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A Comparison of High School Physical Education and Junior Reserve Officer Training Corps

Kathryn Anne Holt
University of Nevada, Las Vegas

A COMPARISON OF HIGH SCHOOL PHYSICAL EDUCATION AND JUNIOR RESERVE OFFICER TRAINING CORPS

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Kathryn Anne Holt

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Jerry Landwer, Committee Member

Antonio Santo, Committee Member

Sheniz Moonie, Graduate College Representative

Ronald Smith, Ph. D., Vice President for Research and Graduate Studies
and Dean of the Graduate College

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ABSTRACT

A Comparison of High School Physical Education and Junior Reserve Officer Training Corps

by

Kathryn A. Holt

Dr. Monica Lounsbery, Examination Committee Chair
Professor of Sports Education Leadership
University of Nevada, Las Vegas

Physical education is recommended for its potential to promote and provide physical activity. However, in high school settings students can commonly participate in other specified physical activity related programs in lieu of physical education and these programs are referred to as physical education waivers. Junior Reserve Officer Training Corps (JROTC) is a common physical education waiver program. Although the criteria used to establish JROTC as a waiver program for physical education is unclear, anecdotally similar accrual of physical activity appears to be a main rationale. The primary purpose of this study was to examine student physical activity levels, lesson contexts, and the promotion of physical activity outside of class time in physical education and JROTC. The secondary purpose was to describe curricular goals and objectives in physical education and JROTC. Forty high school physical education lessons and 40 JROTC lessons from four high schools were systematically observed using the System for Observing Fitness Instruction Time (SOFIT). Data were analyzed using descriptive statistics to describe physical activity levels, lesson contexts, and the time teachers spent promoting physical activity outside of class time in physical education and JROTC lessons. Results showed that students were engaged in moderate to

vigorous physical activity (MVPA) 60% of time in physical education and 24% of the time in JROTC. Additionally, promotion of physical activity outside of class time was minimal in both settings but much greater in JROTC (23 times) than in physical education (3 times). Furthermore, physical education and JROTC programs contrasted greatly relative to course syllabi goals, objectives and policies.

Physical education and JROTC had more differences than program similarities. The most critical difference was that students in physical education were engaged in MVPA three times as much than students in JROTC. The fee structure in physical education was fairly consistent, around $20.00, and the fees in JROTC ranged from $15.00 to $50.00 with additional fees that would occur throughout the course of the school year. Program cost differences may default lower SES students to enrollment in physical education while, higher SES students have opportunity to choose waiver options. Policy requiring annual program evaluation and teacher professional development in physical education and JROTC would likely promote optimal PA outcomes.

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INTRODUCTION

Background

Physical activity is defined as bodily movement that produces skeletal muscle contraction that substantially increases energy expenditure (Brownson, Boehmer, & Luke, 2005). Physical activity is essential for all ages and can help decrease the detrimental health-related problems associated with physical inactivity. There has been an increasing prevalence of cardiovascular disease, Type 2 diabetes and hypertension in the United States and specific recommendations have been made for children and adults with regard to physical activity. It is recommended by the *2008 Physical Activity Guidelines for Americans* that children and adolescents accumulate 60 or more minutes of physical activity per day (USDHHS, 2008). By participating in physical activity daily, children and adolescence can not only benefit from a healthful lifestyle but can also decrease their risk for obesity.

Children and adolescents are becoming more physically inactive primarily due to technological advances (i.e., computer time, video games, and television viewing) and a decrease in physical activity opportunities. This sedentary behavior mainly involves sitting and low levels of energy expenditure (Owen, Healy, Matthews, & Dunstan, 2010). Because of this sedentary behavior, there has been a decline in young people's habitual physical activity levels (Fairclough & Stratton, 2005).

In nearly all 50 states, physical education is available to all students. For many students, physical education may be the only opportunity for physical activity during the day. Physical education can help provide the recommended minutes towards daily

physical activity time. In the secondary school setting, it is recommended that schools provide 225 minutes of physical education per week (NASPE & AHA, 2010) with 50 percent of the lesson time spent engaged in moderate to vigorous physical activity (MVPA). In high school settings, students can commonly participate in other specified physical activity related programs in lieu of physical education and these programs are referred to as physical education waivers.

Physical education waivers are allowed to be granted to students if they wish to participate in high school programs such as Junior Reserve Officer Training Corps (JROTC), marching band and varsity sports. According to the *2010 Shape of the Nation Report*, forty-five states mandate high school physical education and thirty states grant exemptions/waivers for physical education time or credit (NASPE & AHA, 2010). These results have increased since the *2001 Shape of the Nation Study* when 27 states allowed waivers for participation in athletics, ROTC, marching band and other activities (Mears, 2010). Of the forty-five states that require high school physical education, thirty-eight of the states specify the number of credits required for graduation. Twelve states require 0.5 credit, fifteen states require 1 credit, three states require 1.5 credits and seven states require 2 credits for graduation (NASPE & AHA, 2010). Even though there are credit requirements for physical education, waivers are commonly viewed as an acceptable physical education credit.

Unfortunately, there have been no published studies that have examined physical education and JROTC lessons and therefore, a clear understanding of the physical activity levels in each of these settings is unknown. By examining both JROTC and

physical education lessons, a greater understanding of the bases for waiving physical education credit requirements for students who enroll in JROTC may be established.

Research Problem

According to 2009 Youth Risk Behavior Surveillance System (YRBSS) data, only 33.3% of students went to physical education classes all days of the week when they were in school (YRBSS, 2010). It may be that with the introduction of waivers, fewer students opt to take physical education for two years and instead, take an alternative experience like JROTC for example.

It is interesting that waivers for physical education are commonplace yet, little is known about the comparability of some programs and in particular, JROTC. When waivers are in allowed in high schools, what criteria are used that allows course equivalents? There are no published research studies that described physical education to JROTC. Therefore, this study describes the programmatic goals and physical activity levels of physical education and JROTC.

Statement of Purpose

The primary purpose of this study was to examine high school physical education and JROTC lesson physical activity levels, lesson contexts and teacher promotion of physical activity using direct observation. This study also examined the curricular goals and objectives for physical education and JROTC.

Research Questions

The following research questions were examined in both the high school physical education and JROTC:

1. What are the physical activity levels, lesson contexts and the promotion of physical activity outside of class time in physical education and JROTC?

2. What are the stated curricular goals and objectives of physical education and JROTC?

Significance

Physical education waivers allow students to participate in alternative experiences to fulfill graduation requirements. By directly observing individual physical education and JROTC lessons and answering the research questions, the results will shed light on the program's comparability and the data resulting from the study can be used to inform policies on physical education waivers.

Limiting Factors

Scope

The scope of the study was to directly observe high school physical education and JROTC lessons in one school district at four high schools for five days of the week. A total of 80 lessons were observed and data were collected using the System for Observing Fitness Instruction Time (SOFIT). The goal was to obtain a representative sample of both physical education and JROTC lessons. Student physical activity levels, lesson contexts and teacher promotion of physical activity outside of class time was recorded and analyzed. Results were then described for physical education and JROTC lessons accordingly.

Assumptions

Assumptions of this study are:

1. SOFIT lesson categories (i.e., physical activity levels, lesson contexts and the

promotion of physical activity levels outside of class) are valid for both physical education lessons and JROTC lessons.

2. The SOFIT data collection methods are appropriate for both physical education and JROTC lessons.

3. Eighty lessons will provide an accurate representation of the physical education and JROTC setting.

4. Observer reactivity is a limiting factor due to a trained observer observing the lesson as it normally occurs. Students and teachers may respond differently knowing that someone is watching them. Observers will be as discrete as possible and limit interactions with the teacher and students.

5. Stated goals in course syllabi provided by the instructors of physical education and JROTC represent the general physical education and JROTC curricular goals.

Limitations

The study is limited by:

1. Description of instructional goals in both physical education and JROTC are limited by teacher preference bias and what is outlined the course syllabus.

2. SOFIT data are limited by the nature of momentary time sampling in that data are only recorded during a specific moment in time. Ten second observe and record intervals will be used. Promotion of physical activity outside of class time uses partial interval recording so that if promotion occurs once or many times during the 10 second observe interval, one instance of physical activity promotion will be recorded.

3. The study was limited by the time of data collection, which allowed for a total of 80 lessons, 40 physical education and 40 JROTC lessons to be observed using SOFIT.

4. Data collection was limited to one week for each teacher. Even though this was a limitation, we should be able to obtain a representative sample of lessons observed.

5. School participation selection was limited to 4 CCSD high schools that were on the normal six period a day schedule. While a limiting factor, this allowed for consistency within each lesson because each lesson was approximately 50-54 minutes in length, rather than block scheduling with approximately a lesson length of 90 minutes every other day.

Operational Definitions

1. System for Observing Fitness Instruction Time (SOFIT) – a direct observation instrument designed to assess variables associated with students' activity levels and opportunities to be physically fit (McKenzie, Sallis, & Nader, 1991).

2. Interval – Alternately "observe" and "record" during 10-second intervals yielding 3 observations per minute. Observe for student level of activity, lesson context, and instructor interaction during the "observe" interval and record the results during the record interval (McKenzie, 2009). Each interval equals one line of data and 20 seconds of the lesson.

