 72% of the students who were not enrolled in the NSLP passed the PFT with a score of five or six.

The literature reveals that students who are fed the proper nutrients through the NSLP, perform better academically (Action for Healthy Kids, 2004). School Wellness programs such as 'Game On!, Re-Charge! and URWhatUEat', are all programs which have been implemented focusing on how proper nutrition, healthy lifestyle choices, and physical activity can enhance overall student performance (Action for Healthy Kids).

Students and parents alike need to be educated in optimal nutritional guidelines for ultimate success (Caprio, et al., 2008). NSLP has the potential to positively impact student food choices while at school.

The literature also reveals the availability of competitive foods sold in schools threaten the healthy choices offered through the NSLP (Caprio, et al., 2008; Snelling, Korba & Burkey, 2007). Governor Schwarzenegger has signed legislation requiring schools change their food and beverage offerings to promote a healthy and balanced lifestyle as indicative of Senate Bills 12 and 965. Although policies are being enacted to monitor healthy food distribution in schools it is important that these policies and programs continue to be monitored for their effectiveness.

Gender

Evidence supports there is a statistically significant difference between male and female performance on the PFT. The 2008 – 2009 PFT results also supports this finding, indicating 77.50% of males and 67.49% of females passed the PFT. This finding was expected due to the mere nature and structure of adolescent male and female body physiques, as well as hormonal changes which take place during puberty.

This aspect of the study is also supported by the literature which reveals males tend to be more active than females during adolescent years, with males showing a stronger interest in team sports (Ammouri, et al., 2007). Psychological factors also play a part especially during adolescent years, in regard to self esteem, body image, and societal pressures which differs for males and females (Gray & Leyland, 2008; Meland, et al., 2007; Porter, 2008; Zullig et al., 2006). Males appear to be more accepting of body

changes that occur as a result of puberty than females (Kirshnit, 1989). There may also be differing views among the genders in regards to the importance of physical education (Flintoff & Scraton, 2001; Marsh, 1994). Males tend to engage in physical activities for the competition while females may be engaged for the social aspect or to focus on weight management (Ammouri, et al.; Ge, et al., 2001). During adolescence, males tend to gain muscle and females tend to gain body fat (Ge, et al., 2001; Ingledew & Sullivan, 2002; Smith, 2002).

Research Question 3

Research question three asked, "To what extent, if at all, is there a relationship between the number of Physical Fitness Test's (PFT) six components passed by currently enrolled tenth graders and their academic achievement during their ninth grade academic year? " The statistical data indicates there are differences between one's grade point average and their performance on the PFT. Whereas, the descriptive statistics presented in Table 30 do not conclusively concur with these findings. Table 30 indicates as grade point average increases so do the percentages of students who passed all six components of the PFT. However, this does not hold true for students passing five, four, three, two or one components.

The literature presents controversial views regarding physical fitness and its' effects on academic achievement. This topic has been debated especially since the passage of No Child Left Behind (NCLB) in 2001. In essence the NCLB Act specifies that time in the classroom be spent focusing on 'core academics'; physical education is not considered a 'core academic'.

Proponents of physical education in schools support that physical fitness enhances academic achievement (Arrington, 2007; Dwyer, et al., 2001; Ratey, 2008; Story, et al., 2009; Taras, 2005; Viadero, 2008; Winterfeld, 2007). Ratey and Taras, in part, attribute the benefits of physical fitness and its' effects on academic achievement to physiological factors. They maintain that increased blood flow to the brain and the biological changes in the brain when engaging in physical activity create an atmosphere where the brain is more apt to learn; hence improve academic achievement. Since NCLB (2001), physical education has become a lower priority in some schools, yet it enhances readiness to learn which results in academic achievement (Story, et al., 2006).

Other researchers propose there is no relationship between physical education and academic achievement stating research in this area is based on inconsistent results and shallow findings (Dwyer, et al., 2001; Sallis, et al., 1999). The California Department of Education (2005) conducted a study examining physical fitness and academic achievement using 2004 PFT results reporting that it could not be inferred that increased physical fitness caused an increase in academic achievement or vice-a-versa. The study went on to say that better overall health conditions and/or improved living conditions, as well as improved socio-economic status may be attributing factors in increasing one's academic achievement or fitness levels. While still others do not believe physical education is a priority when educators have to be accountable for students test scores in 'core academic' areas (Siegel, 2007).

Research Question 4

Research question four asked, "To what extent, if at all, is there a relationship

between currently enrolled tenth graders' perceptions of their physical fitness and their results on the Physical Fitness Test (PFT) during their ninth grade academic year?" In essence this research question examined students perceived level of physical fitness, as measured by the Children and Youth – Physical Self Perception Profile (CY-PSPP), and their actual level of physical fitness as measured by the results of the PFT.

The *Manual for the Self-Perception Profile for Children* was used as the scoring instrument to assist in the scoring of the CY-PSPP (Harter, 1988). According to Harter, calculating the mean scores overall and for each sub-category is representative of an adolescent profile. A mean score of four indicates a high perceived competence or adequacy of one's physical fitness while a mean score of a one reflects a low perceived competence or adequacy adolescent profile.

