THE EFFECTS OF CLASS SIZE IN ELEMENTARY PHYSICAL EDUCATION:

AN EXAMINATION OF STUDENT ACTIVITY LEVELS, CLASS

MANAGEMENT TIME AND TEACHER ATTITUDES

Except where reference is made to work of others, the work described in this dissertation is my own or was done in collaboration with my advisory committee. This dissertation does not include proprietary of classified information.

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THE EFFECTS OF CLASS SIZE IN ELEMENTARY PHYSICAL EDUCATION: AN EXAMINATION OF STUDENT ACTIVITY LEVELS, CLASS MANAGEMENT TIME AND TEACHER ATTITUDES

Michael K. Gross

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VITA

Michael Keith Gross, son of Robert Jackson Gross, Jr. and the late Ann Thornton Bagley, was born May 22, 1961, in Tallassee, Alabama. He graduated from Tallassee High School in 1979. He enrolled at Auburn University Montgomery in the Fall 1980 and after a five year absence, returned in the Spring of 1986. Upon graduating in 1990 with a Bachelor of Science in Physical Education, he entered graduate school in the Fall Quarter of 1990 and graduated with a Master of Education in the Winter Quarter of 1991. He worked for a year as the Cardiovascular Fitness Director at Montgomery Athletic Club. He accepted a teaching position in the Montgomery County, Alabama, Public School System in August 1992. He taught elementary physical education at Brewbaker Primary School for 12 years. In 2004, he applied for and was accepted into the two year Teacher-in-Residence program at Auburn University Montgomery. In January 2005, he began work on the requirements for his doctoral degree at Auburn University, Auburn Alabama. In 2006, he accepted an instructor's position at Auburn University Montgomery in the Department of Physical Education and Exercise Science. He married Marcilla Ann Cooper, daughter of Marcita and Tom Cooper, on March 24, 2001.

DISSERTATION ABSTRACT

THE EFFECTS OF CLASS SIZE IN ELEMENTARY PHYSICAL EDUCATION: AN EXAMINATION OF STUDENT ACTIVITY LEVELS, CLASS MANAGEMENT TIME AND TEACHER ATTITUDES

Michael K. Gross

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Through the years, research has been conducted on the effects of class size on classroom instruction, with most states passing legislation to control the size of elementary classroom student-teacher ratios. However, little research has been conducted on the effects of elementary physical education class size and student-teacher ratios. This research examined the effects of class size on student activity levels, class management time, and teacher attitudes toward teaching large class sizes in elementary physical education. The purposes of this study were to examine the effects of class size in elementary physical education by: (1) examining the demographics of elementary physical education classes within the state of Alabama, (2) examining student activity levels in large and small classes, (3) examining the amount of class management time

that a larger class size demands on the physical education specialist during lessons, and (4) examining teacher attitudes concerning various aspects of teaching in larger class settings. Three different studies were conducted as a part of this research. In Study I; 132 elementary physical education specialists within the State of Alabama completed survey forms concerning the demographics of their teaching environment. In Study II; eight physical education specialists who teach elementary physical education in the river region of central Alabama taught a soccer lesson to primary-aged elementary students, once to a class of eighteen (18) students and once to a class of thirty-six (36) students. The System for Observing Fitness Instruction Time (SOFIT) was used to gather data concerning the amount of time students were engaged in moderate to vigorous physical activity and the amount of time the physical education specialists spend in class management context. In Study III eight physical education specialists who teach in the river region of central Alabama were interviewed concerning various teaching conditions associated with large class settings.

Study I results reveal that physical education specialists around the State of Alabama are teaching in student-teacher ratios far greater than regular education classroom teachers. Study II results confirm that students engage in less moderate to vigorous physical activity and the specialists spend more time in class management context in larger class settings that in smaller ones. Study III reveals that, in spite of teaching in large class settings that limit their ability to teach individualized daily quality physical education, physical education specialists persevere in large class settings because of their love of teaching and the desire to change the lives of the students in their charge.

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Thank you Dad, I love you and hope I have made you proud. I miss you Mom, but your memory drives me daily. Marcilla Ann, you are the love of my life, thanks for believing in me, it was definitely worth the wait!

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I believe that *we do not stop playing because we get old; we get old because we stop playing.* If everyday, the world would just stop, go outside and play, our lives would improve beyond our wildest imagination. And words cannot express my gratitude to my Lord and Savior, Jesus, who without His *amazing grace;* I would still be lost.

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CHAPTER I

INTRODUCTION

A main goal in the field of physical education is to produce daily quality physical education lessons as recommended by the National Association for Sport and Physical Education (NASPE). Physical education specialists have an obligation to provide each student the opportunity to learn, meaningful content, with appropriate instruction (Wuest & Bucher, 2009). Furthermore, in an age of rising overweight and obesity rates among adolescents and children (Rush-Wilson, 2008; McKenzie & Kaha, 2008; Walhead, 2007), daily physical education needs to provide quality movement time in each lesson to help in the fight against overweight and obesity among children (Bloom, 2007).

Yet, physical education specialists who desire to deliver daily quality physical education can be hindered by any number of variables: limited equipment and supplies (LaFee, 2007), inadequate teaching facilities (Marley, 2008), indifference toward physical education among students (Barrett Kutcy & Schulz, 2006), apathy of coworkers (Britt, 1997), and large class sizes (Hastie, Sanders, & Rowland, 1999) to name of few. Daily bombardment of these variables on a physical education specialist can lead to persistent frustration and a rise in stress levels.

Of the aforementioned variables that hinder daily quality physical education, large class sizes are seen as a major obstacle in providing adequate movement during elementary physical education. As the number of students engaged in a physical

education class increases, the demands placed on a physical education specialist also increase. The physical education specialist must attempt to provide equal opportunity for each student to engage in the daily lesson, remain focused on the amount of management time required in each lesson, and to continue to remain optimistic in the daily, weekly, and yearly application of quality lessons.

Quality physical education programs help students develop health-related fitness, physical competence, and cognitive understanding of the many different facets of physical activity (Wuest & Bucher, 2009). Quality physical education programs should teach children basic fundamental motor skills that will later serve as the foundation for running a pass route in football, rounding the bases in softball, or sprinting down the track during a meet. Such programs help them develop the cognitive skills needed to understand *why* they are not successful when taking a shot in basketball, and how to *fix* it so they can create success instead of failure with the next shot they take. Students need to be taught to break an action into parts so they can better understand it and how to accomplish the skill. Most importantly, a quality physical education program should instill a love and appreciation for physical education. Therefore, a physical education specialist needs an adequate amount of class time with the opportunity to deliver individualized instruction to each student.

A physical education specialist should have the opportunity to teach in the least restraining environment possible. A teaching environment, that provides a limited number of distractions, in order to help students gain an enjoyment for physical activity and the benefits it offers their bodies, to help them development a desire for movement and play that will become a lifestyle and a lifetime change. A teaching environment that

will help satisfy the urges that exist in children; to move, to be successful and gain approval, for peer acceptance and social competence, to cooperate and compete, for adventure and creative satisfaction, but most importantly, the urge to know (Pangrazi, 2004). This environment includes sufficient equipment and supplies, adequate teaching facilities, and a student-teacher ratio that allows for meaningful content and instruction during the physical education lesson. Lack of sufficient time and large class size may be the most serious problems that cut across K-12 physical education (Siedentop, 2009)

Purpose of the Research

The purpose of this investigation was to examine the effects of large class sizes in elementary physical education. The investigation consisted of three studies that focused on (1) demographic data of class sizes in the state of Alabama and perceived effects of larger class sizes on elementary physical education, (2) an analysis of student activity levels and class management time during an elementary physical education lesson, and (3) a qualitative investigation of the attitudes of physical education specialists that teach in large class settings. It was hypothesized that teaching large class sizes (students-teacher ratios of greater than 18:1) (a) would decrease the amount of student activity time during a lesson, (b) increase the amount of class management time required of the physical education specialist, and (c) reveal a troubling effect on the attitudes of physical education specialist.

Limitations

Limitation in Study I include: the specific number of students enrolled in each school. It is assumed that some physical education specialists rounded up or down to the nearest tenths when stating the number of students enrolled in their school and the

number of students that received daily physical education. Limitation in Study II includes student manipulation of the pedometer data. Data collected from the pedometers used to help measure student activity levels were excluded if students were observed manipulating the number count on the pedometer. Limitation for Study III, includes the number of questions that teachers were asked pertaining to large class sizes and teacher attitudes.

Delimitations

Delimitation in Study I include the use of a 5-point Likert scale, using a neutral answer choice concerning the effects of large class sizes on various issues in teaching elementary physical education. Delimitations in Study II includes second and third grade physical education classes participated in the lessons, class sizes were set at eighteen (18) and thirty-six (36) for the two lessons taught by the physical education specialist, each lesson was limited to thirty (30) minutes in length, and different students were used in each lesson to reduce the effect of familiarity with the lesson content. Delimitation in Study III, include the questions were targeted at the effects of large class sizes for physical education specialist.

Definition of Terms

Daily Quality Physical Education – is guided by content standards that offer direction and continuity of instruction; is student-centered and based on developmental urges and characteristics of students; makes motor-skill development the core of the program; teaches self-discipline; includes all students; is focused on the process of learning skills rather that the outcome performance; teaches lifetime activities for personal wellness; and teaches cooperation and responsibility (Pangrazi, 2007).

Physical Education Specialist – the title given to a physical education teacher in the public school systems used in this research.

Large Class Size – any class setting where the number of students in a physical education class is greater than the student-teacher ratio of a primary-age classroom teacher as set by the state of Alabama.

Student Physical Activity Level – an engagement level which provides an estimate of the intensity of the student's physical activity. Codes 1 to 4 correspond to various body positions (lying down, sitting, standing, walking), and code 5 corresponds to energy expenditure beyond what is needed for ordinary walking. Higher codes indicate greater energy expenditure (System for Observing Fitness Instruction Time [SOFIT], 2006).

Class Management Time – Refers to lesson time when students are not intended to be involved in physical education content, including transition, management, and break times. Transition includes time allocated to managerial and organizational activities related to instruction such as team selection, changing equipment, moving from one space to another, changing stations, teacher explanation of organizational arrangement, and changing activities within a lesson. Management refers to time devoted to class business that is unrelated to instructional activity such as taking attendance, discussing a field trip, or collecting money for class pictures (SOFIT, 2006).

Pedometer – a cost-effective device for measuring moderate to vigorous physical activity by measuring the number of steps taken during activity, that allows for a valid assessment of the amount of physical activity (Siedentop, 2009).