3. Momentary time sampling – Coding physical activity level and lesson context to indicate what the student is doing at the "record" prompt (McKenzie, 2009).

4. Partial interval recording – Recording the promotion of physical activity outside of class time if it occurs at any time during the 10-second observation interval (McKenzie, 2009).

5. Bell schedule – The time allocated for each class period in the school setting.

6. Lesson Context – Coding how the lesson content is being delivered: management, knowledge, fitness, skill drill, game play and other (McKenzie, 2009).

CHAPTER TWO

REVIEW OF LITERATURE

Childhood and Adolescent Obesity

There has been a sharp increase over the past decades in the prevalence of children and adolescents who are classified as either overweight or obese. From 1976-2008, the occurrence of obesity in adolescents, aged 12-19, have increased from 5.0% to 18.1% (Ogden & Carroll, 2010). Those who are considered overweight or obese are at an increase risk for many diseases including cardiovascular disease, Type 2 diabetes and hypertension (Malina, Bouchard & Bar-Or, 2004). These diseases, which are often found in adults, have now been identified as risk factors in children as young as eight years of age. Unfortunately, obesity has been found to track into adulthood (Serdula, Ivery, Coates, Freedman, Williamson & Byers, 1993).

According to the World Health Organization, physical inactivity has become one of the top five leading risk factors associated all cause mortality (WHO, 2009, p. 9). By learning about the importance of being physically active early in life, the incidence of obesity could decline. If children and adolescents are made aware of the importance of physical activity now and in the future, then preventative measures can be taken to reduce the likelihood of being obese later in life.

Considering that more children and adolescents are becoming overweight and obese, there is a great need to study physical activity opportunities within the school setting, especially in the high school setting where more students are at risk of being physically inactive. High school students are given opportunities to be physically active in their physical education class but most students are not required to take physical

education or may opt to participate in an alternative experience that can count as physical education credit. When this occurs, the curricular focus and the level of physical activity and education the students receive relative to their overall health and wellbeing is unknown.

Therefore, this study examined both physical education and the alternative experience, JROTC, at the lesson level. By examining physical education and JROTC lessons' content focus, student physical activity levels, lesson contexts and teacher promotion of physical activity outside of class time, a greater understanding became available as to what actually occurs during these lessons.

This chapter will provide a review of literature pertinent to the study. The review will first address the current status of physical activity. This section will be divided into two segments: physical activity guidelines and youth physical activity. Following physical activity, the literature review will address physical education in schools by explaining importance of the subject area, physical education standards and the role of waivers in physical education. The history of JROTC will then be addressed along with the program's purpose. The information that will be provided in the following sections will make the case for the need to study high school physical education waiver programs.

Physical Activity

Physical Activity Guidelines

Physical activity is defined as bodily movement that produces skeletal muscle contraction that substantially increases energy expenditure (Brownson, Boehmer, & Luke, 2005). Guidelines have been established for every age group by the U.S. Department of Health and Human Services. Children and adolescents should accumulate 60 or more

minutes of physical activity a day. Of this time, an emphasis should be placed on aerobic activity, muscle-strengthening and bone-strengthening exercises on at least three days per week (USDHHS, 2008b). Regular physical activity not only enhances the health and wellbeing of individuals, it also reduces the risk for all-cause mortality and the development of chronic diseases among adults (Lowry, 2001). Many studies that focus on physical activity examine the adult population and there has been little representation with children and adolescents. It is known however that physical activity at a young age can be helpful in the prevention of obesity and the comorbid conditions that are associated with a physically inactive lifestyle (Washington, 2009).

Youth Physical Activity

The past six decades have brought about new waves of technology. From the introduction of televisions in the 1950's to the Nintendo 3DS handheld video game in 2011, the United States has seen a sharp decline in physical activity levels among all populations, especially children and adolescents. This lack of physical activity, otherwise known as sedentarism, involves sitting and low levels of energy expenditure (Owen, Healy, Matthews, & Dunstan, 2010). Too much sitting can be detrimental to one's health and can be linked to the increase incidence of obesity. In a study conducted by Dietz and Gortmaker (1985), they found that with each hour of television viewing time, 12-17 year olds increased in prevalence of obesity. McElroy (2008) found that the prevalence of obesity has been shown to increase by 2% for each additional hour of average daily television watching among adolescents. With the advances in technology, most children and adolescents are choosing to be physically inactive which can result in unfavorable health conditions.

A recent report published by the Centers for Disease Control and Prevention provided information relative to the overall physical activity engagement of adolescents as well as, how often high school students participated in physical education. The Youth Risk Behavior Surveillance System (YRBSS) in 2009 found that 32.8% of high school students played video games, used a computer or watched three or more hours of television a day (CDC, 2010). The YRBSS also indicated that 23.1% of students did not participate in at least 60 minutes of physical activity on any day during the 7 days before the survey (CDC, 2010). Additionally, 81.6% of the students surveyed were not physically active for at least 60 minutes on all 7 days of the week (CDC, 2010). As one can conclude, there is a need to decrease the television viewing time and increase the amount of physical activity and physical education opportunities available for adolescents.

Many other factors likely contribute to the decline in physical activity among adolescents. These factors can consist of a parent's work schedule and a decrease in the amount of available community resources for physical activity (McElroy, 2008). When both parents work or if children and adolescents are raised by a single parent, there is a need for those parents to provide the basic necessitates for the family. Studies have shown that there is a positive association between maternal employment and childhood obesity rates (Anderson, Butcher, & Levine, 2003). Parental work hours may have an impact on both the quality and quantity of time parents are able to spend with their children (Benson & Mokhtari, 2011). The perceptions of neighborhood safety also play a role with physical activity time accrual. There tends to be high anxiety with regards to neighborhood safety, especially in inner city communities (Weir, Etelson, & Brand, 2006). Because of this perception of safety, parents may not allow their children or

adolescents to be physically active outside or in the park setting. Therefore, because of the parent's work schedule and safety perceptions of the community in which they live, the amount of time children and adolescents can be physically active is minimal. Children and adolescents need more outlets to be physically active and the school setting is one place where they can accumulate time towards the recommended daily amount of physical activity.

Even though schools can provide minutes of physically activity, there has been a shift in focus for schools to be more test-based. Schools have a changed their focus to now meet Adequate Yearly Progress (AYP) because of the No Child Left Behind Act. This act has viewed physical education, music and art as nonessential or secondary to the core subjects (Trost & van der Mars, 2010). When administration makes academic achievement the main outcome, enrollment requirement or course offerings in non-core programs like physical education are frequently reduced. Yet, a recent review of the research literature by Trost and van der Mars (2010) concluded that regular physical activity and physical fitness are associated with higher levels of academic performance and that physical activity is beneficial to general cognitive functioning. Therefore, if the schools limit the amount of time students can be physically active, they may be compromising academic achievement.

Physical activity has the potential to decrease the various health risks associated with being overweight and obese. With the current state of physical activity and physical inactivity with today's youth, there is a great need to study physical activity opportunities within the school setting. Even though recommendations have been made for physical

activity time, many barriers need to be overcome to ensure the health and wellbeing of all students is being met.

There are many behaviors that are associated with being physically active and specific settings can either promote or prohibit physical activity. Ecological approaches have identified that the school environment and the physical education program are behavior settings that can promote active living (Sallis, Cervero, Ascher, Henderson, Kraft, & Kerr, 2006). These settings can have a profound impact on influencing the amount of time for physical activity. Written policies on physical education time or credit, or the use of physical education waivers can have an impact on targeting healthy behaviors. By altering physical education programs, changes in policies could have a positive impact on the students' environment and in turn, increase their physical activity time (Sallis, Bauman, & Pratt, 1998).

Physical Education

Importance of Physical Education

Physical education can provide students with a significant proportion of the 60 minutes of daily recommended physical activity. Physical education has the potential to reach every school-aged student and provide them the generalizable movement skills needed to lead a physically active lifestyle (McKenzie & Lounsbery, 2009). School physical education programs can impact the health of children by emphasizing lifelong physical activities that can not only enhance health-related fitness, but also provide students with the knowledge, motor skills, and attitudes they need to adopt an active lifestyle (Lowry, 2001). As stated by Lowry (2001), high-quality physical education

programs in the high school setting have the potential to slow this age-related decline in physical activity and help students establish lifelong healthy physical activity patterns.

Physical Education Standards

The National Association for Sport and Physical Education (NASPE) created guidelines and standards for physical education. It is recommended that instructional periods for physical education in secondary schools total 225 minutes per week (NASPE, 2004). Unfortunately, as students matriculate through high school, their enrollment in physical education decreases. In 9th grade, 46.7% of students attend physical education daily. At the 12th grade level, the percentage of students who attend physical education daily decreases to only 22.4% (CDC, 2010).

The goals of physical education are to prepare individuals to lead a physically active and healthful lifestyle through the development of physical competence, health-related fitness, cognitive understanding, and a positive attitude toward physical activity (NASPE, 2003). The standards set forth by NASPE are for grades kindergarten through twelfth. The standards were created to reflect the current thinking of what students should know and be able to do as a result of a quality physical education program from kindergarten through twelfth grade. The six national standards for physical education are (NASPE, 2004):

Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.

Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

Standard 3: Participates regularly in physical activity

Standard 4: Achieves and maintains a health-enhancing level of physical fitness.

Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings

Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Each standard has specific student expectations for each grade level. The select standards are implemented and assessed in the physical education lesson. All the standards are directed towards enhancing the student's overall physical education experience relative to their health and wellbeing.

There are challenges however within physical education that needs to be addressed. Even though standards have been identified in physical education, the standards are very broad and physical educators can teach anything and substantiate their lesson though the standards. McKenzie and Lounsbery (2009) identified that physical education has been criticized because it has a 'muddled mission' and so many objectives. The curricular focus in one physical education class can be vastly different than the curricular focus in another physical education class. There is a need to legitimize physical education as an education curriculum (McKenzie & Lounsbery, 2009). Doing so would have the potential to increase the awareness of the importance of such a subject area.

More information is needed to understand the function of physical education at the high school level. A majority of the research studies examine physical education at the elementary and middle school levels and few studies have examined high school physical education. There is a need to learn not only more about high school physical

education but also its acceptable wavier programs. There is a need for research to be conducted to assess high school physical education lessons. Particular areas of interest would be physical activity levels, lesson content, and the promotion of physical activity outside of the school setting, in order to gain a better understanding of what typically occurs in physical education and how the program goals relate to the student's overall health and wellbeing.

Waivers

Identification of literature on physical education waiver programs was pursued though various online resources such as: Academic Search Premier, EBSCO, ERIC, Google Scholar, and PubMed. Commonly searched words included: physical education waivers, substitutions, physical education exemptions, Junior Reserve Officer Training Corps and JROTC, educational waivers and high school waivers. After the review on waivers, it was determined that very little is known about the waiver process within the school setting. Even less was known about waivers for physical education. Additional correspondence was then made with representatives from the American Alliance of Health, Physical Education, Recreation and Dance (AAHPERD) to try to gain information on waiver status. In a personal correspondence with J.C. Young (personal communication, December 2, 2010), Vice President for Programs from AAHPERD, the inception of physical education waiver programs occurred around the 1950s -1960s when students were not able to participate in physical education due to physical disabilities. J.C. Young (2010) explained that students brought in notes from their parents requesting exemption from physical education. Over the years, waivers have become a common practice within the school setting, especially within physical education. As described by

J.C. Young (2010), there is a “major misunderstanding why students should take physical education.” This misunderstanding has clouded the vision of why students need physical education and why students need to be physically active in school. Physical education may be the only outlet where students can be physically active during the day and it may be the only subject area that emphasizes lifelong fitness. When students are waived from physical education, they may run the risk of being physically inactive and not meeting the recommended 60 minute a day of physical activity.

Waivers and substitutions for physical education at the high school level have increased and have allowed such alternative experiences such as JROTC, marching band, varsity athletics and cheerleading to count as physical education credit (NASPE, 2010). *The Shape of the Nation Report* indicated that 36% of states allow school districts to grant exemptions or waivers for physical education time or credit requirements. Additionally, 54% of states allow the substitution of other activities to count as physical education credit (NASPE, 2006a). NASPE published a position statement that opposed waivers for required physical education. It stated that:

> Classes and activities that provide physical activity (e.g., marching band, ROTC, cheerleading, school and community sports) have important but distinctly different goals than physical education. Any opportunity for students to participate in sustained periods of meaningful physical activity can be valuable for their health and fitness, but these activities do not provide the content of a comprehensive, standards-based physical education program and thus should not be allowed to fulfill a physical education requirement (NASPE, 2003).

Physical activity is critical to the overall health of all people. However, a substantial number of people, including adolescents, do not meet the physical activity guidelines. Physical education can provide a substantial number of physical activity minutes needed to meet the recommended 60 minutes of activity time. Other programs may provide less physical activity than physical education and can be taken in lieu of physical education. Waiver programs may compromise the necessary physical activity time accrual. There have been no studies that have examined physical activity in any waiver program for physical education including JROTC.

Junior Reserve Officer Training Corps

The Junior Reserve Officer Training Corps (JROTC) was introduced into the public school system in 1916. The National Defense Act of 1916 was signed in by President Woodrow Wilson as a way to aide in the recruitment of troops for the war. The act allowed the loan of federal military equipment to the high schools along with assigning active duty military personnel as JROTC instructors (US Army JROTC, n.d.). The Vitalization Act of 1964 then allowed JROTC to be comprised of the various branches of the military and replaced the active duty instructors with retirees.

U.S. Code Title 10 Chapter 102, Section 2031 identifies that the purpose of the JROTC program is "to instill in students in United States secondary educational institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment" (10 USC Sec. 2031, 2010). From the beginning of JROTC in 1916 to the 2000's, there has been a dramatic increase in the number of high schools that offer the JROTC program. In 1916, only 6 schools offered the program and now approximately 1,645 schools have a JROTC program located in all

50 states, as well as American schools overseas. The JROTC program consists of Air Force, Army, Marine Corps and Navy branches of the military. According to the United States Army Junior ROTC website (http://www.usarmyjrotc.com), there are approximately 281,000 cadets with 4,000 professional instructors in all branches of the JROTC program around the world.

Students who are enrolled in the JROTC program, regardless of military branch are instilled with many core values, some of which include discipline, motivation, pride, integrity, trust and a sense of belonging (Bulach, 2002). The JROTC program also claims to provide discipline for "at-risk" students (Bartlett & Lutz, 1998). The focus in each JROTC program is similar in content. The following areas are emphasized in the JROTC program: military drill, leadership, physical fitness, military history and uniform inspections. There are no indications of time requirements for physical fitness in the JROTC program. However, JROTC programs do require a physical fitness test (PFT) to be conducted for all students each semester. The PFT consists of push-ups, sit-ups and a 1.5 mile run. All students must be able to pass the PFT. However, there is no current research available that examines JROTC physical activity levels and lesson context areas.

Summary

In conclusion, there is a need to optimize opportunities for people of all ages to incorporate more physical activity into their daily lives, including adolescents. Numerous agencies such as the Centers for Disease Control, American Academy of Pediatrics, the American Heart Association, and the U.S. Department of Health and Human Services support the need for physical education in schools (NASPE, 2010), yet, as McKenzie and Lounsbery (2009) identified, physical education is, "the pill not taken." It is

institutionalized in nearly all 50 states but the program delivery is not without challenge, and in some cases, it is not provided at all. This is certainly the case with the physical education waiver program. Given the paramount need to increase physical activity, physical education and established waiver programs should optimize student accrual of moderate to vigorous physical activity. Because there have been no documented research studies that have directly examined JROTC lessons and physical education lessons, the amount of student physical activity provided in these settings is unknown.

CHAPTER THREE

METHODS

Very little is known about the physical activity levels of high school physical education and JROTC lessons. Furthermore, how these two curricular areas compare has not been researched. No published studies have examined high school physical education to JROTC. Therefore, the purpose of this study was to describe the curricular goals and objectives, in addition to student physical activity levels, lesson contexts and the promotion of physical activity outside of class time during physical education and JROTC lessons. This chapter provides information on the methodology used for this study.

Participants and Setting

High schools were selected from the Clark County School District (CCSD) in Las Vegas, Nevada. The CCSD is the 5th largest school district in the United States with approximately 309,893 students enrolled in 217 elementary, 59 middle, and 49 high schools. Only high schools that met the criteria of offering JROTC for physical education credit were considered for the study. Of the 49 high schools in the CCSD, only 18 high schools met the criteria. Next, a bell schedule for each of the 18 schools was obtained using each school's website. Twelve of the 18 schools utilized a six period bell schedule with lesson times ranging from 50 to 54 minutes, while the remaining six schools used block scheduling (90 minute class periods with subjects taught every other school day). The school's bell schedule was an important aspect for the selection criteria because the time in which the lesson is delivered will depend on how often the students have the particular subject area per week. For the purpose of this study, observations only

occurred for one week. If the schools that participate in the study are on the block schedule, only two to three lessons would be observed for the week, rather than five lessons on the normal schedule. Therefore, only schools that utilized the normal bell schedule were considered. After the search was completed, 12 schools met these final criteria.

School recruitment consisted of sending an initial email contact to the 12 school's principals to invite their school to participate in the study. After three days past, schools were picked at random and a follow up phone call was made to the school principal to answer any questions they may have regarding the study, as well as schedule a time to meet with the principal, JROTC instructors and physical education teachers. During this meeting, an overview of the study was provided as well as consent forms for all participating teachers and instructors. Once the principal approved the study, the school was assigned a trained observer to collect data at that school site. If the principal declined to participate in the study, the school was dropped from the potential school participating list. School recruitment ended once four principals agreed to have their school participate.