The statistical analysis supported that there are differences in the CY-PSPP survey mean score results and the overall PFT results, indicating students' perceived fitness levels differ from their actual fitness level. While the descriptive findings from students mean score results, obtained from the 36 question CY-PSPP survey, proposed that one's perceived level of fitness may be comparable to their actual fitness levels (see Figure 3).

The literature validates the use of the CY-PSPP as an appropriate tool when measuring physical activity and physical self-perceptions for adolescents 12 years old and older (Joens-Matre, 2006; Welk & Eklund, 2005; Whitehead, 1995). The literature suggests that engaging in physical activity can improve one's self esteem/perceptions (Dodge & Lambert, 2009; Hills, et al., 2007; Lowry, et al., 2005; Ratey, 2008).

This researcher found the disparities in the findings of the CY-PSPP survey most interesting. In regard to the six sub-categories (Sport/Athletic Competence; Condition/Stamina Competence; Attractive Body Adequacy; Strength Competence; Physical Self Worth; and Global Self Worth) of the CY-PSPP which revealed that in each of the six areas students ranked above the average, overall indicating they felt competent in the areas of athleticism and exercise, body adequacy, self worth, and muscular development. If one can presume this is in fact representative of adolescents' views of themselves today, it is encouraging to this researcher to know that overall students appear confident and feel good about themselves, as the adolescent years can prove to be a tumultuous time.

Comparable results were also shown in regard to the overall PFT passing rates and the CY-PSPP mean score results. As an example (see Figure 3), 116 (27.55%) students had a high perceived competence level and passed the PFT, while 21 (4.99%) students who had a high perceived competence level, failed the PFT. One may infer that this represents students perceived level of fitness is comparable to their overall performance on the PFT. It is very encouraging to know that students may presumably be in tune with and recognize their actual fitness abilities.

One may attribute the disparity in results to conducting survey research involving human perceptions (Creswell, 2003). When surveys are conducted with human subjects the results may reflect student's responding in a socially desirable manner, embellishing responses, and/or not fully comprehending the meaning of the question at hand. Other factors that may influence the survey results include the time of day, alertness and student

interest in the survey. It should also be noted that although one may recognize their fitness levels and/or abilities it does not necessary infer that they take action upon them.

Limitations

The extant data examined was obtained from the 2008 – 2009 PFT results which reported data for 860 ninth grade students. Whereas, the CY-PSPP survey was administered to over 600 currently enrolled tenth grade students (who were ninth graders the previous year, but not all necessarily previously enrolled at KHS). In order to ascertain as accurate an analysis as possible, the researcher felt it was important to cross reference the students who took the survey, 2009 – 2010, with those same students PFT results from 2008 – 2009. This enabled the PFT results, which reflected actual fitness, to be cross referenced with the same students who took the CY-PSPP, which reflected students perceived level of fitness, constituting 432 students. The differences in numbers of students could be due to enrollment rates, transiency, students no longer attending KHS, or absences. Although this may be viewed as a limitation, it appears to have had no impact on the sample size for this study.

In regard to the CY-PSPP survey there appeared to be some limitations with respect to students understanding the format of the survey questions. Although instructions were read aloud and a hard copy of the instructions were placed at each computer station students tended to answer each side of the question or what was termed by the researcher as ‘double answering’ questions. An additional limitation was the survey software program was not capable of activating the ‘radio box’ feature which

would have corrected students ‘double answering’. In these cases student’s responses were omitted as to not convolute the overall survey results.

Although the CY-PSPP has been validated by previous researchers, one can never be certain that questions are being interpreted as intended, understood and/or deciphered properly. This researcher was confident that this measurement tool was appropriately aligned to ascertain the data being examined for this particular study.

Generalizibility

An effort was made to survey the entire tenth grade class so that it would be most representative of the tenth grade population and the findings could be generalized among similar schools, at the same grade level, and with similar demographics. In regard to sample size this researcher was able to obtain twice as many (653) respondents as needed. As indicated by the sample size calculator, at a confidence level of 95% and confidence interval of 5, with a population of 860 students as represented by the State PFT scores, the sample size needed is 266. At a confidence level of 95% and confidence interval of 5, with a population of 432 as represented by the students cross referenced for the CY-PSPP and overall PFT results, the sample size needed is 206. As a result, this researcher is confident the survey data is representative of the population under study.

Implications of the Study

The importance of this study was based on the adolescent obesity epidemic which exists and is even more apparent today. The PFT is one measurement tool that can be utilized to assess physical fitness. Upon assessing physical fitness needs, via PFT results,

students can then be identified to determine who may benefit from intervention programs. Creating awareness and providing interventions for those adolescents identified as benefitting from further interventions was the purpose of this study.

As previously noted schools are ideal venues for intervention programs since students spend a substantial amount of their day there (Hills, et al., 2007; Story, et al., 2009). *Healthy People 2010* also promotes physical activity in school settings. Attention can be focused on nutrition, healthy lifestyles and physical fitness all in one venue as supported by health classes and physical education classes offered in schools. Successful school based interventions can be beneficial focusing on healthy lifestyles as opposed to dieting or losing weight (Pyle, et al., 2006). Creating a school culture that supports and encourages physical activity is also beneficial for adolescents (Felton, et al., 2005).