Moderate to Vigorous Physical Activity – activity involving a range from walking to movement that expends more energy or is performed at a higher intensity than walking;

can include, but is not limited to, locomotor movements, exercises, and game activity (The Council for Physical Education for Children, 2003).

Physically Educated Student - has learned skills necessary to perform a variety of physical activities, is physically fit, does participate regularly in physical activity, and knows the implications of and the benefits from involvement in physical Activities, and values physical activity and its contribution to a healthful lifestyle in order to pursue a lifetime of healthful physical activity (NASPE, 2002).

CHAPTER II

REVIEW OF LITERATURE

The Classroom and Class Size

Researchers have used various techniques to study how class size affects the quality of education. They have investigated the relationship between class size and student achievement, and have conducted various studies related to class size and its possible influences on educational practice. There is no longer any argument about whether class size in the primary grades increases student achievement, the evidence is quite clear: It does (Gursky, 1998). When these words were written nine years ago, the author was using the results of a statewide study that had shown that first graders improved in reading, math, and language arts in smaller classes. The study seemed to justify the long held belief of teachers and parents that students will perform better if they are not in a class of 30 students vying for attention from the teacher. A follow-up study from the findings of Project STAR found the following attitudes toward smaller classes from teacher interviews (Pate-Bain, Boyd-Zaharias, Achilles, & McKenna, 2001): (a) basic instruction was completed more quickly, providing increased time for covering additional material, (b) there was more use of supplemental texts and enrichment activities, (c) there was more in-depth teaching of the basic content, (d) there were more frequent opportunities for children to engage in firsthand learning activities using

concrete materials, (e) there was increased use of learning centers, and (f) there was increased use of practices shown to be effective in the primary grades.

A common benefit cited by teachers in small and regular-plus-an-aide classes was that they were better able to individualize instruction. These teachers reported increased monitoring of student behavior and learning, opportunities for more immediate and more individualized teaching, more enrichment, more frequent interactions with each child, a better match between each child's ability and the instructional opportunities provided, a more detailed knowledge of each child's needs as a learner, and more time to meet individual learners' needs using a variety of instructional approaches (Pate-Bain, Boyd-Zaharias, Achilles, & McKenna, 2001).

In an aforementioned study, the Tennessee Student-Teacher Achievement Ratio (STAR) Project, that began in 1985 and lasted 14 years, examined students that were placed in class sizes of 13-17 students during their K-3 years. The results showed that these students out performed those in standard classes of 22-25 students. Not only were the students studied while they were in the primary grade, but they were observed and tested throughout their public school education. The final report pointed to a possible lifetime of benefits from smaller classes (NEA, 1999). The following are some of the details concerning Project STAR (U.S. Department of Education, 1999):

> Tennessee's *Project STAR* (Student-Teacher Achievement Ratio) and two associated data collections have made important contributions to the quality of research evidence concerning the reduction of class size. *STAR* was a four year longitudinal study of kindergarten, first-, second-, and third-grade classrooms in Tennessee which began in 1985. *STAR* compared classes of 13-17 students with

classes of 22-26 students both with and without an additional instructional aide in the larger classes. Participating teachers did not receive any professional training focused on teaching in reduced size classes. *STAR* was unusual because it possessed essential features of a controlled research experiment designed to produce reliable evidence about the effects of reducing class size: (a) *Study size. Project STAR* included 79 schools, more than 300 classrooms and 7,000 students, with students being followed through four years of experience in the given class size, (b) *Random assignment.* Teachers and students were randomly assigned to the three different kinds of classes in order to ensure that the study was not biased by who was in which type of class, and (c) *In-school design.* All participating schools implemented at least one of each of the three types of classes in order to cancel out the possible influences coming from variations in the quality of the participating schools that might affect the quality of the classroom activity.

The evidence from student testing in *STAR* showed that the students in the smaller classes outperformed the students in the larger classes, whether or not the larger class teachers had an aide helping them. *Project STAR* found that: (a) smaller-class students substantially outperformed larger-class students on both standardized (Stanford Achievement Tests) and curriculum-based tests (Basic Skills First). This was true for white and minority students in smaller classes, and for smaller class students from inner city, urban, suburban, and rural schools, (b) the positive achievement effect of smaller classes on minority students was double that for majority students initially, and then was about the same, (c) a smaller proportion of students in the smaller classes were retained in-grade, and

there was more early identification of students' special educational needs, (d) there were no significant differences in academic achievement for students in the larger classes with or without an additional instructional aide, and (e) at least through eighth-grade, a decreasing but still significant higher academic achievement level for the students from the smaller classes persisted.

Another major study focusing on the effects of class size is The Wisconsin SAGE Project (U.S. Department of Education, 1999):

> Beginning in 1996-97, Wisconsin implemented a class-size reduction program called the *Student Achievement Guarantee in Education (SAGE) Program.* The *SAGE* Program's objective was to phase in class size reduction in kindergarten through third-grade classrooms in school districts serving students from low-income families. The *SAGE* Program reduced class sizes in kindergarten and first grade in 1996-97, added class size reductions in second grade in 1997-98, and added third grade class size reductions in 1998-1999. Its aim is to reduce class size in the appropriate grade levels to a student-teacher ratio of 15 to one or less.

SAGE program classroom arrangements in the first two years of implementation were: (a) including regular classrooms with one teacher and 15 students, (b) teams consisting of two teacher teams with 30 students, and (c) four other types of arrangements reflecting the constraints of existing classroom settings and teacher assignments. In the 1997-98 school year there were 30 schools from 21 school districts participating in the *SAGE* program, and 14 schools in seven districts providing

comparison student background and achievement data for an evaluation study of the program that is currently ongoing.

SAGE and comparison schools' academic learning was measured at the beginning and end of the first-grade year, and again at the end of the second-grade year. The students' scores were compared to those of students in matching comparison schools serving similar populations of students, with the following results: (a) *SAGE* first-grade students performed consistently better than comparison students in mathematics, reading, language arts, and total scores for the Comprehensive Test of Basic Skills, (b) the achievement gap lessened between white and African-American students in *SAGE*'s smaller classes in the first grade, in contrast to a widening of the gap between white and African-American students in the larger classes of the comparison schools, and (c) Second-grade *SAGE* students' academic achievement remained higher than that of the comparison school second graders, but the difference did not increase substantially.

The U.S. Department of Education (1999) reported the following conclusions after examining the findings from various research studies in Indiana, Tennessee, Wisconsin, and North Carolina, concerning class size: (a) a consensus of research indicates that class-size reduction in the early grades leads to higher student achievement. Researchers are more cautious about the question of the positive effects of class-size reduction in 4^{th} through 12^{th} grades and the significant effects of class-size reduction on student achievement; (b) the research data from the relevant studies indicate that if class size is reduced from substantially more than 20 students per class to below 20 students, the related increase in student achievement moves the average student from the 50^{th} percentile up to somewhere above the 60^{th} percentile. For disadvantaged and minority

students the effects are somewhat larger, and (c) students, teachers, and parents all report positive effects from the impact of class-size reductions on the quality of classroom activity.

Since the release and analysis of these major research projects of the latter part of the 20th century, further studies have be conducted focusing on different variables in the class size debate. Some studies began to search for extended knowledge of the effects of small class sizes on academic achievement. Finn, Gerber, Achilles, and Boyd-Zaharias, (2001) examined the following variables: (a) how large are the effects of small classes relative to the number of years students participate in those classes? (b) how much does any participation in small classes in Kindergarten through 3rd grade (K-3) affect performance in later grades when all classes are full size?, (c) how much does the duration of participation in small classes in K-3 affect the magnitude of the benefits in later grades?

Finn, Gerber, and Boyd-Zaharias (2005) purposed to examine the effects of smaller classes in primary grades on high school graduation. They raised three questions during the research: (a) is participation in small classes in early grades (K-3) related to high school graduation, (b) is academic achievement in K-3 related to high school graduation, (c) if class size is related to graduation, is the relationship explained by the effect of participation in small classes on students' academic achievement? The research concluded that graduating was related to K-3 achievement and that attending small classes for 3 or more years increased the likelihood of graduating from high school, especially among students eligible for free lunch.

Wasley and Lear, (2001), continued to follow up on the issue of parental, teacher, and administrative attitudes toward smaller class sizes. They concluded that parents, teachers, and administrators found that smaller class sizes produced an environment that allowed more engagement in the intellectual and emotional lives of the students, which lead to better academic performance. Furthermore, a British study examined the effect of class size and classroom processes, which might explain some of the differences reported. After observing over 10,000 students between the ages of 4-7 years, findings concluded that class size directly affects the teachers' ability to give individualized instruction:

> In large classes there are more large groups and this presented teachers with more difficulties, in smaller classes there was more individual teacher contact with pupils and more support for learning, and in larger classes there was more pupil inattentiveness and off-task behavior (Blatchford, Bassett, Goldstein, & Martin, 2003, p. 711).

Some of the research has focused on the socio-economic variables of the students. Viadero (2001) reported that results from a California initiative to reduce class size in primary schools showed, like other studies, that reduced class sizes improved student achievement. This study also reported that reduced class size helped the low-achieving, year-round schools with large poor and Hispanic enrollment. In these schools, the effect sizes were nearly double those for children in better-off neighborhoods. Jacobson (2002) reported that a follow up to Wisconsin's SAGE Program has resulted in higher academic achievement for children living in poverty. Nye, Hedges, and Konstantopoulos (2004) examined data collected in a five-year follow-up study of Project STAR and found that smaller class sizes show tremendous benefit for minorities. The research showed a

statistically significant, positive benefit of four years for minorities enrolled in smaller classes. The article concluded that this benefit may help reduce racial and ethnic inequality in reading.

Whereas most of the research has looked for the positive benefits of class size reductions on students, there are a few studies that have reached negative conclusions about the effectiveness of reduced class size. Borland, Howsen, and Trawick (2005) reported that the attempts to empirically identify the relationship between the variables of class size and student achievement were mixed, and it is believed that the attempts had been hindered by the following: (a) the use of student-teacher ratio as the measure of class size resulting in measurement error, (b) the estimation of a mis-specified model resulting from the failure to control for family effects, and (c) the general failure to take into account the endogeneity of class size with respect to achievement. Viadero, Jacobson, Harris and Bushweller (2003) reviewed the findings from a California report that claimed there was little evidence of academic achievement when students spent their K-3 years in smaller classes. Finally, a British report released by researchers from the University of London's Institute of Education, showed evidence that countered previous data. The study examined 21,000 British children over a three-year period and looked at annual scores from math, English, and science (Viadero, 2005).