Instrumentation

Data were collected through the use of the System for Observing Fitness Instruction Time instrument (SOFIT). SOFIT is a direct observation instrument that assesses physical education at the lesson level, primarily by observing students' opportunities to be physically active in a physical education setting (McKenzie, Sallis, & Nader, 1991). SOFIT has been used in over 2000 schools worldwide and has more than 30 publications. The SOFIT instrument utilizes momentary time sampling for physical activity level and lesson context. In this instance, data are recorded during a specific

moment in time. An audio prompt is used with ten second observe and ten second record intervals. Physical activity levels and lesson contexts are recorded at the exact moment the record interval ends. The promotion of physical activity outside of class time will use partial interval recording. During each interval, if the promotion occurs one or multiple times during the observe interval, one occurrence of physical activity promotion outside of class time will be recorded. The instrument has proved both reliable and valid results as demonstrated with the use of pedometers, heart rate monitors and accelerometers to measure student physical activity levels. Interobserver agreement is also used to provide reliability checks for all trained observers.

The SOFIT instrument contains three categories of interest for this study. The first is physical activity level. Physical activity levels are coded, using momentary time sampling, on a scale of one to five. The physical activity levels one through three are coded according to the student's body position. Physical activity codes one through three represent a student who is lying down, sitting or standing, respectively. Physical activity code four represents a student who is walking and the physical activity code of five represents a student who is engaged in vigorous physical activity or any movement that expends more energy than a normal paced walk. The second SOFIT category is lesson context. Lesson context is coded, using momentary time sampling, by means of designated letters: M, JK, PAK, F, S, G, and O. The lesson context categories stand for: Management, JROTC Knowledge, Physical Activity Knowledge, Fitness, Skill, Game and Other. These categories are recorded based on what 50% of the class is doing during the record prompt. The final SOFIT category is teacher interaction. Teacher interaction, for the purposes of this study, was only recorded if the teacher promoted physical activity

outside of class time. Unlike physical activity level and lesson context, the promotion of physical activity outside of class time can be recorded anytime during the observe interval. At the end of each interval, student physical activity level, lesson context and the occurrence of the promotion of physical activity outside of class time will be recorded.

Observer Training

SOFIT was collected by two trained observers from the University of Nevada, Las Vegas. Each observer participated in an introductory training, online training and school-site training in the fall of 2011. During the introductory training, observers were introduced to the SOFIT protocol and examples of each physical activity level, lesson context and promotion of physical activity outside of class time. During the online training, observers watched and simultaneously recorded their responses to the sample lesson using the SOFIT paper-pencil recording sheet. The online training was completed multiple times in order to become familiar with different situations and examples in physical education lessons. The final training was conducted at a local CCSD high school in which the observers received hands on instruction of data collection protocols and procedures, as well as participated in observing an actual physical education and JROTC lesson, testing interobserver agreement at least 80% agreement. Finally, observers completed their training by 'testing-out" using a gold standard provided by the SOFIT protocol. Once all observers completed all levels of training and tested out at an 80% observer agreement, trained observers were scheduled to the high school sites to collect data.

Data Collection

Observation Schedule

All observations were conducted in the fall of the 2011 school year. Data collection began in September 2011 and ended in November of 2011. Each high school physical education teacher and JROTC instructor was observed for one week, consisting of all days of the normal school week, Monday through Friday, in order to gain a better understanding of the activities that actually occur. SOFIT was the direct observation instrument that was used in both physical education and JROTC settings. A total of 80 lessons were observed; 40 physical education and 40 JROTC lessons. Of the 80 lessons observed, interobserver agreement was conducted on a minimum of 10% of the physical education lessons four physical education, and a minimum of 25% of the JROTC lessons, ten JROTC lessons. Interobserver agreement consisted of two independent trained observers coding the same lessons at the same time, with the assistance of an audio prompt and a y-jack. A comparison was then made, interval-by-interval, for student activity level, lesson context, and teacher behavior between observers (McKenzie, Sallis & Nader, 1991). If the results from the interobserver agreement are in fact reliable, the trained observers were in at least 80% agreement for that particular lesson. If the two trained observers were not in at least an 80% agreement, further training was conducted before they are able to return to the school site to collect the data.

Data Collection Procedures

Trained observers arrived at the school site 15 minutes prior to the start of the scheduled lesson. Trained observers checked into the main office and then reported to the physical education or JROTC lesson area. Each trained observer was equipped with a

school packet. The contents of the packet included five SOFIT paper-pencil coding sheets, one SOFIT Summary Form, two pencils and an Ipod/MP3 player with the SOFIT audio prompt. Once the final bell rang for the lesson that was observed, the trained observer began data collection as soon as 51% of the students were in the designated lesson area. Four target students were then identified. Target student selection included selecting every 5th student that entered the lesson area. These students were representative of the entire class. Each target student was observed for four minutes. After the four minutes, the second target student was observed. This process went on until target student four has been observed. After target student four had been observed, the trained observer went back to the first target student and repeated the same process. Data collection ended when 51% of the class had exited the lesson area.

Data Analysis

RQ # 1

Research question number one was analyzed using descriptive statistics. SOFIT data were entered for each lesson observed (i.e., physical activity levels, lesson context, and promotion of physical activity outside of class time), interval by interval. Once the data were entered, descriptive statistics were used obtain the total number of intervals in each of the categories of interest (i.e., physical activity levels, lesson contexts, and the promotion of physical activity outside of class time). The total number of intervals for each category was then divided by the total number of intervals observed, over the 40 lessons to get the overall percent of lesson time in each category. The percent of lesson time was used to examine differences in physical activity levels, lesson contexts, and the

time teachers spent promoting physical activity outside of class time in physical education and JROTC lessons.

RQ # 2

Research question number two was analyzed by reviewing each physical education teacher's and each JROTC instructor's course syllabus. From the syllabus, the course goals and objectives, the physical education requirement, program fees, grading and dressing out policies were compared for each curricular area.

Human Subjects

Approval for this study was granted by the University Institutional Review Board and the Clark County School District Research Department. The risks for participation in this study were minimal and required minimal interaction with the physical education teachers, JROTC instructors and the trained observer. There were no interaction between the trained observers and students within the school setting. All schools were designated by a school code for identifying purposes. All data are stored in a locked file cabinet in a locked room, where only members of the research team have access.

CHAPTER FOUR

RESULTS

The primary purpose of this study was to examine student physical activity levels, lesson contexts, and the promotion of physical activity outside of class time in physical education and JROTC. The secondary purpose was to describe curricular goals and objectives in physical education and JROTC. Two research questions that were examined in this study were:

1. What are the physical activity levels, lesson contexts and the promotion of physical activity outside of class time in physical education and JROTC?
2. What are the stated curricular goals and objectives of physical education and JROTC?

This chapter provides the results of the study and is divided into two sections. Section one provides the results of research question number one; examining student physical activity levels, lesson contexts and the promotion of physical activity outside of class time. With the exception of physical activity promotion, SOFIT data were collected using momentary time sampling. Refer to Chapter 3 for a more detailed explanation of momentary time sampling and SOFIT methodologies. Section number two provides a description of the stated curricular goals and objectives in physical education and JROTC.

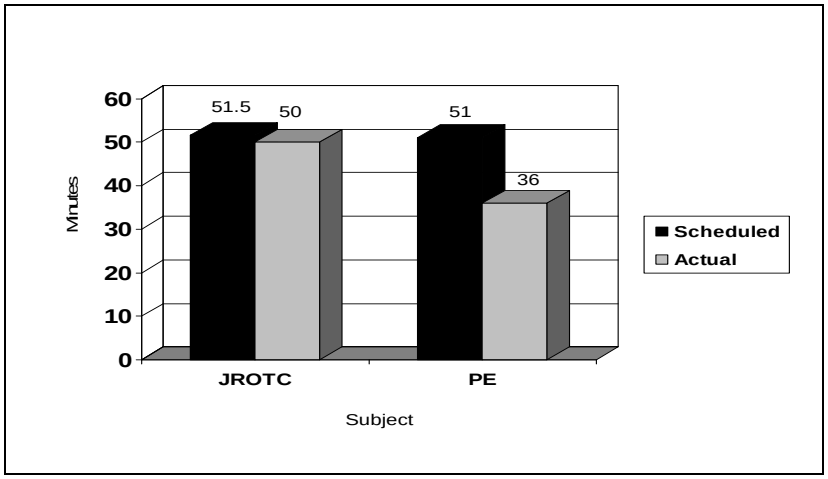
Descriptives

Descriptive statistics were used to describe physical education and JROTC. A total of 80 lessons were observed, 40 physical education and 40 JROTC. A representative sample was obtained and data were collected for one class period for all five days of the week, Monday through Friday. The four schools represented in this study also

represented each branch of the military (Air Force, Army, Marine Corps, and Navy). Two physical education teachers and two JROTC instructors were observed at each school site. A total of 12,281 intervals were observed over the course of data collection. Each interval was 20 seconds in duration. There were 6,106 physical education intervals and 6,175 JROTC intervals observed. Overall, the physical education lessons were taught by four males and four females and the JROTC lessons were taught by seven males and one female. A typical physical education week, Monday through Friday, consisted of the following activities: walking the track, aerobic fitness, participation in a dual or team sports (e.g., badminton, basketball, flag football), individual sports (e.g., wrestling and bowling) and free time. A typical JROTC week consisted of the following: military drill, uniform inspection, military academic time and physical training (PT).

The average scheduled class time in physical education and JROTC were 51 and 51.5 minutes respectively. The actual class time that the students either received instruction or participated in physical activities were 36 minutes in physical education and 50 minutes in JROTC, which accounted for 30% of physical education and 3% of JROTC class time lost due to dressing out time.