Peer support, student and parental involvement, and community resources are also critical in implementing successful intervention programs. Peer support and peer modeling has found to be advantageous for students (Grove & Weigland, 1999). Allowing students to have a 'voice' in planning their physical activities is also an essential aspect of physical fitness (Jenkins, et al., 2006). If we want students to become more active we must allow them to take part in determining activities of interest. Parental encouragement supporting proper nutrition and physical activity aides in the success of intervention programs; obesity prevention should begin in the home (Kirshnit, 1989; *ScienceDaily*, 2005; Wendt, 2009). Communities need to provide safe recreation facilities where parents can feel safe leaving their children to engage in physical activities (Graber

& Locke, 2007; Hills, et al., 2007; Rey-Lopez, et al., 2008). While others suggest a reform is needed; re-examining the physical education curriculum (Cothran, 2001).

A proactive approach is also important, assisting students prior to the PFT to prepare them for the test and overall healthy lifestyles. The Stages of Change model assesses adolescent fitness behavior and can be incorporated in physical education classes to assist students in moving toward a more active lifestyle (Ciccimascolo & Riebe, 2006; Hill & Turner, 2007). Dr. David Katz describes an ABC approach to fitness; providing "Activity Bursts in the Classroom" proposing to enhance fitness (Rubert, 2009, p. 64).

The findings from this study also imply that multiple strategies must be taken into account when examining how to assist obese adolescents and implement intervention programs. School wide strategies encompassing various aspects of physical fitness and healthy lifestyle choices need to be addressed. These strategies need to include creating a school-wide climate that supports physical activity; curricular goals in the area of health and physical education classes educating our students in regards to a healthy lifestyle and how physical fitness can assist in their overall performance; and food services ensuring students are receiving the proper nutrients. Taking into account gender and cultural preferences when establishing intervention programs is also essential (Caprio, et al., 2008). As noted earlier in this study genetics, puberty and poverty may also play a part in one's overall performance. Examining demographics to include gender, ethnicities, and socio-economic status, as well as students' perceptions, is also essential. It is important that student preferences by gender be taken into account as different genders prefer different types of physical activities. As previously noted, one's ethnicity and socio-

economic status needs to be taken into account when creating successful intervention programs. Understanding the needs of adolescent through their frame of reference and allowing them to have a voice in preparation for a healthier lifestyle is critical, as it will increase their interest and participation.

The implications of this study present an interesting dichotomy. On the one hand students who pass five or six of the six components are considered passing and in the Healthy Fitness Zone (HFZ). On the other hand students that pass four or fewer components are informed they Need Improvement (NI) and are not considered physically fit according to the PFT and will not be allowed to be enrolled in an elective of their choice as a junior. Are the HFZ and NI scores affecting students' psychologically (i.e. self esteem, self concept)? This study indicates that self esteem and other psychological factors may play a part in the adolescent obesity epidemic; consequently are we hindering students self esteem even more by indicating they 'Need Improvement' and by not providing incentives for making progress in their physical fitness levels.

As a result of this study, the researcher considered additional questions of interest. How do family dynamics affect overall student health? What effects, if any, does motivation have on student physical performance? How can sport pedagogy improve the physical education curriculum in the 21st century?

Recommendations for Further Research

Implementing 'Wellness' initiatives have become a common trend in society due to the increased obesity rates across the nation. At a time when our youths' health has become a major risk as evident by the implementation of numerous programs such as

NFLPlay60, Governors Challenge, and Let's Move, all of which were recently established to combat adolescent obesity. A time when schools are experiencing economic cutbacks, this researcher feels it is vital that the effects of physical fitness be further researched before physical education is further reduced or removed from schools and the education system as a whole.

Although controversial, this study promotes the premise that physical fitness enhances academic achievement. Whether it be from a psychological, physical or physiological standpoint additional research is needed to examine this issue. One may also find it important to examine the stressors of adolescent life and its' potential negative impact on adolescent obesity.

Investigating the possibilities of conducting same-gender physical education classes is another recommendation for future research (Felton, et al., 2005). One may also consider offering multiple sports allowing students to rotate amongst sports of interest as opposed to being enrolled in a general physical education class. For example, offering a volleyball class, softball class, dance, tennis and the like. Allowing students to select sports of interest could potentially improve and/or enhance physical activity. Although, financial aspects may present some difficulties in regard to equipment needs for multiple sports, as well as, the availability of facilities to accommodate multiple sports.

The current scoring scheme of the Physical Fitness Test may also be an area which would benefit from further research. Students are only rewarded with a passing score if they pass five or six of the possible six components. Should students not be

rewarded for passing four of six components, for example? Is there not merit in passing more than one component? The idea is to have students engage in physical exercise; therefore a reward system for student progress may be something to take into consideration to interest students which may increase participation. The threshold for passing the PFT may need further consideration. However, the Physical Fitness Test, like any other state test, requires cut off points for passing and not passing. Since the PFT is a measure of one's physical fitness this test provides a baseline for educators, parents and students so they are informed as to whether they need intervention and support, or they can maintain and/or continue at their current physical fitness level.

Socio-economic status appears to be a recurring theme in this study; therefore it may be of interest to explore socio-economic status in regard to parental education level and race/ethnicities. It is also interesting to note that differences existed among parent education levels, yet not in student enrollment of the National School Lunch Program. Although a baseline was established in this study, it is important in future researches to recognize the multitude of variables that may contribute to adolescent obesity and discern which intervention programs may prove successful.