Currently 33 of the 50 United States have some form of directive, either a mandated legislative action or a voluntarily legislative action in place for K-3 grades. Each state has variations on the adopted ratio of students to teachers. The highest ratio occurs in West Virginia at 25:1 followed by Kentucky with a 24:1 ratio in K-3 grades.

The lowest student-teacher ratios occur in Rhode Island and New Mexico with15:1 (Reduce Class Size Now, 2005).

The State of Alabama and Class Size

In 1997, based on recommendations from the 1995 Foundations Program Plan, the State Board of Education adopted the following resolution and guidelines for establishing class sizes in the State of Alabama:

> Meeting/Adoption Date: Thursday, January 08, 1998
>
> Resolution:
>
> WHEREAS, On September 11, 1997, the Alabama State Board of Education adopted a resolution expressing the belief that small manageable classes of students leads to improved instruction especially in the early grades, and;
>
> WHEREAS, The Alabama State Board of Education continues to support the lowest attainable pupil/teacher ratios in all grades under the funding supplied by the enactment of the 1995 Foundation Program Plan, and;
>
> WHEREAS, Policies regarding the further implementation of the September 11, 1997 Resolution are needed to further clarify and provide guidance to the local school systems throughout Alabama,
>
> NOW, THEREFORE, BE IT RESOLVED, That the Alabama State Board of Education does amend the Resolution adopted September 11, 1997 regarding class size and hereby proclaims the following policies to be applicable in the implementation of the resolution to attain small manageable classes of students and delegates to the State Superintendent of Education authority to implement these policies consistent with the September 11, 1997 Resolution, and the policies

of this Board as follows:

1. Maintain the class size caps as previously stated by the State Board of Resolution adopted September 11, 1997.

2. Foundation units that are earned by a school must be used at that school unless all classes meet the pupil/teacher ratios of the September 11, 1997 State Board Resolution with any combination of federal, state and local teacher units. While not required, if LEAs elect to meet the prescribed ratios for any particular school through a combination of teacher units then the LEA may reassign state units to other schools.

3. Grades K-6 must recognize the correct divisors (K-3, 18-1; 4-6, 26-1) to meet the State Board Resolution.

NOTE: Some schools maintained the same ratios in K-6 which made K-3 overloaded in many instances.

4. Based on class size data collected during the Fall of 1998, the State Superintendents' FY 2000 Budget will include requests for any additional units needed.

NOTE: The issue of teachers and secretaries having to dispense medication also will require school nurses.

5. Class size changes which may need to be made in January to address grossly overloaded classes, especially in grades K-3, will be handled on a class by class basis.

6. The State Superintendent may grant a waiver to an LEA for unusual situations/circumstances such as using state units from several schools to staff a

school dedicated to serving students with disabilities, the staffing of a new school that did not exist the previous year, etc.

7. If a case arises where a local school system does not meet the State Board Resolution regarding class size or obtain an approved waiver, the State Superintendent is authorized to intervene and take action as appropriate to bring said local system into compliance. The steps for intervention will follow those previously established and adopted for financial intervention;

BE IT FURTHER RESOLVED, That the Alabama State Board of Education directs that this resolution shall be effective upon its adoption by the State Board and that the State Superintendent of Education shall carry out these policies and interpret the same in a spirit consistent with enhancement of the educational experience for students in Alabama public schools.

Table 2.1.

Teacher/Pupil Ratio Recommendation for the State of Alabama

	SACS Standard		Alabama Limits, K-6, January 1998 K-12, Fall 1998	
Self-Contained	(K)	1:25 1:26-30 w/aide	(K)	1:18**
	(1-3)	1:28 1:29-33 w/aide	(1-3)	1:18**
	(4-8)	1-32*	(4-6) (7-8)	1:26* 1:29*
Non Self-Contained	(1-3)	1:30	(1-3)	1:18**
	(4-8)	1:32*	(4-6)	1:26*
	(9-12)	1:32/750 per week*	(7-12)	1:29/750 per week*

* Does not include physical education, musical performing groups, ROTC, or typing. The limit for these subjects is 1,000 student contacts per week. High schools (grades 9-12), junior high schools (grades 7-9), unit schools (grades K-12), and area vocational centers shall also maintain the SACS standard of an overall student/total professional staff ratio of 21:1.

** Classes with aides will be reviewed as an exception by the State Superintendent of Education.

Physical Education and Class Size

Despite recent arguments concerning the positive effects of class size and student performance, there is still enough empirical research to favor a reduction in class size in elementary schools. However, based on the aforementioned State of Alabama Teacher/Pupil ratios, physical education is not included in the small class ratios. A closer examination of the numbers involved reveals that at most elementary schools (based on schools that have 10 class periods per day for 30 minutes in length) the physical education specialist would teach two or three times over the classroom ratio. If a physical education specialist can teach up to 1000 student contacts per week, then most

elementary schools with only one full-time specialist are probably in violation of this resolution. If *School Y* has an enrollment of 400 students in K-3 grades, and each student receives 30 minutes of daily quality physical education from a physical education specialist, each class period would average 40 students per class and surpass the resolution ratio mid-week after the fifth class period.

So what does the research say about class size and physical education? While there has been considerable research in relation to classroom size, little has been conducted in the area of physical education and class size. According to Hastie, Sanders, and Rowland (1999) only three studies had been conducted prior to 1999 that focused on physical education and class size. Furthermore, there has been little empirical research conducted in the area of physical education and class size in the twenty-first century.

Barroso, McCullum-Gomez, Hoelscher, Kelder, and Murray (2005) addressed the issue of class size when investigating barriers to quality physical education. The investigation centered on surveying elementary physical specialists in Texas that had attended the CATCH (Coordinated Approach to Child Health) training. The specialists answered questions concerning barriers to quality physical education, and the top two barriers named were low academic value of physical education and large class sizes. Keating and Silverman (2005) hypothesized that class size, among other variables, was a factor influencing teachers' use of fitness testing. Their research concluded that attitudes toward fitness testing, grade level, and school type were the top three factors, not class size. AAHPERD (2002) addressed class size as an issue in physical education in the *Status of Physical Education in the USA: Shape of the Nation Report, 2001,* but did not address class size in the 2006 report. One dissertation was found that addressed class size

as a variable in the research. The research focused on four physical education teachers, two highly experienced and two lesser experienced teachers, as they prepared and taught lessons for two different class sizes: n=15-16 and n=30-31. A secondary purpose was to investigate the influence of class size on teaching behaviors and student learning (Kim, 2006). The findings illustrate that smaller classes are more beneficial for less experienced teachers and that class size was an important factor when selecting content and organizational structure. In view of the lack of research in relation to class size in physical education, further investigation in this area is warranted.

CHAPTER III

STUDY I: A DEMOGRAPCHIC EXAMINATION OF CLASS SIZE AND TEACHER ATTITUDES TOWARD TEACHING LARGE CLASSES IN ELEMENTARY PHYSICAL EDUCATION IN THE STATE OF ALABAMA

Abstract

The purpose of this study was to examine the demographic data of elementary physical education programs throughout the State of Alabama. A two-part questionnaire was distributed at the Alabama State Association of Health, Physical Education, Recreation and Dance Fall Conference in Birmingham, Alabama. One hundred thirty-two (132) elementary physical education specialists responded with data concerning: the number of students enrolled at their respective schools, the number of students that receive daily physical education, the number of certified physical education specialists that teach at their school, and the average class size taught per class at their school. The second part of the questionnaire was a 5-point Likert scale that asked the physical education specialists to give an opinion on the effects of class size in relation to inadequate equipment, a contributing factor in the ongoing obesity epidemic, a hindrance to delivering daily quantity physical education, limiting moderate to vigorous physical activity, increased class management time, and opportunities for specific feedback. The results yielded data that confirm that most physical education specialist teach in class setting larger than the student-teacher ratio (18:1-Kindergarten through Second Grade,

26:1-Third through Sixth Grade) mandated for classroom teachers in elementary education in the State of Alabama. Results also show a strong belief among physical education specialists surveyed that large class sizes limit their ability to deliver daily quality physical education, manage their class, limits moderate to vigorous physical activity, and limits learning time for students.

Introduction

Research has shown that physical education struggles within school curricula due to the failure to treat physical education as a priority, as evidenced by minimal requirements, large class sizes, a lack of funding, inadequate facilities, a lack of training of personnel, and frequent cancellation of classes (Siegel, 2008). Teaching large elementary physical education classes is demanding on a physical education specialist's time and performance. Physical education specialists usually are required to teach a large number of children in a small amount of time. This demand has been shown to increase the amount of class management time within a physical education lesson (Sherman, 2001), limiting the amount of on-task time for the students. This requires the physical education specialist to focus on many other variables other that the physical education curricula and daily lesson content. Concerns for adequate space and equipment, risk of student injury in a large class setting, and lack of administrative support for smaller classes limits the physical education specialist from providing the maximum amount of daily quality physical education that is recommended.

Within these large class settings, physical education specialists are forced to divide the class into groups, with students within each group participating one student at a time (Sherman, 2001). This practice limits a student's learning time during a physical

education lesson, and can lead to unfavorable attitudes and values toward physical education from the physical education specialist and students. Fitness testing, grade levels, gender, age, years teaching elementary physical education, and class size have been hypothesized to influence the overall attitudes of teachers (Keating & Silverman, 2005). Attitudes and values are subsets of beliefs. A group of beliefs clustered around a situation or object becomes and attitude that is prone to action. When beliefs function to evaluate and call for action, they have become values (Kulinna & Silverman, 2000). Also, teacher's curricular and instructional decisions and, ultimately, student learning are affected by their belief systems (Pajares, 1992). Attitude permeates everything we do. It is an important component in all aspects of human endeavor. Attitude influences whether we begin or continue with certain activities—and whether we achieve in certain areas (Silverman & Subramaniam, 1999). Teachers' attitudes and values toward teaching comprise their educational value orientations and value orientations describe the relative importance of several key factors in the teaching-learning process (Kulinna & Silverman, 2000). It has been proposed that the quality of physical education is associated with a teacher's commitment to physical education and the way it is perceived and valued by the teacher (Morgan, 2008).