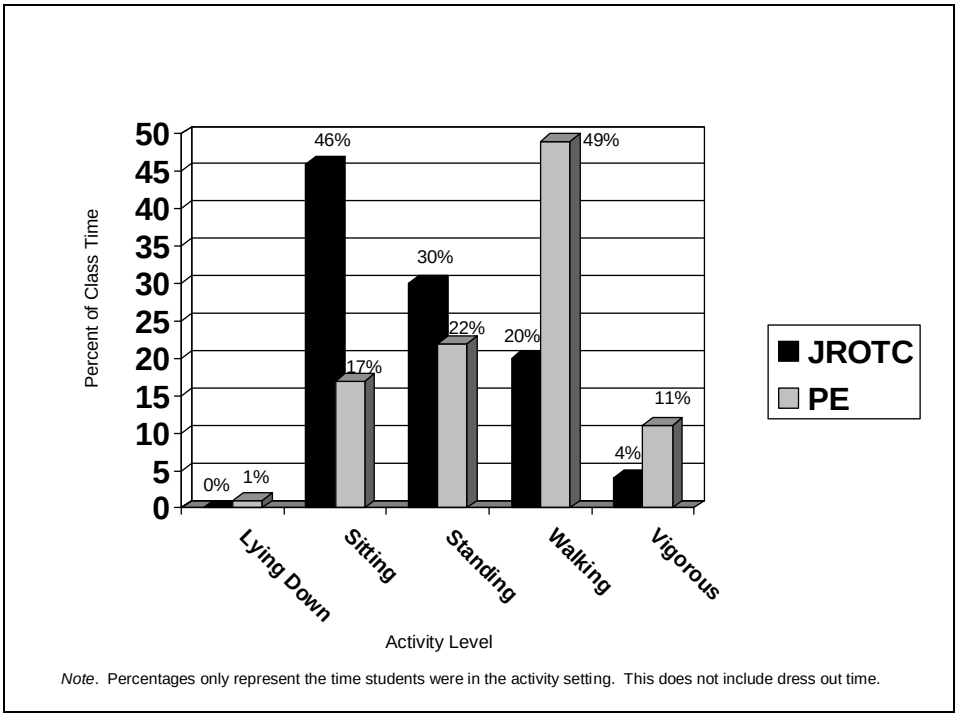
Figure 1. *Average Scheduled Class Time vs. Average Actual Class Time*



Student Physical Activity Levels

Descriptive statistics were used to examine the physical activity levels of the students in physical education and JROTC. Physical activity levels were coded as lying down, sitting, standing, walking and vigorous. Percentages were calculated by the total number of observed intervals during the specific activity level divided by the total number of overall observed intervals for each subject. In physical education, the majority of time was spent standing (22%) and walking (49%). While in JROTC, students spent 46% of the time sitting and 30% of the time standing. Physical education students were observed being vigorously active 11% of the time in physical education compared to 4% in JROTC.

Figure 2. *Student Physical Activity Levels by Subject*

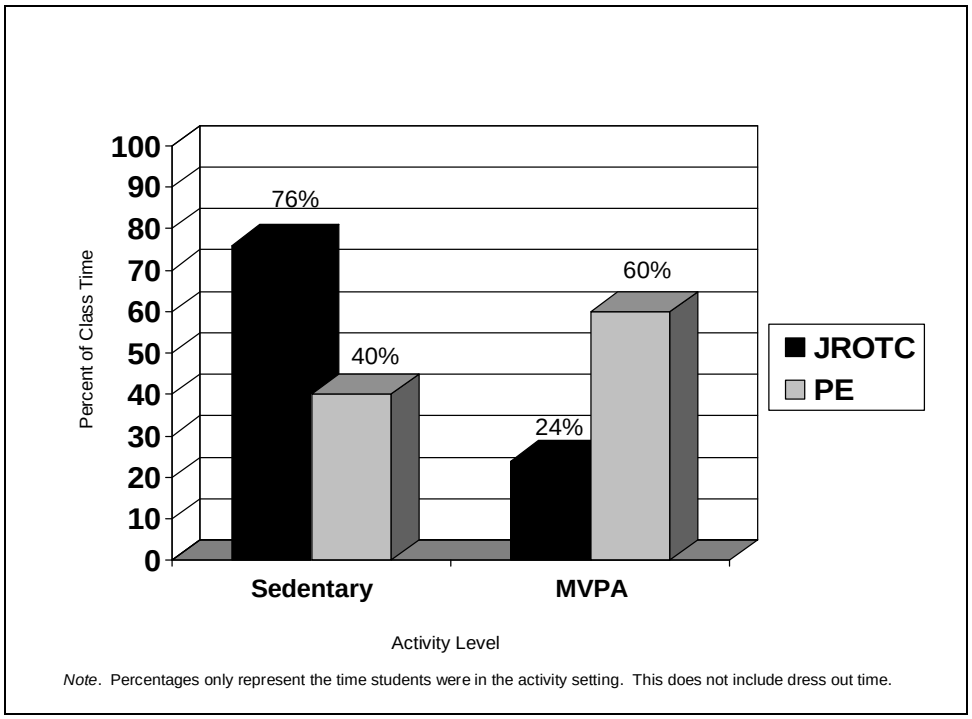


Note. Percentages only represent the time students were in the activity setting. This does not include dress out time.

Student activity levels were then calculated into two categories; sedentary and moderate to vigorous physical activity (MVPA). Those categorized as sedentary were

lying down, sitting or standing during the observed interval and those coded as MVPA were walking or vigorous. Physical education students spent 40% of their time sedentary and 60% in MVPA. JROTC students spent 76% of their time sedentary and 24% of their time in MVPA.

Figure 3. *Student Physical Activity by Subject by Sedentary and MVPA Levels*



Note. Percentages only represent the time students were in the activity setting. This does not include dress out time.

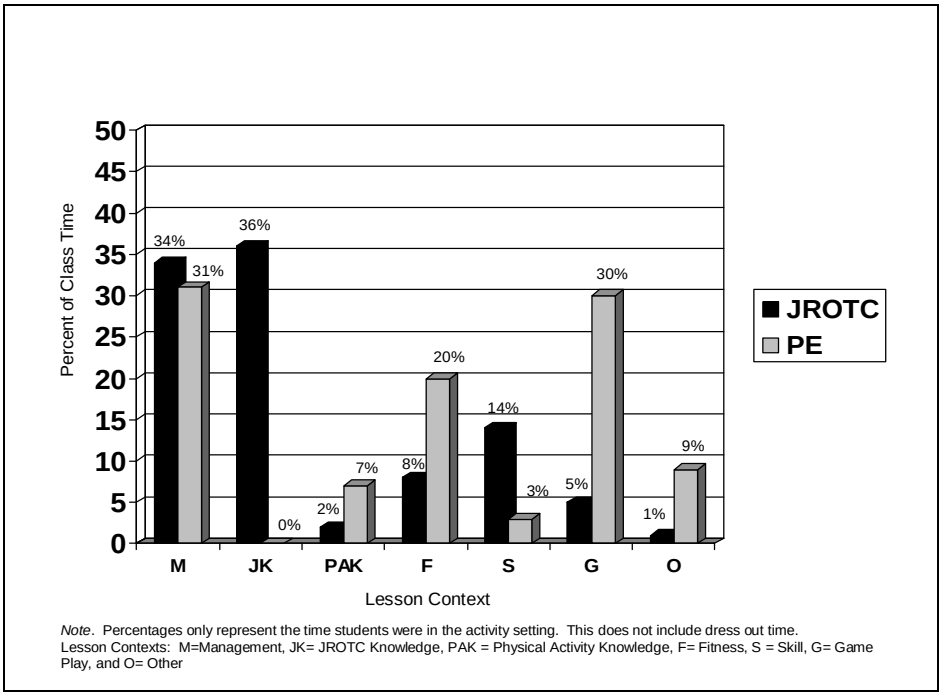
Lesson Contexts

Lesson context was the next variable of focus in this study. The lesson context categories are: Management, JROTC Knowledge, Physical Activity (PA) Knowledge, Fitness, Skill, Game and Other. Refer to Chapter 3 for a more detailed explanation of the lesson context categories.

In physical education, the majority of time (31%) was spent in management and (30%) game play. In the JROTC setting, the majority of time was spent in JROTC

Knowledge (36%) and management (34%). The time spent in fitness related activities in physical education and JROTC was 20% and 8% respectively.

Figure 4. *Lesson Contexts by Subject*



Note. Percentages only represent the time students were in the activity setting. This does not include dress out time.
Lesson Contexts: M=Management, JK= JROTC Knowledge, PAK = Physical Activity Knowledge, F= Fitness, S = Skill, G= Game Play, and O= Other

Lesson Context and Physical Activity Levels

The seven lesson contexts that were observed and recorded simultaneously with the physical activity levels. Physical education and JROTC had drastically different activity levels and lesson contexts that were observed in the 40 physical education and 40 JROTC lessons. In the physical education setting, the highest amount of MVPA time (87%) was observed while the students were engaged in fitness related activities. The highest amount of sedentary time (95%) was observed during physical activity knowledge (PAK). In the JROTC setting, the highest amount of MVPA time was during game play (81%) and fitness (62%). The highest amount of sedentary time was during PAK (97%) and JROTC Knowledge (JK) at 96%.