Conclusion

The need to address the adolescent obesity epidemic is evident by this study and the numerous other studies that have examined this issue. It is important that educators, family members and policy makers understand the urgency of this matter. Physical education needs to take precedence in the 21st century. We need to demonstrate that physical fitness can make a difference in adolescents' lives now and in their future. The

life expectancy of youth has declined due to the obesity epidemic and therefore necessitates our attention.

The California Board of Education designated the FITNESSGRAM® as the designated measurement tool for the PFT to create an awareness of the physical levels of students. The implementation of the PFT provides a critical foundation for schools to address the adolescent obesity epidemic so programs and interventions to support at-risk adolescents can be implemented and executed.

As evident by this study it is not one factor alone that contributes to adolescent obesity, instead we must examine the multitude of potential factors that contribute to this epidemic for the overall health and fitness of adolescents today. This researcher is optimistic that this study will serve as an eye opener to increasing and promoting physical fitness and combating obesity by identifying students in need of additional interventions and bringing this issue to the forefront of parents, students and educators alike. Educators and policy makers need to empower our students and parents by providing the necessary resources to address the obesity epidemic that exists nationwide. As such, we must move swiftly, so as to not jeopardize the future of adolescents living an active and healthy lifestyle.

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APPENDIX A

Demographic Information Sheet

Demographic Information Sheet

Student Identification Number: __ __ __ __ __ __
(six digit number)

Gender: **O Male** **O Female** **(darken circle)**

Race/Ethnicity: **(darken circle that applies)**

O	**Hispanic**	**O**	**Black**
O	**White**	**O**	**American Indian**
O	**Asian**	**O**	**Pacific Islander**
O	**Filipino**	**O**	**Other**

Parent/Guardian Education Level: **(darken circle that applies)**

O	**Graduate School**	**O**	**High school graduate**
O	**College Graduate**	**O**	**Not a high school graduate**
O	**Some college**	**O**	**Unknown /declined to state**

In 9th grade were you enrolled in any of the following:
(darken all circles that apply)

O	**PE 1**	**O**	**ROTC**
O	**Marching Band**		

APPENDIX B

Children and Youth Physical Self-Perception Profile (CY-PSPP)

What I Am Like

ID#: _____ Age: _____ Grade: _____ Boy or Girl (circle which)

SAMPLE SENTENCE

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
(a)	☐	☐	Some kids would rather play outdoors in their spare time	**BUT**	Other kids would rather watch T.V.	☐	☐
1.	☐	☐	Some kids do very well at all kinds of sports	**BUT**	Other kids *don't* feel they are very good when it comes to sports.	☐	☐
2.	☐	☐	Some kids feel *uneasy* when it comes to doing vigorous physical exercise	**BUT**	Other kids feel *confident* when it comes to doing vigorous physical exercise.	☐	☐
3.	☐	☐	Some kids feel that they have a good-looking (fit-looking) body compared to other kids	**BUT**	Other kids feel that compared to most, their body *doesn't* look so good.	☐	☐
4.	☐	☐	Some kids feel that they *lack* strength compared to other kids their age.	**BUT**	Other kids feel that they are stronger than other kids their age.	☐	☐
5.	☐	☐	Some kids are *proud* of themselves physically	**BUT**	Other kids *don't* have much to be proud of physically.	☐	☐
6.	☐	☐	Some kids are often *unhappy* with themselves	**BUT**	Other kids are pretty *pleased* with themselves.	☐	☐
7.	☐	☐	Some kids wish they could be a lot better at sports	**BUT**	Other kids feel that they good enough at sports.	☐	☐
8.	☐	☐	Some kids have a lot of stamina for vigorous physical exercise	**BUT**	Other kids soon get out of breath and have to slow down or quit.	☐	☐
9.	☐	☐	Some kids find it *difficult* to keep their bodies looking good physically	**BUT**	Other kids find it *easy* to keep their bodies looking good physically.	☐	☐
10.	☐	☐	Some kids think that they have stronger muscles than other kids their age	**BUT**	Other kids feel that they have weaker muscles than other kids their age.	☐	☐

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
11.	☐	☐	Some kids *don't* feel very confident about themselves physically	**BUT**	Other kids really feel good about themselves physically.	☐	☐
12.	☐	☐	Some kids are *happy* with themselves as a person	**BUT**	Other kids are often *not* happy with themselves.	☐	☐
13.	☐	☐	Some kids think they could do well at just about any new sports activity they haven't tried before	**BUT**	Other kids are afraid they might *not* do well at sports they haven't ever tried.	☐	☐
14.	☐	☐	Some kids *don't* have much stamina and fitness	**BUT**	Other kids have *lots* of stamina and fitness.	☐	☐
15.	☐	☐	Some kids are *pleased* with the appearance of their bodies	**BUT**	Other kids wish that their bodies looked in better shape physically.	☐	☐
16.	☐	☐	Some kids *lack* confidence when it comes to strength activities	**BUT**	Other kids are very confident when it comes to strength activities.	☐	☐
17.	☐	☐	Some kids are very *satisfied* with themselves physically	**BUT**	Other kids are often *dissatisfied* with them-selvers physically.	☐	☐
18.	☐	☐	Some kids *don't* like the way they are leading their life	**BUT**	Other kids *do* like the way they are leading their life.	☐	☐
19.	☐	☐	In games and sports some kids usually *watch* instead of play	**BUT**	Other kids usually *play* rather than watch.	☐	☐
20.	☐	☐	Some kids try to take part in energetic physical exercise whenever they can	**BUT**	Other kids try to *avoid* doing energetic exercise if they can.	☐	☐
21.	☐	☐	Some kids feel that they are *often* admired for their good-looking bodies	**BUT**	Other kids feel that they are *seldom* admired for the way their bodies look.	☐	☐
22.	☐	☐	When strong muscles are needed, some kids are the *first* to step forward	**BUT**	Other kids are the *last* to step forward when strong muscles are needed.	☐	☐
23.	☐	☐	Some kids are *unhappy* with how they are and what they can do physically	**BUT**	Other kids are *happy* with how they are and what they can do physically.	☐	☐
24.	☐	☐	Some kids *like* the kind of person they are	**BUT**	Other kids often wish they were someone else.	☐	☐