Student attitudes toward participation in physical education also have a consequence on a physical education specialist's curriculum development and daily lesson content. When an activity is deemed fun and relevant, students participate more. Students agreed that they liked physical education classes better when they were successful in an activity. Students continued to enjoy certain activities because they were already successful and capable in these activities (Portman, 2003). If large physical

education classes limit the amount of student participation within the lesson, restricting the amount of success for each student, large class size would affect student attitudes toward overall participation in physical education classes. Physical education specialists are employed with the task of making lesson content relevant and fun in the realm of large physical education classes. According to Daigle and Hebert (2005), there are multiple variables that can influence student attitude toward physical education: perceptions of peer, parent, and teacher support; perceived value and meaningfulness, competence; and the intent to be physically active. However, class size remains a major factor in student attitudes toward participation in physical education lessons. Students agree that the number of students in the gymnasium can be overwhelming and limits student-teacher interactions and limits the teachers' ability to promote quality physical activity (Coviello & Dyson, 2005).

The state of Alabama is one of only three states (Illinois and Washington) that require daily physical education in elementary school (NASPE, 2006). This daily physical education mandate allows Alabama schools to meet the recommendation of 150 minutes of physical activity per week for elementary physical education. All school children grades Kindergarten through eighth grade should participate in substantial amounts of physical activity and limited amounts of sedentary behavior. As much as the daily physical education mandate is good for the students of Alabama schools, it poses a problem for physical education specialist as they are faced with the growing trend of larger class sizes to accommodate administrative and academic demands on school curricula (Graham, 2008). Student attitudes have a large impact on the success of a class (Bibik, Goodwin, & Orsega-Smith, 2007).

Purpose of this Study

The purposes of this study were to collect and examine the demographic data of elementary physical programs throughout the State of Alabama and to evaluate elementary physical education specialist's attitudes toward teaching large class sizes in elementary physical education.

Methods

Participants

The participants in this study were 132 elementary physical education specialists that teach elementary physical education within a public school system in the State of Alabama. The participants represent 40 of the 67 counties in the State of Alabama. The participants were attendants of the 2007 Alabama State Association for Health, Physical Education, Recreation, and Dance Fall Conference in Birmingham, Alabama, and responded to a questionnaire that was distributed at the conference.

Data Collection

A questionnaire, consisting of two parts, was distributed within the conference registration packet and the conference attendees were asked to fill-out the questionnaire and return the completed questionnaire during the two day conference. Some of the questions were derived from the *Teaching Large Class Sizes in Physical Education: Guidelines and Strategies* (NASPE, 2006) Large Class Size – Consequences. Instructions on the questionnaire specified that, if there were multiple physical education specialists teaching at one school, only one physical education specialist should submit a questionnaire for that school. Part one of the questionnaire (Table 3.1) consisted of nine questions concerning information about the physical education specialists teaching

arrangements. The questionnaire asked for information concerning physical education class demographics. The participants were asked: in what county did they teach, if they taught at a public school, the number of physical education specialists that taught at their school, the number of aides that assist with their physical education classes, the number of students enrolled at their school and the number of students that receive physical education per day, the grade levels taught at their school, the number of class periods taught per day, and the average number of students taught per physical education class.

Table 3.1

Elementary Physical Education Class Size Questionnaire Part 1

Thank you for agreeing to answer this questionnaire concerning elementary physical education class size in the State of Alabama. Please answer the questions to the best of your ability and only answer the questionnaire if you teach elementary physical education. As you can see the questions are anonymous and the answers will be used to further research on the effects of class size in elementary physical education.

1. In which county do you teach? _____
2. Do you teach at a public or private school? _____
3. Are you the only certified physical education specialist at your school? _____
   a. *How many certified physical education specialist teach at your school?* _____
   b. *How many teacher aides work in the Physical Education Department?* _____
4. How many students are enrolled at you school? _____
5. What grade levels are taught at your school? _____
6. How many students per day receive physical education with a certified physical education specialist? _____
7. How many physical education class periods are taught per day? _____
8. How many grade level classes are taught during each physical education class period? _____
9. How many students are taught per physical education class period? _____

Part two of the questionnaire (Table 3.2) had seven items, and used a 5-point Likert-scale to allow the physical education specialists to comment on their attitudes concerning their physical education class demographics. The questionnaire asked the physical education specialists to rate their answers using a 5-point Likert scale value system: 1 = strongly disagree with the statement, 2 = disagree with the statement, 3 = no opinion on the statement, 4 = agree with the statement, 5 = strongly agree with the statement. The participants were asked to rate their opinion on the following statements concerning whether or not large class sizes: limit my ability to deliver daily quality instruction; limit the amount of time my students are engaged in moderate to vigorous physical activity; limit my ability to deliver specific; positive feedback; cause me to spend more time on classroom management; create problems with providing adequate equipment; are a major contributing factor to the overweight epidemic among elementary age children; and limit the learning opportunities of students.

Table 3.2

Elementary Physical Education Class Size Questionnaire Part 2

The following questions are concerned with your perception of class size and its effect on your ability to teach. You will use a 5-point Likert Scale to answer the questions: 1 – SD (strongly disagree with the statement, 2 – D (disagree with the statement, 3 – NO (no opinion on the statement, 4 – A (agree with the statement), 5 – SA (strongly agree with the statement). Circle the corresponding number to match your answer.

1 2 3 4 5	Large classes limit my ability to deliver daily quality instruction.
1 2 3 4 5	Large classes limit the amount of time my students are engaged in moderate to vigorous activity.
1 2 3 4 5	Large classes limit my ability to deliver specific, positive feedback.
1 2 3 4 5	Large classes cause me to spend more time on classroom management.
1 2 3 4 5	Large classes create problems with providing adequate equipment.
1 2 3 4 5	Large classes are a major contributing factor to the overweight epidemic
1 2 3 4 5	Large classes limit the learning opportunities of students

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Results

Descriptive statistics consisting of means (M) and standard deviations (SD) of Part 1 and Part 2 of the Elementary Physical Education Class Size Questionnaire are presented in Table 3.3 and Table 3.4, respectively. The raw data collected from Part 1 of the questionnaire is presented in Appendix B. The results in Part 1 of the questionnaire show that, for these participants, on average, there are two certified physical education specialists per school that share the assistance of one aide. These physical education specialists are teaching an average of 600 students per day, over the course of eight class periods, and averaging 85 students per class.

Table 3.3

Means and Standard Deviations of Part 1 of the Elementary Physical Education Class Size Questionnaire (n=132)

Demographic Information Question	*M*	*SD*
How many certified physical education specialist at your school?	1.89	0.84
How many teacher aides work in the Physical Education Dept.?	0.82	0.84
How many students are enrolled at your school?	606.85	243.27
How many students per day receive physical education with a certified physical education specialist?	598.18	243.60
How many physical education class periods are taught per day?	8.05	1.98
How many students are taught per physical education class?	85.85	36.73

The results in Part 2 of the questionnaire show outcomes that would seem consistent with large class sizes. In answering six of the seven statements, the physical education specialist showed a propensity to agree or strongly agree with the statements concerning large class sizes.

Table 3.4

Means and Standard Deviations of Part 2 of the Elementary Physical Education Class Size Questionnaire (n=132)

Statement of Attitude toward Large Class Size	*M*	*SD*
Large classes limit my ability to deliver daily quality instruction.	4.45	1.00
Large classes limit the amount of time my students are engaged in moderate to vigorous physical activity.	4.29	0.96
Large classes limit my ability to deliver specific, positive feedback.	4.41	0.89
Large classes cause me to spend more time on classroom management.	4.42	0.93
Large classes create problems with providing adequate equipment.	4.43	0.93
Large classes are a major contributing factor to the overweight epidemic among elementary age children.	3.71	1.20
Large classes limit the learning opportunities of students.	4.39	0.95

Discussion

One of the purposes of this study was to examine the demographic data of elementary physical education programs throughout the state of Alabama. This information is important in determining the present state of physical education in Alabama and helpful in shaping future policy in the field of physical education. The Statewide Committee to Review the State of Health of America's Youth with Particular Emphasis on Alabama's Youth Task Force (2006, p. 13) recommended to the Alabama Superintendent of Education a student-teacher ratio for elementary and secondary physical education class size. The recommendations (Table 3.5), if funding was provided

by the State legislature, were to be implemented in two phases. Phase 1 proposes the hiring of 289 new physical education specialists at the start of the 2007 and 2008 school years respectively. Phase 2, providing adequate funding, would implement the student-teacher ratio recommendations for physical education, at the beginning of the 2007 school year. At the beginning of the 2008 school year, neither phase had been implemented therefore physical education specialists in the state of Alabama were likely still teaching in large class settings.

Table 3.5

Recommended Physical Education Class Sizes – Student-Teacher Ratios

Grade Level	Without an Aide (Teacher-students ratio)	With an Aide (Teacher-student ratio)
Grades K-2	1:25	1:26-50
Grades 3-6	1:33	1:34-64
Grades 7-12	250 students per day	1,250 per week

The data shows an average of 600 students being taught physical education by two certified physical education specialists, with the help of one aide, in class sizes that average 85 students per class. A teaching environment of this nature would limit each physical education specialist in his/her ability to deliver daily, quality physical education. It would appear that physical education specialists in Alabama are caught in a cyclic paradigm. On one hand, the state of Alabama mandates daily physical education for all students, which provide the opportunity to produce healthy, physically competent students. But due to a lack of funding, inadequate facilities, and lack of administrative support, physical education specialists are forced to teach in classroom settings that hinder their ability to produce healthy, physically competent students. The raw data from

Table 3.6 shows a variety of school settings and student-teacher ratios. At one school in Madison County, three physical education specialists and three aides, teach 1398 kindergarten through fourth grade students per day. With the help of an aide, each physical education specialist teaches an average of 466 students per day and 58 students per class period. At a school in Elmore County, three physical education specialists average 333 students per day and 48 per class. Also, a physical education specialist at a school in Colbert County teaches 370 students per day, without an aide, averaging 52 students per class. It appears that no matter how many physical education specialists teach at a particular school, the student-teacher ratios remain high.

Conventional wisdom would conclude that large class settings are not good for teacher morale and preparation. Is it possible to provide daily quality physical education that will produce a physically educated student? The data from Table 3.4 show that a majority of the physical education specialists either agree or strongly agree with the statement on the 5-point Likert scale questionnaire. Eighty-eight percent (Table 3.6) believe that large classes limit their ability to provide daily quality physical education and eighty-nine percent believe that learning is limited in large classes. Yet, only fifty-eight percent believe that large class sizes play a major role in the obesity epidemic.