Figure 5. *Lesson Context and Physical Activity Levels in Physical Education*

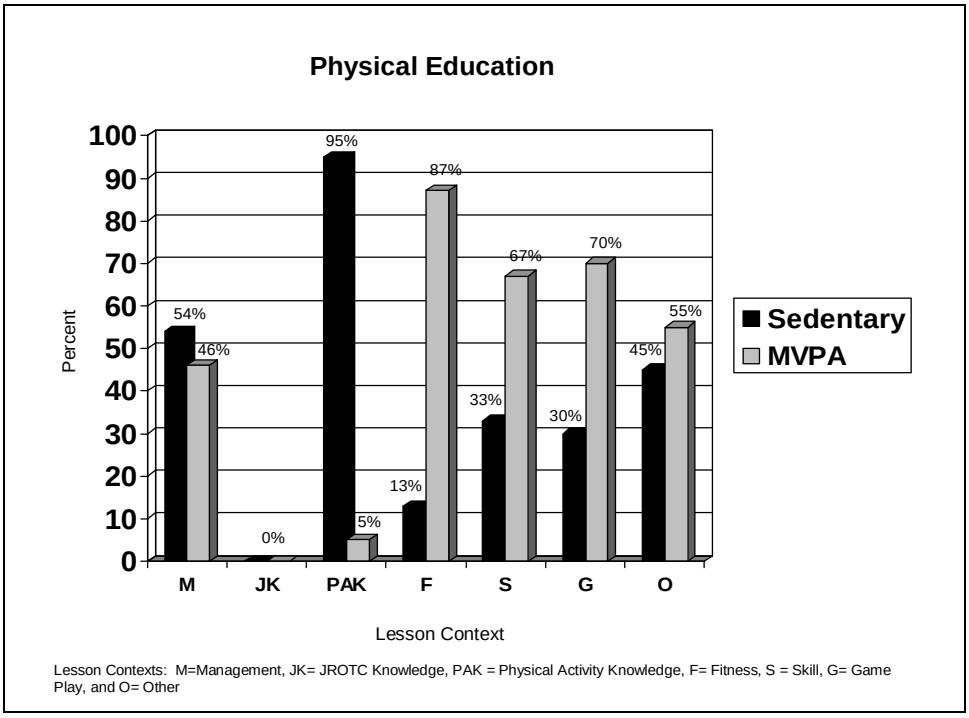
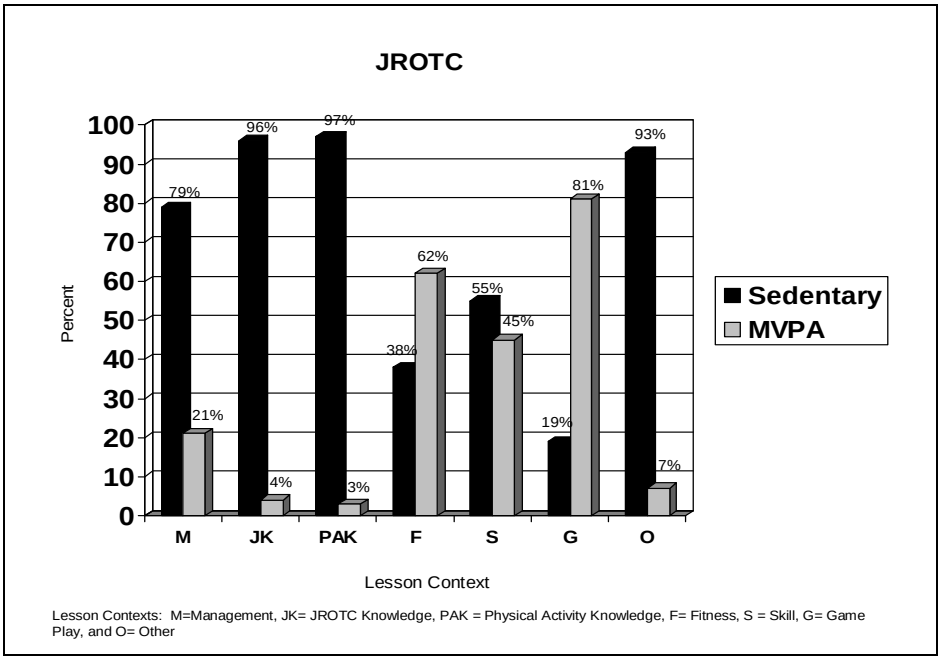


Figure 6. *Lesson Context and Physical Activity Levels in JROTC*



Teacher Promotion of Physical Activity Outside of Class Time

Lastly, teacher promotion of physical activity outside of class time was observed and coded. Using partial interval recording, when the teacher prompted the students to be physically active outside of class time during an interval, the interval was coded as "O" identifying that there was in fact promotional efforts made by the teacher.

During the 4,272 intervals observed in the physical education setting, the teacher promoted physical activity outside of class time during 3 intervals, resulting in 0.07% of the time in the physical education setting. Of the 5,974 intervals that were observed in JROTC, the instructor promoted physical activity outside of class time during 23 intervals, resulting in 0.4% of the time in the JROTC setting.

Course Syllabi

A course syllabus was obtained from each school's physical education and JROTC program. In all cases, the physical education department had one common syllabus and the JROTC department had one common syllabus that was used by each of the two teachers observed. Each teacher observed provided the syllabus to the trained observer upon the start of data collection. The course syllabi were then read in detail and put into the following categories: scope and objectives, program fees, grading, and dressing out policies. The following sections provide an overview of what the syllabi entailed for each subject.

Scope and Objectives

There were 27 physical education objectives and goals outlined within the four course syllabi. Generally described physical education scope and objectives included:

- An aim to develop physically, emotionally, and socially fit citizens through a variety of physical activities.
- Activity oriented courses designed to provide students with a comprehensive view of a variety of sports and physical activities.
- To focus on the physical, mental, social, and emotional development of the individual in cooperative and competitive settings.

There were 23 JROTC objectives and goals outlined within the four course syllabi. Generally described scope and objectives in all JROTC programs observed included:

- Instill values of citizenship, service to the United States, personal responsibility, and sense of accomplishment.
- To motivate young people to be better citizens
- To emphasize each person's responsibilities in society.
- Show proficiency in "followership" and military skills to include uniforms, physical training, close order drill, citizen and scholar training as well as complete prerequisites for cadet promotion.

Each course syllabi was then identified as having a scope, goals, and/or objectives that aligned with the Nevada State Physical Education Standards. Table 1 provides the number of schools observed that had in their course syllabus a statement that aligned with the state physical education standards.

Table 1. *Nevada State Standard Alignments*

NV State Standard	PE Schools	JROTC Schools
1. Students understand and apply movement concepts and principles to the learning and development of motor skills.	3	0
2. Students demonstrate competency in many movement forms and proficiency in a few movement forms.	3	0
3. Students demonstrate an understanding of dance through skills, techniques, choreography, and as a form of communication.	2	0
4. Students achieve and maintain a health-enhancing level of individual fitness for an active lifestyle.	4	1
5. Students demonstrate personal responsibility, positive social interaction, and respect for diversity in physical activity settings.	4	1

Physical Education Requirement

Physical education, as stated in each physical education course syllabi, is required for two years and those two years fulfill the physical education requirement for graduation. However, in each of the course syllabi for JROTC, the language differed (i.e., substituted, satisfies, and fulfills) when it specified that JROTC could waive the two-year physical education requirement. One course syllabus stated that their JROTC program can be used for physical education credit toward graduation but did not specify how many credits.

Fees

The fees allocated in order to participate in physical education and JROTC was specified in the course syllabus. The physical education fees that were included in the

course syllabi included the physical education uniform and in some instances, a lock for the student's locker. In JROTC, the fees that were specified included: physical training (PT) uniform and in one instance a JROTC yearbook.

Table 2. *Program Fees*

Program	School 1	School 2	School 3	School 4
Physical Education	$20.00	$20.00	$25.00	$20.00
JROTC	Not Specified	$50.00	$15.00	$25.00

Other physical education fees included uniform rentals ranging from $0.50 - $1.00 and a lock fee, if not included in the physical education uniform fee. Additional JROTC costs associated with being a 'cadet' included military uniform dry cleaning fees, regulation haircuts for male cadets, and in one JROTC program, a sport physical either provided by personal health insurance or by the school for a fee.

Grading Policy

The grading policies for physical education and JROTC were drastically different. In physical education, students earned daily points consisting of dressing out and participation in physical activities. Written quizzes and exams, as well as skill and fitness tests were also a part of the student's overall grade. In JROTC, the main emphasis was on leadership, academics, uniform wear and physical fitness. Physical fitness was specifically mentioned in two course syllabi: 5% and 20% of the student's grade. One JROTC course syllabus incorporated physical fitness/training into their Performance/Inspection and Participation grade and the last syllabus did not specifically specify where or what percent of the student's grade was on physical fitness.