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
25.	☐	☐	Some kids feel that they are *better* than others their age at sports	**BUT**	Other kids *don't* feel they can play as well.	☐	☐
26.	☐	☐	Some kids soon have to quit running and exercising because they get tired	**BUT**	Other kids can run and do exercises for a long time without getting tired.	☐	☐
27.	☐	☐	Some kids are *confident* about how their bodies look physically	**BUT**	Other kids feel *uneasy* about how their bodies look physically.	☐	☐
28.	☐	☐	Some kids feel that they are *not* as good as others when physical strength is needed	**BUT**	Other kids feel that they are among the *best* when physical strength is needed.	☐	☐
29.	☐	☐	Some kids have a positive feeling about themselves physically	**BUT**	Other kids feel somewhat negative about themselves physically.	☐	☐
30.	☐	☐	Some kids are very *happy* being the way they are	**BUT**	Other kids wish they were *different*.	☐	☐
31.	☐	☐	Some kids *don't* do well at new outdoor games	**BUT**	Other kids are *good* at new games right away.	☐	☐
32.	☐	☐	When it comes to activities like running, some kids are able to keep on going	**BUT**	Other kids soon have to quit to take a rest.	☐	☐
33.	☐	☐	Some kids *don't* like how their bodies look physically	**BUT**	Other kids are *pleased* with how their bodies look physically.	☐	☐
34.	☐	☐	Some kids think that they are strong, and have good muscles compared to other kids their age	**BUT**	Other kids think that they are weaker, and *don't* have such good muscles as other kids their age.	☐	☐
35.	☐	☐	Some kids wish that they could feel better about themselves physically	**BUT**	Other kids *always* seem to feel good about themselves physically.	☐	☐
36.	☐	☐	Some kids are *not* very happy with the way they do a lot of things	**BUT**	Other kids think the way they do things is *fine*.	☐	☐

Dr. Whitehead, 1995

APPENDIX C

Letter from Deputy Superintendent

ANTELOPE VALLEY JOINT UNION HIGH SCHOOL DISTRICT

44811 N. SIERRA HIGHWAY, LANCASTER, CALIFORNIA 93534-3226
(661) 948-7655

BOARD OF TRUSTEES
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DR. MICHAEL VALDIVIA
ASSISTANT SUPERINTENDENT
EDUCATIONAL SERVICES
MARK DEVANY
ASSISTANT SUPERINTENDENT
PERSONNEL SERVICES

November 9, 2009
BSO/061

Pepperdine University
Institutional Review Board
24255 Pacific Coast Highway
Malibu, CA 90263

Re: Karen Mobilia-Jones
Dissertation Research Study

To Whom It May Concern:

I grant approval for Mrs. Karen Mobilia-Jones to conduct her dissertation research study at William J. "Pete" Knight High School during the 2009 -2010 school year regarding the Physical Fitness Test. Mrs. Mobilia-Jones has been an employee of the Antelope Valley Union High School District for over 12 years. She will have access to students, facilities and any data needed to assist her in completing the requirements for her doctoral degree. I understand she will be providing information in regard to the study to parents and will receive the necessary parent permission slips.

Should you have any questions, please feel free to contact me (661) 948-7655.

Sincerely,

Jeffery E. Foster
Deputy Superintendant

APPENDIX D

Letter from Principal of Knight High School

Susan McDougal, Ph.D.
Principal

Knight High School

Antelope Valley Union High School District

November 9, 2009

To Whom It May Concern:

As Principal of William 'J' Pete Knight High School, I give Karen Mobilia-Jones permission to conduct the study for her dissertation on our campus. Mrs. Mobilia-Jones is very familiar with our school and I understand she will be researching our students' performance on the Physical Fitness Test. She will be given access to our students, any facilities she may need, and our data bases throughout the second semester of the 2009 – 2010 school year, to assist her in meeting the requirements for the doctoral degree at Pepperdine University.

If you have any questions, please feel free to contact me (661) 533-9000 ext. 184.