Table 3.6

Percentage of Specialists that Agree or Strongly Agree with Statement concerning Physical Education and Large Class Sizes

88.6	Limits opportunity to learn
87.8	Deliver daily quality instruction
87.8	Create problems with providing adequate equipment
87.8	Limit my ability to deliver specific, positive feedback
85.6	Limit the amount of time students are engaged in moderate to vigorous activity
77.2	Spend more time on classroom management
57.5	Major contributing factor to the overweight epidemic

Until the dilemma of teaching large classes is addressed with more funding and support at a local and state level, physical education specialists will continue to struggle against many obstacles, but must remain steadfast in their attitude and desire to develop physically educated students. Physical education specialists must become advocates for change but their voices are usually drowned out by the collective of other academic subjects and the deaf ear of administration. Advocacy begins at the personal and local levels. Physical education specialists cannot stand by and wait for someone else to step forward to address the problem. Simply put, the more physical educators, future professionals, and teacher education professionals understand that they have the power to bring about change in the professional community; the more successful we will be in bringing positive changes to the field (Constantinou, 2008).

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CHAPTER IV

STUDY II: THE EFFECTS OF CLASS SIZE ON STUDENT ACTIVITY LEVELS AND CLASS MANAGEMENT TIME IN ELEMENTARY PHYSICAL EDUCATION

Abstract

The purpose of this article was to examine the effects of class size in physical education on (a) the amount of time students are engaged in moderate to vigorous physical activity, and (b) the amount of time spent in class management content. Eight physical education specialists from the River Region in central Alabama participated in the study. Each physical education specialist taught two 30-minute lessons consisting of a warm-up activity, fitness development routine, a soccer lesson, and a closing activity. One of these classes had 18 students while the other had 36 students. The System for Observing Fitness Instruction Time (SOFIT) was used to measure activity levels and class management time. The SOFIT is a validated instrument that uses time sampling to measure lesson content time. The physical education specialists and students were measured in intervals for the length of a physical education class. Results show no differences in either physical activity levels of class management time between the two class sizes.

Introduction

Over the past three decades, overweight and obesity has been on the rise (Center of Disease Control and Prevention, 2009). Rates of overweight and obesity in children and adolescents are measured differently than adults. BMI is measured using age-specific growth charts and sex-specific percentiles because the amount of body fat changes with age and the amount of fat differs between girls and boys (Mei, Grummer-Strawn, Pietrobelli, Goulding, Goran, & Dietz, 2002). According to the Center for Disease Control and Prevention there has been a dramatic increase in obesity since 1985 in the United States among adults. In 2007, only one state, Colorado, had a prevalence of obesity of less than 20%; Alabama had a prevalence of obesity equal to or greater than 30% (2008). Research shows that the amount of overweight and obese children has doubled and the number of overweight and obese adolescents has tripled over the past 20 years (Pangrazi, 2007). Two of the objectives of *Healthy People 2010*'s national health objectives are (1) to reduce the prevalence of overweight and obesity among adults to less than 15% and (2) to reduce the prevalence of obesity among children and adolescences to less than 5% (U.S. Department of Health and Human Services, 2000).

It is important that the issue of overweight and obesity in children and adolescents be addressed because of the variety of ways it affects each individual. Empirical research shows many variables that should be considered when taking into account overweight and obesity in children and adolescents: physical fitness (Mastrangelo, Chaloupka, & Rattigan, 2008); physical fitness and academic performance (Wittberg, Northrup, & Cottrel, 2009); self-esteem (Tyler, Johnston, Dalton, & Foreyt, 2009; Pratt, Webber, Baggett, Ward, Pate, Murray, Lohman, Lytle, & Elder, 2008); teasing (Swami, Furnham,

Amin, Chaudhri, Joshi. Jundi, Miller, Mirza-Begum, Nisha-Begum, Sheth, & Tovee, 2008); injury (Morrison, & Christoffel, 2008); nutritional habits (Lowry, Lee, McKenna, Galluska, & Kann, 2008); and physical activity levels (Brewer, Luebbers, & Shane, 2009; Hannon, 2008; Sinclair, Stellino, & Partridge, 2008).

Of these variables, physical activity is closely linked with the prevalence of overweight and obesity (Kipping, Jago, & Lawlor, 2009). The need for active lifestyles among children and adolescents is vital in curtaining the overweight and obesity epidemic. Children and adolescents must make a conscience choice to develop an active lifestyle. The advent of technology upon the American culture is a key variable in the rise of overweight and obesity. Video games have moved children and adolescents from running on the playground, climbing trees, riding bicycles, and swimming at the local water hole; to sitting on the couch and exercising their thumbs as they operate the video game controller. Although some research shows that with the introduction of video games that require moderate physical activity to play (e.g. Wii), children and adolescents (and adults) are slowly returning to a more active lifestyle. Borja reports that in an age of rising obesity rates, the *Dance Revolution* game is an example of how schools are using the *bling-bling* of technology to nudge students into a more active lifestyle (2006). And the new *Wii Fit* video game, allows an individual to choose from 48 activities in four categories: yoga poses, strength training, aerobic exercise, and balance games (Allen, 2008). One component of daily physical activity can and should be established in physical education classes.

Physical education specialists have a unique opportunity to provide children and adolescents with knowledge and activities that will motivate them to pursue a more active

lifestyle outside of the school setting. Opportunities for physical activity should be provided through recesses, organized fitness breaks, before- and after-school activity programs, and structured physical education classes taught by certified specialists (Ferrin & Amick, 2002). Yet physical education specialists are hampered by many variables that limit their ability to deliver daily quality physical education, such as: lack of equipment (Hastie & Saunders, 1991; LaFee, 2008), discipline problems (Kulinna, 2008), and class size (Hastie, Sanders, & Rowland, 1999; Barroso, McCullum-Gomez, Hoelscher, Kelder, and Murray, 2005). LaFee (2008) reports that many physical education classes are too big, exceeding 45 students which translates into less real activity per student. The dilemma of large classes during physical education class would seem to promote the cyclic nature of reduced physical activity time and increased classroom management.

Purpose

The purposes of this study were: (a) to examine if the amount of time physical education students are engaged in moderate to vigorous physical activity decreases during large physical education classes, and (b) to examine if physical education specialist are required to spend more time on management content during large physical education classes. According to McKenzie (2006), larger classes are associated with less moderate to vigorous physical activity (MVPA). It is hypothesized that teaching larger class sizes will require more class management time and provide less opportunity for the students to engage in moderate to vigorous physical activity.

Methods

Participants

Eight physical education specialists, who teach elementary physical education in the River Region in central Alabama, participated in this study. Seven of the physical education specialists teach in a county school system and one physical education specialist teaches in a city school system. The teaching experience of the eight physical education specialists ranged from a first year physical education specialist to a physical education specialist with 22 years of experience in elementary physical education (Table 4.1). The physical education specialists consisted of three females and five males. The researcher had a professional relationship with each of the participants prior to the research and was familiar with each school represented. The researcher was aware of the class size that each participant experienced in relation to their daily teaching schedule. Each participant was contacted concerning their participation in the research project, and after the research format was explained to each participant, they were given an opportunity to volunteer to participate. It was explained that they were under no obligation to participate and could withdraw at any time without prejudice. No coercion occurred in recruiting participants. All recruitment proceedings occurred as a result of personal contact. Approval was obtained from the Institutional Review Board for Research involving Human Subjects. Permission to conduct research was obtained from each school system through communication with the system's superintendent and each superintendent provided a letter of consent to allow the research to occur within his or her system. An informed consent was signed by each participant who participated in the

research (Appendix B). Coding was used to protect the identity of each physical education specialist and participating school.

Table 4.1

Participant Demographics

Physical Education Specialist (n=8)	Teaching Experience (yrs.)	Highest Education Degree	Gender
#021619	22 years	M. Ed.	Female
#231619	10 years	M. Ed.	Female
#130519	1 year	B.S.	Male
#160305	17 years	E. Sp.	Female
#030519	18 years	M. Ed.	Male
#200519	5 years	M. Ed.	Male
#070519	2 years	B.S.	Male
#021620	5 years	M. Ed.	Male

Participating Schools

Each of the participating elementary schools teaches primary-aged students (kindergarten – third grade) and experience large physical education classes (36+ students per class period). Student enrollment at the participating schools ranges from 573 students (smallest enrollment) to 1100 (largest enrollment) (Table 4.2). All of the participating schools employ more that one physical education specialist to teach daily physical education classes, but only three of the participating schools employ teaching aides for physical education (Table 4.2). Each school provides physical education five

day per week for each student and each class length ranges for 30 to 35 minute periods. The number of class periods taught per day range from seven to ten per school and each physical education specialist has at least four classes per day that have 36 students or greater per class (Table 4.2).

Table 4.2

School Demographics

School Code Number	Number of Students per school	Physical Education Specialist per school	Teaching Aides	Class periods per day	Class length (minutes)	Largest class size per specialist
#021619	763	2	0	10	30	36
#231619	573	3	1	10	30	36
#130519	548	2	0	10	30	36
#160305	673	2	0	10	30	36
#030519	1100	3	2	7	35	52
#200519	753	3	1	8	35	36
#070519	820	2	0	10	30	36
#021620	765	2	0	10	30	36

Setting

The physical education specialists taught the two lessons within the structure of their daily class routine. Effort was made to limit the amount of disruption to the daily class schedule to prevent change in student and physical education specialist behavior. Each lesson was taught during the class's regularly scheduled physical education class

period. Participating schools that had a physical education period longer than 30 minutes stopped class at the end of the allotment. The physical education specialists were given the option of teaching the lessons outside or inside the gymnasium. Three of the participating schools do not have a gymnasium available and teach in classrooms. A coin was flipped to determine which class size, 18 students or 36 students, was taught first.

The Lesson

Each physical education specialist taught a prepared 30-minute elementary physical education lesson that was written by the researcher. Each physical education specialist received the lesson plan prior to the observed lessons to provide time for review of the lesson. The lesson plan comprised four parts: a five-minute warm-up activity, a six-minute fitness development activity, fifteen-minute lesson focus and a four-minute closing activity (Appendix E). The warm-up activity, Fire and Ice, met the requirements for warm-up activities by providing maximum participation during the activity and provided physiological warm-up for each student involved in the lesson. Bean bags were scattered on the ground and the students were given instructions to move around the teaching area using a designated locomotor movement while touching as many bean bags as possible with a designated body part.