Dress Out Policies

In all physical education and JROTC programs that were observed, it was required that the students dress out into their PE/PT uniform. Of the physical education programs observed, all schools had dressing out policies that allowed a specific number of minutes that the students were allowed to dress out. Three of the four schools stated in the syllabus that the students would have five minutes to dress into and out of the physical education uniform. One school allowed the students six minutes dressing time. There were no stated policies in the JROTC syllabi that specified a specific minute allocation for dressing out before the students participated in physical activity, however there were point allocations that were to be added/deducted from either their participation or physical fitness grade.

As stated in the previous section, 30% of physical education time and 3% of JROTC time was lost due to students dressing out for physical activity. In physical education, there were a total of 40 physical activity days observed. The average dressing out time in physical education was 15 minutes each day. There were a total of 10 PT days observed in JROTC. Three of the schools provided PT one time a week and one school provided the students with PT two days per week. The average dressing out time in JROTC, when the students had PT, was 6.7 minutes a day.

CHAPTER FIVE

DISCUSSION

The primary purpose of this study was to examine student physical activity levels, lesson contexts, and the promotion of physical activity outside of class time. The secondary purpose was to describe curricular goals and objectives in physical education and JROTC. The purpose of this chapter is to discuss the results of the study. This chapter is divided into three sections. Section one discusses the results relating to physical activity levels, lesson contexts and physical activity opportunities in physical education and JROTC. Section two provides a discussion of the results relative to course content and stated policies. The final section summarizes major findings and provides conclusionary remarks.

Physical Activity and Lesson Context

Physical Activity Levels

These results showed disparate levels of student MVPA accrual in physical education and JROTC. Students that were in the physical education setting were engaged in MVPA 60% of the time compared to JROTC at only 24% of the time (see Figure 3). It is recommended that students be engaged in MVPA for 50% of the physical education class time (USDHHS, 2010). It is important to note that even though physical education exceeded the MVPA time of 50%, the majority of time was spent in the walking category (49%) and only 11% in the vigorous category (see Figure 2). Vigorous activity is important for school-aged students to help increase bone mass for future years (Gracia-Marco, et al, 2011). One of the more observed activities in physical education was walking the track. While walking the track yielded high levels of moderate physical

activity, it did not provide students with much vigorous activity or a variety of physical activities. While students were on the track, there was little expectation for the students to be vigorous. Few students opted to run the track but a majority of the students used this time to socialize with their peers while walking slowly around the track. On the other hand, of the 24% MVPA time in JROTC, walking accounted for 20% of the students' MVPA time and engaging in vigorous activity accounted for only 4% of the time. The most common physical activities in JROTC included: marching, running, push-ups and sit-ups. The physical education and JROTC physical activity levels did not compare well. However, despite high levels of MVPA in physical education, students were infrequently engaged in vigorous activity.

Sedentary time should be minimal in physical activity settings. In physical education, students were observed being sedentary 40% of the time. While this number is high, students did engage in MVPA 60% of the time. In comparison, most of the time the students were in the JROTC setting, they were coded as sedentary (76%). Forty-six percent of the time, JROTC students were in the seated position receiving knowledge related to JROTC and 30% of the time students were standing. In the JROTC program, students often stand at attention when they receive instruction and during drill practice. Continual efforts should be made within the physical education and JROTC settings that work towards reducing the time students spend sedentary while increasing student MVPA time. These data support that both physical education and JROTC teachers should receive more professional development. Professional development could provide the teachers with useful information as it pertains to decreasing sedentary time and increasing MVPA time, especially vigorous physical activity time. NASPE states that a quality

physical education program helps all students develop: health-related fitness, physical competence, cognitive understanding and positive attitudes about physical activity (NASPE, n.d.) Evaluations of the physical education and JROTC programs should occur annually to ensure that a "quality" education program is occurring at all levels.

Lesson Context

Lesson context is important because it can influence the intensity of the students' physical activity levels or lack thereof during a lesson. This study found that in physical education, the highest percentage of time (31%) was spent in the "management" category (see Figure 4). In physical education, management time comprised of taking roll at the start of class, transitioning to and from the activity area, distributing equipment and time spent desisting student off-task behavior. Management time should be minimal (<15% of the lesson time) and efforts need to be made to reduce the time students spend in the management category. Having adequate resources, smaller class sizes and adequate equipment or facilities could increase the time devoted to physical activities and decrease management time (Bevans, Fitzpatrick, Sanchez, Riley & Forrest, 2010). Daily routines are also an important aspect of reducing management time. Such routines can include active roll call, efficient ways to get and put away equipment and an effective discipline plan.

Like physical education, JROTC had a high percentage of time (34%) that students spent in the "management" category. Management in the JROTC setting consisted of taking roll, announcements, and transitioning outside for drill practice. Possible strategies for decreasing management time in the JROTC setting can include minimizing the time spent discussing announcements unrelated to JROTC, making the

transition from inside the classroom to the drill area quicker by possibly counting down the students, and to have the JROTC instructors more actively involved in the class, rather than the students taking charge.

This study also found that in JROTC, 36% of the time was spent in the JROTC Knowledge (JK) category. This is an important finding because during this time, the students were learning about various JROTC topics unrelated to physical activity. During this lesson context, students were involved in military inspection, learning how to perform drill movements, reviewing the cadet handbook, and uniform wear and regulations. JROTC Knowledge is one area that is not found in the physical education curriculum. Since JROTC is an acceptable waiver for physical education, more time should be spent addressing and participating in physical activities.

Lesson Context and Physical Activity

Physical education students, as previously stated, spent the majority of their time in the "management" category (see Figure 5). Of their time in this category, 54% of the total time was spent sedentary and 46% was spent in MVPA. Students were either walking or running while they transitioned to and from the locker room or gymnasium to the activity area and this may be one reason why the MVPA in this lesson context is higher than expected. "Fitness" related activities and "game play" yielded high MVPA time ($\geq$70%). Typical activities in the fitness category included walking the track or fitness stations and game play included: basketball, paddle ball, badminton and flag football games. In JROTC, during "JK", students were sedentary (96% of the time) while learning about a subject matter unrelated to physical activity. During "management" time, the second highest category for JROTC (34%), students were sedentary 79% of the time.

There is a great need in both physical education and JROTC to reduce the time in the "management" category. In doing so the teachers can potentially reduce the time students are sedentary and increase the time the students are engaged in MVPA. Professional development can be utilized to help address management problems in physical education and JROTC, and provide educators effective strategies to reduce management time and increase physical activity time.

Teacher Promotion of Physical Activity Outside of Class Time

In all observed lessons, the occurrence of physical activity promotion outside of class time was minimal. The promotion of physical activity outside of class and in school settings should be integral to physical education yet; its frequency of occurrence in either physical education or JROTC was limited. Since school aged-students are recommended to accumulate 60 minutes of physical activity a day, only participating in a physical education class or JROTC class will not provide the full 60 minutes. Additional minutes of physical activity are needed outside of school. In this study, physical education teachers only prompted their students 3 times and JROTC instructors prompted their students on 23 different occurrences.

Given that JROTC only has PT one to two days a week; the instructors were promoting physical activity outside of class time more than physical education teachers, even though the promotion was minimal. What is interesting here is that JROTC students may or may not be physically active outside of school but they were at least prompted on more occasions than physical education. Examples of JROTC promotion included: "You all need to work out more. At least 4-5 times a week", "Exercise daily. Wake up early and exercise", and "Make time for family and go for a walk with them."

There is a need for physical educators to increase the times they promote physical activity outside of class time to help encourage the students to accumulate 60 or more minutes of physical activity a day. One possible reason as to why physical education teachers do not promote physical activity outside of class time could be because their teacher preparation program may not have emphasized or had minimal emphasis to teaching future educators how to encourage and promote physical activity outside of class time. Teachers need to be held accountable for promoting physical activity. There is a need for program evaluation and ongoing professional development to aide in the frequent promotion of physical activity.

Course Content and Policies

Scope and Objectives

The program scope and objectives of physical education and JROTC contrasted greatly. Based on the Nevada State Physical Education Standards, physical education course syllabi addressed most standards (refer to Table 1) but in some cases, did not address all standards. If the standards are a basis of what should be taught, most standards should be evident in the course syllabi. JROTC, which can be taken as an acceptable waiver for physical education, had only one school align with two of the state standards. These data show that PE and JROTC have vastly different program goals and objectives and do not compare well. What is interesting about this finding is that JROTC may be taken in lieu of physical education which is a high school graduation requirement. Clarifications regarding the bases for JROTC physical education waiver status should be sought.

JROTC Substitution for Physical Education Credit

In JROTC, three out of the four schools observed directly stated in their course syllabi that JROTC would count as two physical education credits required for graduation. In some cases, this did not align with CCSD's policies and the school's course catalog. The policies outlined in the syllabi were also in conflict with the state policy and that it appears that the policy is not enforced. If programs were evaluated annually, this would be found immediately. Since there is no district coordinator overseeing physical education, the compliance of this issue is low. Waiver status should be renewed to ensure that compliance is being met with regards to the physical education requirement.