Sincerely,

Dr. Susan McDougal

Susan McDougal, Ph.D.
Principal
William 'J' Pete Knight High School
Antelope Valley Union High School District

37423 70th St. East - Palmdale, California 93552
(661) 533-9000 - FAX: (661) 533-0111

APPENDIX E

Permission Slip (English)

Knight High School
37423 70th Street East
Palmdale, CA 93552
Phone (661) 533-9000 Fax (661) 533-0111

Physical Fitness Test Information & Parent/Guardian Consent

In January 2008, California mandated that students in grade nine be required to pass the Physical Fitness Test as measured by the *FITNESSGRAM®*. Your son/daughter participated in the PFT last school year through their Physical Education (PE 1) class. Students that did not pass the PFT will be given the opportunity to take the test again during the second semester of tenth grade through their PE 2 class.

The results of the PFT were designed to assist students in understanding their individual levels of fitness. Students were encouraged to talk about these results with their parents/guardians and their physical education teacher. Parents and guardians can use these results to help their students plan appropriate fitness activities. Results of the PFT are distributed for public view on the cde website pft@cde.ca.gov.

As part of a dissertation study, I, Karen Mobilia-Jones, Assistant Principal, am interested in conducting a survey with all KHS tenth grade students that previously participated in the PFT during their ninth grade school year at KHS. Students will be first asked to complete a demographic information sheet to obtain gender, student identification number, ethnicity, parent education level and ninth grade PE information followed by the Children and Youth Physical Self Perception Survey (CY-PSPP) which will be used as the survey instrument tool utilizing the Survey Monkey software platform. All information obtained from the study will remain confidential as students will only be identified by their KHS identification number (except as noted below to indicate consent for son/daughter). The survey will be conducted during the students assigned PE class period in January/February 2010. Students will be escorted by their PE teacher to the computer lab at KHS to conduct the study. Participation in this study will in no way affect the students' grade in their PE class. Participants will experience very minimal risks which will be no greater than what they may experience in their daily lives as students.

The CY-PSPP survey will be comprised of 36 questions based on students' perceptions of physical fitness. The purpose of the survey is to confidentially assess tenth grades students' perceptions of their physical fitness in relation to the PFT. The results of the survey will assist this researcher and educators in addressing how they can best assist future students in the area of physical fitness. Findings from this study will be retained for five years as required and may be used by only this researcher for further studies.

Your permission for your son/daughter to participate in this survey will be greatly appreciated. When permission is granted students will then be asked for their consent to partake in the study at the time of the survey. Should you have further questions please contact me at (661)718-3100 x 133. Your signature below indicates you are authorizing consent for your son/daughter to participate in the survey described above.

I hereby give my consent for _____ *to participate in the*
(Print student name)
survey described above.

*X*_____

Signature of Parent/Guardian ***Date***

APPENDIX E

Permission Slip (Spanish)

Knight High School
37423 70th Street East
Palmdale, CA 93552
Telefono (661) 533-9000 Fax (661) 533-0111

Informacion de la Prueba de Forma Fisica y Consentimiento de Padre/Tutor

En enero 2008, California puso bajo el mandato que estudiantes en el grado nueve son requeridos a pasar la prueba de la forma física como medida por el FITNESSGRAM. Su hijo/hija tomó parte en el PFT en el último año escolar en su clase de educación física (PE 1). Los estudiantes que no pasaron el PFT se les dara la oportunidad de tomar la prueba otra vez durante el segundo semestre de décimo grado en su clase de PE 2.

Los resultados del PFT fueron diseñados para ayudar estudiantes en la comprensión de sus niveles individuales de la salud. Los estudiantes fueron animados a hablar de estos resultados con sus padres/tutores y su maestro de educación física. Los padres y tutores pueden utilizar estos resultados para ayudar a sus estudiantes a planear actividades apropiadas. Los resultados del PFT son distribuidos para la vista pública en el sitio web de cde pft@cde.ca.gov.

Como parte de un estudio de disertación, yo, Karen Mobilia-Jones, la Subdirectora, estoy interesada en llevar a cabo una encuesta con todo los estudiantes del décimo grado en KHS que previamente tomaron parte en el PFT durante su noveno año en KHS. Se les pedira a los estudiantes, primero completar una hoja demográfica informativa para obtener el sexo, número de identificación del estudiante, la etnicidad y el nivel de la educación del padre seguidos por los Niños y la Juventud Auto Inspección Física de la Percepción (conosido como Children and Youth Physical Self Perception Survey (CY-PSPP)) que será utilizado como el instrumento de encuesta que utiliza la plataforma de software de Survey Monkey. Toda la información obtenida del estudio se quedará confidencial como estudiantes sólo serán identificados por su número de identificación de KHS (sino como notado debajo que indica consentimiento de la hijo/hija). La encuesta será realizada durante la clase asignada de PE en enero/febrero de 2010. Los estudiantes serán acompañados por su maestro de PE al laboratorio de computacion en KHS para realizar el estudio. La participación en este estudio no afectara de ninguna manera el grado de los estudiantes en su clase de PE. Los participantes experimentarán riesgos muy mínimos que serán no más que lo que ellos pueden experimentar en sus vidas diarias como estudiantes.

La encuesta de CY-PSPP constara de 36 preguntas basadas en las percepciones de los estudiantes de la prueba de forma física. El propósito de la encuesta es de valorar confidencialmente las percepciones de los estudiantes de décimo grado de su forma física en relación con el PFT. Los resultados de la encuesta ayudarán a los investigadores y educadores para ellos poder ayudar a mejorar futuros estudiantes en el área de la forma física. Las conclusiones de este estudio serán retenidas durante cinco años como necesario y pueden ser utilizados por el investigador para estudios adicionales.