Animal Walks comprised the fitness development portion of the lesson. The students performed eight animal walk activities for thirty seconds each with a ten second rest. During the rest period, information and demonstration was given concerning the next animal walk to be performed. Each physical education specialist was given the option to use music to control the performance time of each animal walk and the rest period. The lesson plan suggested playing upbeat, rhythmic music for thirty seconds,

during which the animal walks were performed; followed by ten seconds of silence, used to give instructions on the performance of the next animal walk. The eight animal walks in the lesson were the: inchworm walk, lion walk, elephant walk, seal walk, kangaroo jump, lame dog walk, crab walk, and the frog jump.

The lesson content was comprised of the soccer skill of trapping and passing. Students were instructed on the techniques of trapping with the sole of the foot and executing an inside of the foot pass. Students worked with a partner during the lesson focus portion of the lesson. During the trapping portion of the lesson, partner A rolled the ball to partner B, who trapped it using the sole of the foot technique. Then partner B rolled the ball back to partner A, who trapped it using the sole of the foot technique. Each partner started the activity using a right foot trap and continued for one minute. Then the process was repeated using the left foot for one minute. The process was repeated again using an alternation foot pattern for one minute. The students then proceeded to an inside of the foot pass. Each student began by using the right foot to pass the ball to a partner, who would stop the ball by grabbing it with his/her hands, and then pass the ball back using the right foot for one minute. The process was repeated using the left foot for one minute. Once again the process was repeated using an alternating foot pattern for one minute. During the last portion of the lesson focus, the students combined the two skills. As one student passed the ball, the partner would trap the ball using a sole of the foot trap. The cycle of right foot, left foot, and alternating feet was repeated again. One and one-half minutes for each foot practice, and two minutes for the alternating foot pattern was given.

The closing activity consisted of a game called *I See*. The physical education specialist would announce, "I see" and the students would respond, "what do you see?" the physical education specialist would respond with an activity in the form of a statement, "I see children walking like duck." At which time the students squatted and exhibited a waddle like motion simulating the walk of a duck. There were six suggested actions that the students were to perform for 30 seconds each. The last action was landing their airplane by sitting, ready to exit the class upon the command of the physical education specialist.

Data Collection

Instrument. The System for Observing Fitness Instruction Time (SOFIT) is a direct observation system specifically developed for use during physical education (McKenzie, 1991). The SOFIT is a comprehensive system used to measure the proportion of time that students spend in moderate to vigorous physical activity (MVPA) during physical education class, lesson content, and teacher's promotion of physical activity during class time (McKenzie, 2006). The SOFIT is conceptualized as a 3-phase decision system. Observers code student behavior, lesson content, and teacher interaction in every other 10 second interval. For this study, only two phases of the SOFIT were employed, Phase 1, Student Physical Activity Engagement and Phase 2, Lesson Context/Content. Student physical activity engagement was coded using the following five levels: (1) lying down, (2) sitting, (3) standing (4) walking, and (5) very active, which corresponds with energy expenditure beyond what is need for ordinary walking. Codes 4 and 5 are associated with moderate to vigorous physical activity. Lesson context/content was coded using the following six levels: (M) management, (K)

knowledge, (F) fitness, (S) skill practice, (G) game play, and (O) other, usually referring to free play time when physical education instruction is not intended. Student physical activity was measure as how 51% of the students were engaged in activity at the time of the observation interval.

The data was collected on the SOFIT Recording Form (Appendix C). Data collected before the beginning of a class included (a) school code, (b) lesson location, (c) class size, and (d) teacher gender. Student activity levels and lesson content were observed in intervals of 20 seconds, 10 seconds of observing the students and physical education specialist, and 10 seconds to record the data. This process was repeated during the length of the 30-minute lesson. Observer did not start the time intervals until the physical education specialist had all students in place and started teaching the lesson. This procedure shortened the length of observation and data collection in some classes. Data was tabulated and recorded on the SOFIT Summary Sheet (Appendix D).

Technology. Pedometers were used to measure student activity levels. Pedometers have been shown to provide adequate measurement of moderate to vigorous physical activity engagement (Beighle, Pangrazi, & Vincent, 2001; Cuddihy, Pangrazi, & Tomson, 2005). Of the many tools that might be used to measure physical activity, the pedometer is particularly useful because it is reliable, inexpensive, and simple for youths to use and understand (Bassett, Ainsworth, Swartz, Strath, O'Brien, & King, 2000). The students were instructed on how to wear the pedometer at the beginning of each class and asked not to touch the pedometer during the lesson to prevent an accidental clearance of the reading of steps. Each student wore a *StepLinq Pedometer*; an entry level pedometer that counts the number of steps completed and is purchased through *The President's*

Challenge. The pedometers were collected immediately after the completion of the lesson to prevent accidental clearances and manual manipulation of the number count. Readings of <75 steps were discarded, with the assumption that the pedometer was worn incorrectly. Readings of 000 were not recorded with the assumption of an accidental clearance.

Data Analysis

Paired sample t-tests (α=.05) were used to compare the mean scores of the moderate to vigorous physical activity, and class management content from the SOFIT analysis, as well as compare the pedometer counts between the conditions.

Results

SOFIT Data

Percentages of time spent in Moderate to Vigorous Physical Activity (MVPA) are presented in Figure 4.1 and the mean minutes spent in MVPA are presented in Figure 4.2. Percentages for each SOFIT category during each lesson are presented in Appendix G. The percentages are calculated for the amount of time students and physical education specialists were engaged in student behavior (SB) and lesson context (LC). Student behavior and coding included: (1) lying down, (2) sitting, (3) standing, (4) walking, and (5) very active. Walking and very active activities are considered as moderate to vigorous physical activity (MVPA). Lesson context and coding included: (M) management, (K) knowledge, (F) fitness, (S) skill practice, and (G) game play. The physical education lesson was designed to include activity in all five categories of the lesson context area. Percentages of time spent in Management content (M) are presented in Figure 4.3 and the mean minutes spent in Management content are presented in Figure

4.4. Paired t-test (α=.05) analysis showed no differences between the conditions for MVPA t (7) = 1.45, p = .094, or class management content (t (7) = -.91, p = .196.

Figure 4.1

Percentage of Teaching Time Spent in MVPA During Lesson

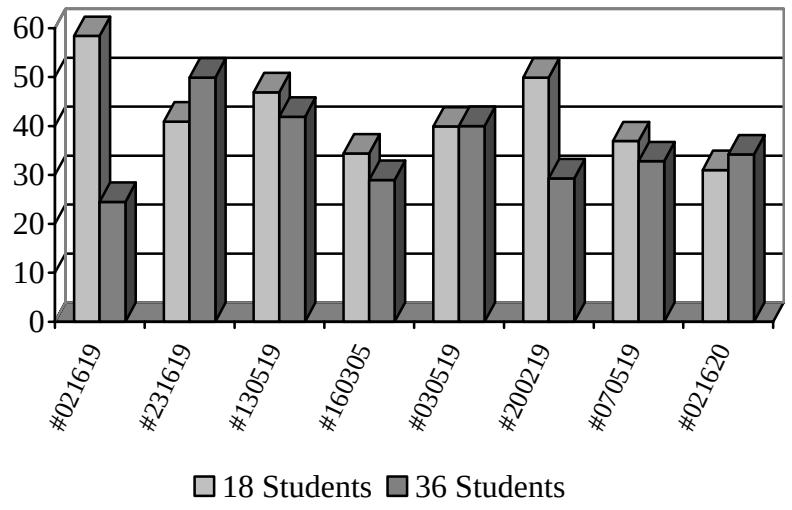


Figure 4.2

Mean Minutes of Time Spent in MVPA During Lesson (All Schools)

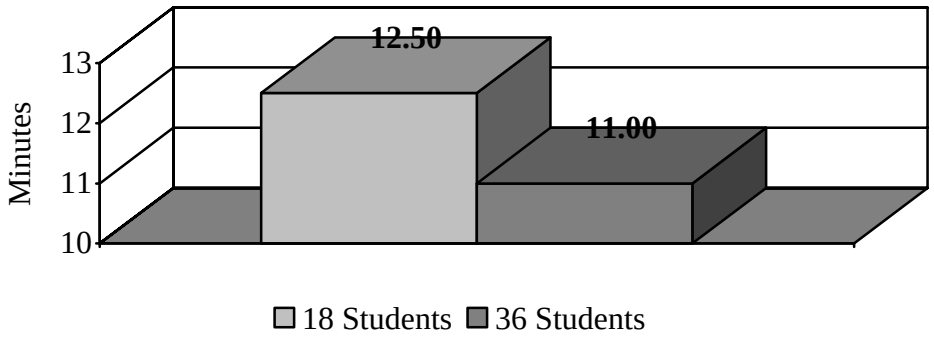


Figure 4.3

Percentage of Teaching Time Spent in Management Content During Lesson

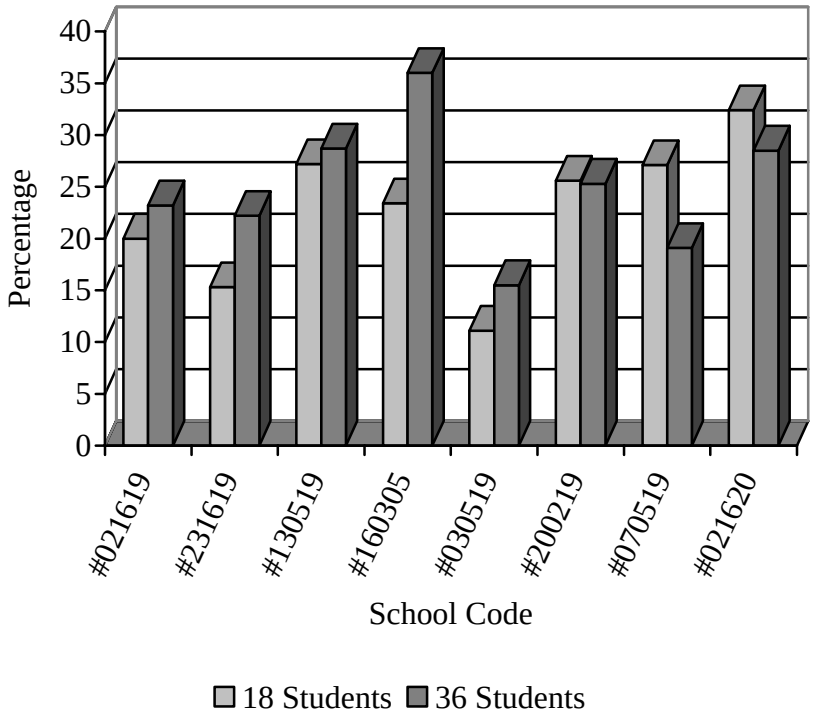
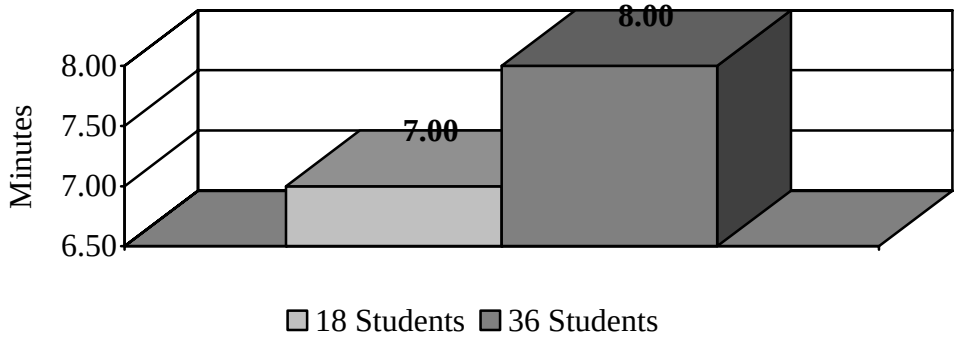