Program Fees

In both physical education and JROTC, costs were associated with enrolling in the class (see Table 2). The physical education and JROTC fees were comparable and ranged from $20.00 to $25.00 in physical education, and $15.00 to $50.00 in JROTC. In physical education, fees are assessed to cover the costs for a physical education uniform and in some cases a lock for the student's locker room locker. In JROTC, some schools required that the students buy the JROTC's PT uniform and a JROTC yearbook. There are also hidden fees in the JROTC program which include: hair cuts for the males, uniform dry cleaning fees, and in one instance a sport physical. It is interesting that a sports physical is required for some JROTC programs but not physical education yet; this study showed that students were engaged in more MVPA in physical education than JROTC.

Since JROTC students are required to have hair at a certain length and professional dry clean their military uniforms, are the more affluent students able to opt

for JROTC and the students of a lower SES have to take physical education due to their parents' financial resources? The cost association for physical education and JROTC should be identical if the waiver program continues to ensure that any and all students who want to participate can, regardless of financial means.

Dressing Out Policies

This study found that of the scheduled time for physical education and JROTC, 51 and 51.5 minutes respectively, that the actual time students were in the physical activity setting was 36 and 50 minutes respectively (see Figure 1). The amount of lost lesson time in physical education was 30% and in JROTC lost lesson time was 3%. A major portion of the lesson was lost due to dressing out in physical activity clothing. Physical education course syllabi had specific time allocations for dressing out which was 5-6 minutes. The data show that students spent on average, 15 minutes dressing out in physical education and 6.7 minutes in JROTC, therefore the physical education dressing out policy was not being followed and physical education teachers were not held accountable for this time. I would like to state that the allotted dress out time did not seem appropriate given paucity of vigorous activity in physical education and that one of two courses are recommended (a) increase student vigorous physical activity, or (b) eliminate dressing out policies.

Conclusion

This was the first study to directly observe and compare physical education to the waiver JROTC. The findings of this study show that physical education and JROTC programs do not compare well as it relates to physical activity levels, lesson contexts, and the promotion of physical activity outside of class time. Additionally, the programs goals, objectives and stated policies do not compare between programs. This study failed to

demonstrate programmatic or even physical activity level similarities between JROTC and PE, yet JROTC remains an approved waiver program. While the original bases for waiver programs could not be clearly identified, this study demonstrates that substantiation on the bases of physical activity would be weak at best.

Three policies for improving both the physical education program and JROTC program that need to be in place are to increase professional development time, require annual program evaluation, and to renew waiver status yearly. Professional development will provide tools for increasing MVPA, decreasing sedentary and management time, and increasing the promotion of physical activity outside of class time. Annual program evaluations need to occur to ensure the alignment with stated district level, school level and program level policies. Physical education and JROTC teachers need to be held for accountable for what they are teaching the students. Policies as they relate to program fees need to be in place to reduce social disparities based on financial recourses and programs need to be required to have parallel costs. Lastly, a renewal of waiver status should occur for JROTC to make certain that the program is aligning with physical education and that the program is in compliance with all stated criteria. By implementing these strategies, physical education and JROTC can have the potential to enhance their program for the greater good of the student.

Future studies are needed to examine the additional physical education waivers offered at the high school level, including marching band, varsity sports and cheerleading. Findings of all studies should be published and made available to school policy makers for future reconsideration of acceptable physical education waivers.

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Vita

Kathryn A. Holt

Contact

University of Nevada, Las Vegas
Department of Sports Education Leadership
4505 Maryland Parkway
Las Vegas, NV 89154-3031
Telephone: (702) 895-5191
Email: holtk8@unlv.nevada.edu

11936 Lemon Balm St.
Las Vegas, NV 89183
(702) 327-1163

Background

Current Position	**Date of Appointment**
Research Coordinator Physical Activity & Policy Research Program Department Sports Education Leadership University of Nevada, Las Vegas	August, 2009

Education		**Degree Completion**
M.S.	University of Nevada, Las Vegas Sport Pedagogy	Pending – May 2012
B.S.	University of Nevada, Las Vegas Physical Education	Dec. 2009
A.S.	College of Southern Nevada Science	Dec. 2007

Related Professional Experience

2009-2012 **Project Coordinator for the Clark County School District Evaluation Project**
-Coordinator and SOFIT data collector in 27 physical educators' classes

2010 **University of Nevada, Las Vegas Student Teaching Experience**
- Field experience at Rex Bell Elementary School teaching physical education

2009 **Project Coordinator for the School Physical Activity Policy Assessment (S-PAPA) Project**
-Project Coordinator overseeing three regional coordinators with duties including: help with school recruitment, data management and data entry.

2009 **Case Manager for Do PE! Project funded by Active Living Research**
-Recruiting and sampling schools to collect data on the perceived barriers in physical education.

2009 **Inter-Observer Agreement Data Collector for the OPEN Project**
-Conduct independent SOPARC assessments during 40 park visits

2009 **University of Nevada, Las Vegas Practicum Experience**
- Field experience at Paradise Elementary School teaching physical education

2009 **S.P.O.R.T. – Structured Play On Recess Time**
-Worked with fellow undergraduate students to organize and teach elementary students physical activities during recess time

2009 **SOFIT**
-Successfully completed SOFIT Training – Certified by Dr. Monica Lounsbery and Dr. Thomas L. McKenzie

2008 **CITI Certified**

Record of Scholarship

Research Interests

1. School Physical activity and policy
2. Physical education curricular and instructional practices

Funded Grant and Contract Activity

Holt. K. – data collection management. (Pending). *CAPS: Child Activity and Policies in Schools*. Lounsbery, M. – principal investigator. National Institute of Health - $2,648,078.

Holt, K. – project coordinator. (December, 2009). *School Physical Activity Policy Assessment*. Lounsbery, M. – principal investigator. Active Living Research – Robert Wood Johnson Foundation - $50,000.00.

Holt, K. – case manager. (December 2008). *Discovering Obstacles to Physical Education: Do PE!,*. Lounsbery, M. – principal investigator. Active Living Research – Robert Wood Johnson Foundation - $50,000.00.

Awards

Edward Pierson Memorial Scholarship - 2009

NAHPERD Scholarship - 2009

Research Reports

Lounsbery, M., McKenzie, T. L., Morrow, J.R., Monnat, S., & Holt, K. (in progress). School policies and their relationship to physical activity opportunities. *Annals of Behavioral Medicine.*

Lounsbery, M.A.F., McKenzie, T. L., Morrow, J.R., Holt, K., & Budnar, R.G. (in press). Reliabilities of the school physical activity policy assessment (S-PAPA). *Journal of Physical Activity and Health*.

Lounsbery, M.A., McKenzie, T.L., Morrow, J.R., Jr., & Holt, K. (2011). Test-retest reliabilities of an instrument to assess school physical activity policies. *Medicine and Science in Sports and Exercise, 43(5).* Suppl. S420. (Abstract).

Lounsbery, M. L., McKenzie, T. L., Handzus-Martinez, K., & Holt, K. (2011, April 1). *Observing Park Environments in Nevada (OPEN).* AAHPERD National Convention. San Diego. Research Quarterly for Exercise and Sport, 81 (1, Supplement), A60-61.

Lounsbery, M. & Holt, K. (2011). *Evaluation of 22 CCSD physical education teachers using SOFIT.* Report prepared for the Clark County School District.

Lounsbery, M. & Holt, K. (2010). *Evaluation of 22 CCSD physical education teachers using SOFIT.* Report prepared for the Clark County School District.

Peer Reviewed and Invited Presentations

Lounsbery, M. A., McKenzie, T. L., Morrow, J., & Holt, K. (2012). School physical activity policy assessment. Annual Conference, Active Living Research, San Diego.

McKenzie, T. L., Lounsbery, M. L., & Holt, K. (2011, June 23). The OPEN Partnership: Observing Park Environments in Nevada. AIESEP Congress, Limerick, Ireland.

Holt, K. (2011). *Comparing Physical Activity Levels in High School PE and Junior Reserve Officer Training Corps.* Poster discussion for student presentation at the annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance, San Diego, CA.

Lounsbery M., McKenzie, T. L, Handzus, K., & Holt, K. (2011). *Observing Park Environments in Nevada.* Paper given at the annual meeting of the American Alliance for Health, Physical Education, Recreation and Dance.

Lounsbery, M., Handzus, K., & Holt, K. (2011). *Engaging park staff in research using SOPARC.* Paper given at the annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance. San Diego, CA.

Holt, K. & Lounsbery, M. (2010). *Physical Activity Levels in 19 Secondary Physical Education Classes.* Poster discussion for student presentation at the annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance, Indianapolis, IN.

Yoo, S., Holt, K., & Lounsbery, M. (October 2009). *Description and Effects of the Diffusion of SPARK on Physical Activity Levels in Elementary Physical Education.* Paper given at the National Association for Sport and Physical Education Meeting on Physical Education Teacher Education. Myrtle Beach, South Carolina.

Professional Affiliations

NAHPERD	Nevada Alliance for Health, Physical Education, Recreation, and Dance
AAHPERD	American Alliance for Health, Physical Education, Recreation, and Dance.

Teaching Background

University Courses Taught

1. Introduction to Physical Education
2. Methods of Teaching Team Sports
3. Elementary Practicum Experience in Physical Education
4. Middle School Practicum Experience in Physical Education
5. Student Teaching in Physical Education