El permiso para que su hijo/hija tome parte en esta encuesta será apreciada. Cuándo el permiso sea otorgado, a los estudiantes se les pedira su consentimiento para tomar parte en el estudio en el momento de la encuesta. Si tiene alguna pregunta por favor de comunicarse al (661)718-3100 X 133. Su firma debajo indica que usted autoriza que su hijo/hija tome parte en la encuesta descrita arriba.

Yo doy consentimiento para _____ *que participe en la*
(Nombre del Estudiante)
encuesta descrita arriba.

*X*_____
Firma de Padre/Tutor ***Fecha***

APPENDIX F

Student Informed Consent

Student Informed Consent

Read aloud by researcher and handed out to students at time of survey:

My name is Mrs. Mobilia-Jones. I am conducting a research survey of all tenth grade students and I am here to ask for your help. If you would be prepared to help us find out some very important information about how kids of your age feel, I would be very grateful.

You do **not** have to help if you don't want to. If you don't want to help it won't be held against you in any way. If you don't wish to fill out the questionnaires (that are about to be given out), you can just sit quietly and study while the others complete them--or you can hand in a blank questionnaire at the end. Nobody will ever know that you didn't do it. You will notice that you **don't** put your name on the questionnaire. This is to make sure the answers are kept private and confidential. Only **I** will ever get to look at this sheet. Neither your teachers' nor anybody else would be able to identify your answers even if they were allowed to see the finished questionnaires--which they won't! Nobody else will ever know if you volunteered to help or not. I will keep all the information **completely confidential** so that none of you need worry about being embarrassed in any way. The entire survey will take approximately the entire class period. You will experience very minimal risks which will be no greater than what they may experience in their daily lives as students.

Because the information will be kept completely confidential you should not hesitate to be absolutely honest in your answers. In fact, because it is perfectly natural for people to be different from one another, there are no right or wrong answers to any of the questions. If you really feel that you cannot answer according to how you truly feel, then leave the questionnaire blank. Nobody will know.

Your parent or guardian has already signed a permission slip granting you permission to be here to conduct this survey today. However, I want to be sure that you are willing to voluntarily participate in this survey as well. If you are still interested in participating in the survey please print and sign your name below. I will pick up this Informed Consent form once the survey gets underway so if you choose not to voluntarily participate you may leave this form blank and sit quietly and no one will know that you chose not to participate. Thanks for listening to my introduction.

_____ _____

KHS Identification Number *Date*

Dr. Whitehead, 1995

APPENDIX G

Tele-Parent Script (English and Spanish)

Good evening, my name is Mrs. Mobilia-Jones, Assistant Principal, and I am interested in conducting a survey with all KHS tenth grade students that previously participated in the Physical Fitness Test during their ninth grade school year at KHS. The Children and Youth Physical Self Perception Survey (CY-PSPP) will be used as the survey instrument tool utilizing the Survey Monkey software platform. All information obtained from the study will remain confidential as students will only be identified by their KHS identification number. The survey will be conducted during the students assigned PE class period in January/February 2010. Students will be escorted by their PE teacher to the computer lab at KHS to conduct the study. Participation in this study will in no way affect the students' grade in their PE class and is completely voluntary. Students will experience very minimal risks which will be no greater than what they may experience in your daily lives as students.

Students will be asked for their consent to participate in the study and read instructions. Students will then be asked to complete a demographic information sheet to obtain gender, student identification number, ethnicity and parent education level followed by the survey which is comprised of 36 questions based on students' perceptions of physical fitness. The purpose of the survey is to confidentially assess tenth grades students' perceptions of their physical fitness in relation to the PFT. The results of the survey will assist this researcher and educators in addressing how they can best assist future students in the area of physical fitness. Findings from this study will remain secure and confidential. Students will be taking home permission slips in the next couple of days to be returned within the next five school days. Your participation will be very much appreciated!

Buenas noches, soy la Sra. Mobilia-Jones, la Subdirectora, estoy interesada en llevar a cabo una encuesta con todo los estudiantes del décimo grado en KHS que previamente tomaron parte en la Prueba de Forma Fisica durante su noveno año en KHS. Los Niños y la Juventud Auto Inspección Física de la Percepción (CY-PSPP) será utilizado como el instrumento de encuesta que utiliza la plataforma de software de Survey Monkey. Toda la información obtenida del estudio se quedará confidencial como estudiantes sólo serán identificados por su número de identificación de KHS. La encuesta será realizada durante la clase asignada de educacion fisica en enero/febrero de 2010. Los estudiantes serán acompañados por su maestro de educacion fisica al laboratorio de computacion en KHS para realizar el estudio. La participación en este estudio no afectara de ninguna manera el grado de los estudiantes en su clase de educacion fisica y es completamente voluntario. Los participantes experimentarán riesgos muy mínimos que serán no más que lo que ellos pueden experimentar en sus vidas diarias como estudiantes

Se les pedira a los estudiantes su consentimiento para tomar parte en el estudio y leer instrucciones. Los estudiantes entonces serán pedidos completar una hoja informativa demográfica para obtener el sexo, número de identificación de estudiante, la etnicidad y el nivel de la educación del padre seguido por la encuesta que constara de 36 preguntas basadas en las percepciones de los estudiantes de la prueba de forma física. El propósito de la encuesta es de valorar confidencialmente las percepciones de los estudiantes de décimo grado de su forma física en relación con el PFT. Los resultados de la encuesta ayudarán a los investigadores y educadores para ellos poder ayudar a mejorar futuros estudiantes en el área de la forma física. Las conclusiones de este estudio se quedarán seguro y confidencial.