Figure 4.4

Mean Minutes of Teaching Time Spent in Class Management (All Schools)



One variable that was accounted for before the collection of data was time lost during transition and waiting. McKenzie (2006) instructs in the use of the SOFIT that the recorder should begin collecting data once the class(es) are in place and the physical education specialist begins to teach. The premise of this research was to determine how much time students engage in moderate to vigorous physical activity and the amount of time a physical education specialist spends within the class management context. The timer started when the class schedule said the class was to begin. Once the class(es) were in place and the teacher was ready to teach the lesson, SOFIT data was collected. Adjustments in the length of the class(es) were made and percentages calculated based on that adjustment. That data is presented in Appendix I.

A comparison of the real time and adjusted percentages are compared with the percentages derived from the design of the physical education lesson plan and are found in Table 4.3.

Table 4.3

Percentage Comparisons for All Schools

	CS	2	3	4	5	M	K	F	S	G
All Schools	18	23.9	35.5	17.4	24.6	23.6	32.2	15.3	16.3	12.2
minutes				***5.2***	***7.3***	*7.0*				
(real time)	36	23.3	38.1	15.8	21.1	26.5	32.4	11.4	17.5	12.0
minutes				***4.7***	***6.3***	*8.0*				
All Schools	18	24.4	36.6	19.0	21.6	30.9	31.1	13.0	15.2	09.5
minutes				*5.7*	*6.4*	*9.2*				
(adjusted)	36	18.1	42.6	16.2	20.1	32.2	28.7	10.2	16.1	12.3
minutes				*4.8*	*6.0*	*9.6*				
Lesson Plan	%	-----	44.4	25.5	30.0	06.6	23.3	13.3	36.6	20.0
minutes		-----	*13.3*	*07.6*	*10.0*	*2.0*	*7.0*	*4.0*	*11.0*	*6.0*

Pedometer Counts

Means (M) and Standard Deviations (SD) calculated from pedometer usage during the physical education lesson are presented in Appendix H. Mean steps for all schools are presented in Figure 4.1 and the average steps for all schools are presented in Figure 4.2. Means and standard deviations were calculated for each participating school and calculated as a complete group. Mean step count ranged from the lowest of 211.67 (36 student class size) to the highest 514.97 (36 students class size). The mean for all the classes was 349.87 for classes of 18 students and 376.75 for classes of 36 students. Paired t-test (α=.05) analysis showed no differences between the pedometer counts t (7) = 0.82, p = .446.

Figure 4.1

Means of Steps Taken During Lesson per School

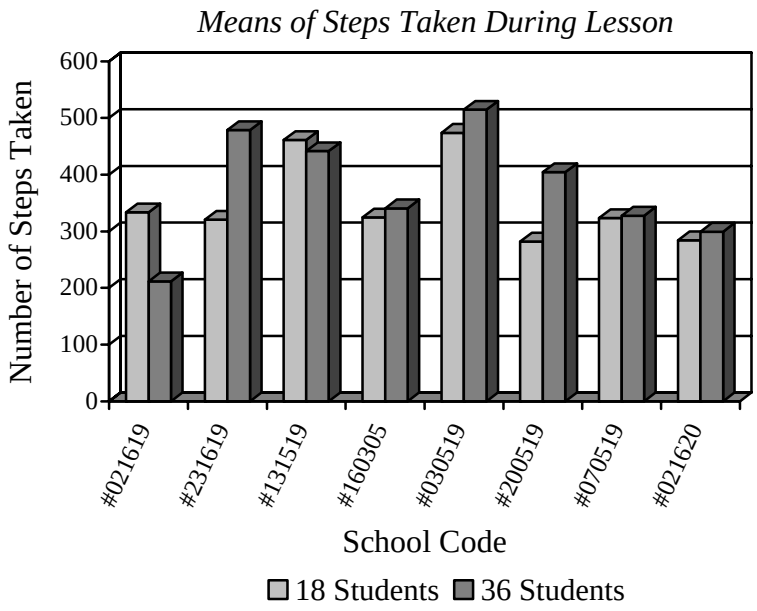
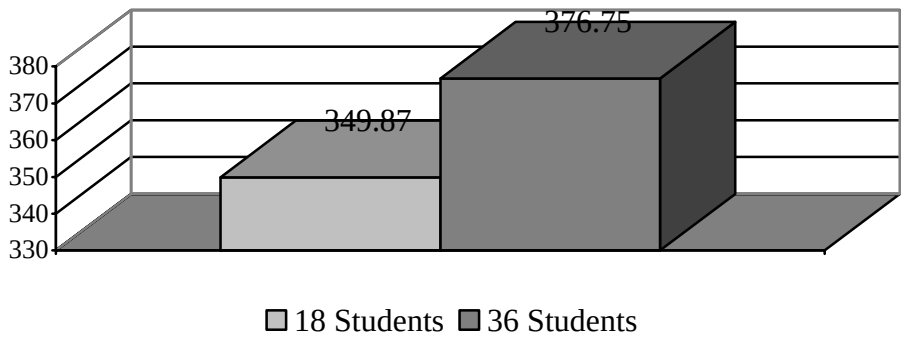


Figure 4.2

Means of Steps Taken During Lesson All Schools



Discussion

The purposes of this study were (a) to examine if the amount of time physical education students are engaged in moderate to vigorous physical activity decreases during large physical education classes, and (b) to examine if physical education specialist are required to spend more time in management content during large physical education classes. Controls were established in the lesson plan design of collecting the data through non-intrusive observation and in a familiar setting. As each physical education specialist taught the same 30-minute lesson to a single class of 18 students and a double class of 36 students, the recorder remained as obscure as possible as the lesson was taught and as data was collected. Each lesson was taught within the content of the physical education specialist daily schedule, so as not to disrupt the daily routine of the students. Although all of the participating physical education specialists team-teach with one or more physical education specialist, only the participating physical education specialist was present during the teaching of the lesson.

The data reveals an overall decrease in moderate to vigorous physical activity in large class settings (12.5 minutes down to 11.0 minutes) and an increase in the amount of time the teacher has to spend in management content (7.0 minutes up to 8.0 minutes), confirming, to some degree, that larger classes have an adverse affect on student activity levels and class management content time.

Possible reasons for no differences included (a) teachers had no experience with smaller classes and hence did not take advantage of the situation, (b) the lesson script contained a fair amount of activity and the equipment allowed all students to be active, and (c) there were significant variations of activity—a large sample size might have made

a difference. The SOFIT and pedometers only measure activity levels and do not account factors related to skill acquisition (i.e. opportunities to respond and success rates). It is possible (although we do not know) that all students in the larger classes might have had less actual skill interaction during the lesson. It is hard to tell because there were no differences in class management; perhaps the physical education specialists just gave-up with the larger classes and negotiated downwards their expectations.

Notations were made during each lesson concerning students who were moving outside the parameters of the lesson (i.e. during soccer skills, students were observed kicking the ball outside the skill practice area and then running to get the ball; during the warm-up activity, students were observed running outside the boundaries of the activity to avoid being tagged). Increased steps taken by the students is a desired goal in a physical education lesson, but if it comes at the cost of higher incidences of class management and discipline, other issues such as safety, would need to be addressed.

Although there was some variation in the mean scores of steps, MVPA, and class management time, statistical analysis showed no statistical value in the differences. The hypothesis for each of these areas predicted a significant difference in the mean scores between class sizes of 18 and 36. Certain variables may account for the lack of statistical support in examining class size effects in elementary physical education.

Teaching Facilities and Location of Teaching Facilities

The design of the research allowed each physical education specialist to choose where they would like to teach the lesson, inside or outside. Of the eight participants only three have a gymnasium, which is shared with other physical education specialist employed at the school. Five of the physical education specialists have a classroom or

double classroom in the school as their teaching facility. These physical education specialists must travel distances of forty to fifty yards to reach their outdoor teaching area. One physical education specialist, with a gymnasium, must travel 100 yards to reach his outdoor teaching area. Increased travel time equates to an increase in management time and a decrease in actual teaching time. An assumption was made that lessons taught outside would produce more moderate to vigorous physical activity due to a greater amount of space to teach the lesson. Yet not all of the physical education specialists that had to travel had increases in class management time, as two were able to produce a decrease in their class management content in the larger class. One benefit for the physical education specialist that must travel with his/her students is the increase in walking time, which counts as moderate to vigorous physical activity.

Teaching Loads and Class Schedules

Six of the eight physical education specialists teach ten, 30-minute periods per day with the other two specialists teaching seven and eight 35-minute periods per day, respectively. Two of the physical education specialists do not have travel/transition time built into their daily schedule. When one class is scheduled to end, the next is scheduled to enter. This process increases management time and decreases actual teaching time. Another variable in class schedules is the process of picking-up and returning the classes to each teacher. Five of the physical education specialist travel to pick-up and return their students to their respective classrooms. Assumption was made that participants with large classes and limited time would cause a rise in class management time. This assumption was true and especially for the two physical education specialist that do not have travel time between their classes. An average of three minutes was lost per class to

travel time with the classes. The three physical education specialist that lost the least amount of time to travel, have classroom teachers that bring their students and pick-up their students from physical education class.