APPENDIX H

Instructions to the Children

Instructions to the Children

The first page is entitled Demographic Information Sheet. Please write in your six digit identification number. Next please fill in the circle that best describes your gender, ethnicity, to the best of your knowledge your parent/guardian education level, and PE class(es) enrolled in during 9th grade.

As you can see from the sentences, and the top of the sheet where it says "What I Am Like," we are interested in what each of you is like, what kind of a person you are like. This is **not** a test. There are **no right or wrong answers**. Since kids are very different from one another, each of you will be putting down something different.

First let me explain how the questions work. There is a sample question at the top marked (a). I'll read it aloud and you follow along with me. . . This question talks about two kinds of kids, and we want to know which kids are most like *you*.

1. So, what I want you to decide first is whether *you* are more like the kids on the left side who would rather play outdoors, or whether you are more like the kids on the right side who would rather watch T.V. Don't mark anything yet, but first decide which kind of kid is *most like you*, and go to that side of the sentence.

2. Now, the *second* thing I want you to think about, now that you have decided which kind of kids are most like you, is to decide whether that is only *sort of true for you*, or *really true for you*. If it's only sort of true, then put an X in the box under sort of true; if it's really true, then put an X in that box, under really true.

3. For each sentence you only check **one** box. Sometimes it will be on one side of the page, another time it will be on the other side of the page, but you can only check *one box* for each sentence. You don't check both sides, just the *one* side most like you.

4. OK, that one was just for practice. Now you can do the other sentences yourselves.
   For each one, just check one box, the one that goes with what is true for you, what you are most like.

Dr. Whitehead, 1995

APPENDIX I

PFT Results and Individual Components

PFT Results & Individual Components

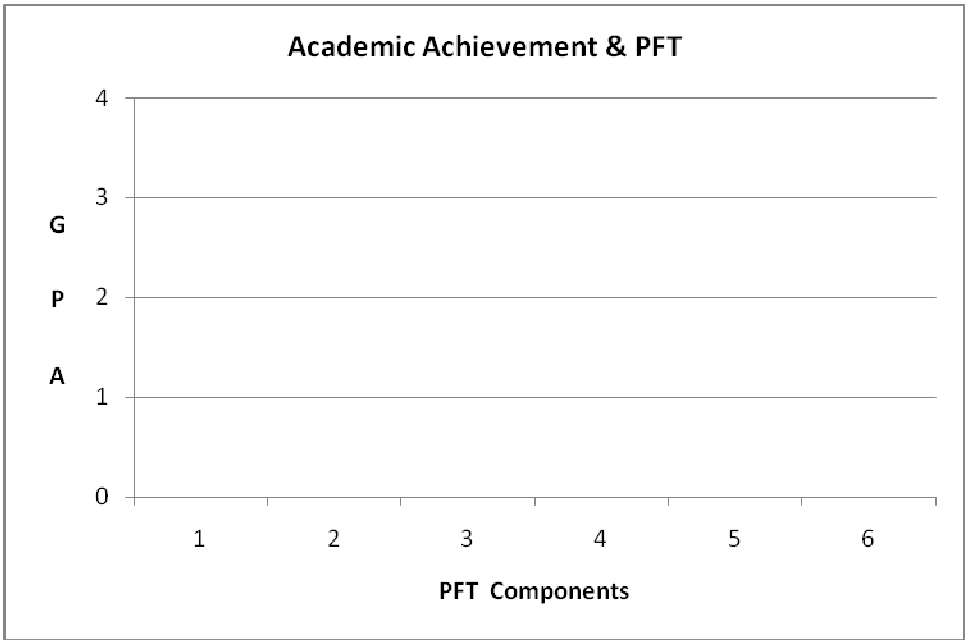
Components		Overall PFT results *Passed*	Overall PFT results *Failed*
1	Pass		
	Fail		
2	Pass		
	Fail		
3	Pass		
	Fail		
4	Pass		
	Fail		
5	Pass		
	Fail		
6	Pass		
	Fail		

Components	Passed all 6	Passed 5	Passed 4	Passed 3	Passed 2	Passed 1	Passed 0
1							
2							
3							
4							
5							
6							

APPENDIX J

PFT Components and Academic Achievement

PFT Components & Academic Achievement



APPENDIX K

PFT Components and Demographics

PFT Components & Demographics

Demographics	Passed all 6	Passed 5	Passed 4	Passed 3	Passed 2	Passed 1	Passed 0
Ethnicity							
Black							
Hispanic							
Caucasian							
Other							
Parent Ed Level							
Grad School							
College Grad							
Some College							
High School Grad							
Not a high school grad							
Unknown							
F/R Lunch							
Yes							
No							
Gender							
Male							
Female							

APPENDIX L

CY-PSPP and PFT Results