Teaching Experience

Along with teaching large classes, each physical education specialist was asked to participate in the research based on their years of teaching experience. Kulinna, Cothran, & Regualos (2006) concluded that teaching experience is an important variable in class management for physical education specialists. Teaching experience for the physical education specialist in this research ranged from a first and second-year teacher, to a 22 year veteran. Years of teaching experience for all eight participants are: one, two, five, five, ten, seventeen, eighteen, and twenty-two. An assumption was made that more experienced physical education specialists would have better class management skills and procedures, limiting the amount of time in class management content. Although this assumption held true, the highest level of class management content for any class occurred during the lesson of a physical education specialist who was a 17-year veteran.

Among the many byproducts of increased teaching experience is a physical education specialist ability to adapt to their teaching environment. Notwithstanding that teaching in large class settings is not the most optimal situation, assumption could be made that with gained teaching experience, physical education specialists become more efficient at delivering daily, quality physical education in the least restrictive teaching environment possible. That regardless of the numbers or other limiting effects that are placed on them, they develop the ability to produce daily lessons that engage students in

learning and limit *off-task* behavior. This is a condition that could be labeled as *professional resilience.*

Equipment

Research confirms that the amount of equipment available during a lesson has an effect on a physical education lessons (LaFee, 2008; Frazer-Thomas & Beaudoin, 2002; Hastie & Saunders, 1991), therefore it was the intent in this research to provide enough equipment so that every student was engaged in activity during the lesson. Enough soccer balls were provided so that each grouping of students has a ball and were actively engaged in the lesson content. However this control may have produced a false teaching environment for each of the physical education specialist. If each specialist is accustom to teaching with limited equipment so that there is a greater amount of off-task time for each student, it is plausible that there was not a significant rise in class management time due to sufficient equipment and that the equipment controlled class management levels more than the physical education specialists.

Threshold of Students

Hastie and Saunders (1991) found that changes may not occur in class effects until a certain student enrollment level is reached during a lesson. Research was conducted using class size of 12, 24, & 44 students with various equipment levels and revealed that a significant number of students were off-task in the largest class size (44 students). Supposition could be made that significant effects did not occur in this research because the largest class size was below a threshold of students need to cause a significant effect during the lesson. The class sizes in this research was chosen based on the student/teacher class ratios for the State of Alabama (K-third grade = 18:1). Each of

the physical education specialist that participated in the project teach in class settings of 36 students or higher per class. Assumption was made that each specialist would be able to teach a more efficient lesson in relation to producing higher levels of moderate-to-vigorous physical activity and decrease the amount of class management needed to control a small number of students. One limitation of this assumption that was not considered was that because the physical education specialists teach in large class settings each day, they have become efficient at delivering daily, quality physical education lessons to a large number of students.

Small Number of Participating Physical Education Specialist

One of limitation of this research that might explain the lack statistical significance is the small number of participants. Eight physical education specialists participated in the research with the original proposal calling for 10 participants. Participants were limited due to logistical and time restrains of conducting the research in a public school setting. Assumption was made that 10 participants would produce enough data to confirm or reject the hypothesis of decreased students activity levels and increases in class management time for physical education specialist.

Only One Observation per Class Size

Another variable that may limit the analysis of this research is the limited number of observations of lessons and limited data collected. Each physical education specialist was observed only once teaching the 30-minute lesson to each class size. Assumption was made that effects of class size would be present with one observance of each lesson.

Academic Learning Time

Research on teaching physical education has focused on the relationship of class organization and student engagement time-variables with achievement. Class time was described in three measures: a) allocated time; the time the teacher plans for students to be engaged in motor activities, b) engaged time; the time a student is actually physically engaged in the activities, and c) academic learning time (ALT); the portion of engaged time a student is involved in motor activity at an appropriate success rate (Parker, 1989). Parker concluded that increases in ALT reduce the amount of time physical education specialists must spend in organization and management. The design of the lesson used in this research intended to reduce the amount of potential off-task behavior for each student. During both lessons, each student was engaged in every portion of the lesson content, with off-task behavior limited to knowledge content of the lesson (i.e. instructions concerning performance of each activity and lesson portion) and necessary management content (i.e. transitions between lesson parts, distributing equipment). Assumption was made that this design would allow for off-task behavior based on the student choice and not the lesson content or the physical education specialist. Any increases in class management time would occur because of inattentiveness of the students during the lesson content.

Future research needs to examine different variables in the class size issue related to motor skill development—at least for now, the larger classes do not seem to make a difference at least with activity—and interestingly, management issues might also be examined for an ecological perspective.

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CHAPTER V

STUDY III: PERSPECTIVES OF PHYSICAL EDUCATION SPECIALIST WHO TEACH IN LARGE CLASS SETTING

Abstract

This paper examines the perspectives of ten elementary physical education specialists who teach large class sizes in the River Region of central Alabama. The physical education specialists taught classes containing up to 54 students per class. Interviews were conducted with each physical education specialist, with interview questions consisting of questions concerning their ability to deliver daily quality physical education, classroom management, risk management, marginalization, hopelessness, and possible solutions to the problem of teaching large classes in elementary physical education. The attitudes expressed by the physical education specialist ranged from resilience to despondency, desires for mandated legislation to status quo, and from quality physical education to "roll out the ball." In spite of teaching environments that include large class sizes, lack of administrative support, peer apathy toward physical education as a legitimate academic discipline, and insufficient equipment to provide maximum participation for all students, the physical education specialists are driven by a desire to see their students excel and develop a positive attitude toward physical activity.

Introduction

Providing a quality physical education program for young children is critical in the battle against childhood overweight and obesity. Participation in a quality program during these formative years will likely instill in the child a love for physical activity that may last a lifetime and a favorable attitude toward physical education (Wuest & Bucher, 2009). Physical education specialists are working harder to provide quality programs in the wake of societal concerns about physical activity behaviors of children and adolescents. The recent national concern about child/youth overweight and obesity has resulted in many states increasing their requirements for physical education (Siedentop, 2009). The State of Alabama mandates physical education for grades kindergarten through eighth grade, and a mandate of one year for high school students. Within this mandate is the requirement of 30 minutes of physical education per day for each student (Alabama Department of Education, 2007). Conducting a quality physical education program requires dedicated and competent physical education specialists. One challenge facing physical education specialists is providing a high-quality physical education program for all their students. Children should have the opportunity to learn, meaningful content, with the appropriate instruction when in physical education class (Wuest & Bucher, 2009). In order to provide daily, quality, developmentally, appropriate physical education; physical education specialists must overcome a wide range of variables that affect the delivery of their lesson content, and affect their professional attitude and outlook upon their profession.

Teacher attitude is an important factor in the delivery of quality physical education programs. Research reveals a variety of obstacles that can and do affect

physical education specialists' ability to deliver quality physical education, not just in content, but also the quantity of activity. Physical education specialists face a myriad of tasks every day, on an instructional, managerial, and institutional level, that mold and shape their teaching philosophy and demeanor (Wuest & Buchner, 2009). LaMaster (1998) looked at the struggle of physical education specialists to implement technology into the classroom and lesson content, and their self-efficacy concerning computer technologies. Hodge (1998) and Elliott (2005) reported of the link between teacher attitudes toward inclusion of students with special needs in physical education and teacher effectiveness in planning. Research has examined the attitudes of physical education specialists regarding pedagogical influences because attitudes often shape the choices, perceptions, and actions of teachers, starting with preservice teachers (Sherman, 2002). Attitudes toward teaching physical activity and fitness have been examined. Physical activity participation leading to the development of physical fitness is one of the important outcomes of physical education programs and program outcomes are influenced by many factors, including teachers' beliefs, attitudes and values (Kulinna & Silverman, 2000). Classroom management is a critical component of effective teaching and is a major influence on teacher attitudes in physical education (Garrahy, Cothran, & Kulinna, 2002).

One prominent variable that affects teacher attitudes is class size. The amount of students that physical education specialists are teaching on a daily basis can be mentally and physically draining. In spite of recommendation from the National Association for Sport and Physical Education (NASPE) and the Council for Physical Education for Children (COPEC), little progress has been made to reduce class size in elementary

physical education in the state of Alabama. NASPE recommends that elementary physical education classes have a students/teacher ratio of 25:1 (2006) and the Statewide Committee to Review the State of Health of America's Youth with Particular Emphasis on Alabama's Youth Task Force recommended student/teacher ratios of 25:1 for kindergarten through second-grade and 33:1 for third- through sixth-grade (2006).

Research concerning classroom size has shown that larger classes affect student learning ability. The Tennessee Student Teacher Achievement Ratio (STAR) Project examined students that were placed in class sizes of 13-17 students during their kindergarten through third-grade years. The results showed that these students out performed students in standard classes of 22-25 students. Not only were the students studied while they were in the primary grade, but they were observed and tested throughout their public school education. The final report pointed to a possible lifetime of benefits from smaller classes (NEA, 1999). A follow-up study from the findings of Project STAR found the following attitudes toward smaller classes from teacher interviews (Pate-Bain, Boyd-Zaharias, Achilles, & McKenna, 2001): (a) basic instruction was completed more quickly, providing increased time for covering additional material, (b) there was more use of supplemental texts and enrichment activities, (c) there was more in-depth teaching of the basic content, (d) there were more frequent opportunities for children to engage in firsthand learning activities using concrete materials, (e) there was an increased use of learning centers, and (f) there was an increased use of practices shown to be effective in the primary grades. The U.S. Department of Education (1999) reported the following conclusions after examining the findings from various research studies; research indicates that class-size reduction in the early grades leads to higher

student achievement and students, teachers, and parents all report positive effects from the impact of class size reductions on the quality of classroom activity.

Although class size is offered as a detriment to daily quality education, there is little empirical research concerning class size and its effects in physical education. Hastie and Saunders (1991) identified class size and equipment availability as variables that can hinder teacher decision making and student participation levels. Analysis was conducted on class sizes of 12, 24, and 44 students and equipment availability was unlimited or restricted to minimal levels. The results supported the contention that changes in class size and the amount of available equipment will affect student lesson involvement as more students were off-task in larger classes (p. 221).

Hastie, Sanders, and Rowland (1999) examined the practices of elementary physical education specialist as they attempted to provide quality learning experiences to classes as large as 75 students (p. 277). Of the three key findings that emerged from this study, two were directly related to teacher attitudes, (a) perceptions of marginalization and (b) perceptions of hopelessness. The sense of professional isolation and powerlessness lead to the perceptions of marginalization, as the teachers became frustrated professionally at not being able to enact high quality programs (p. 286). Hopelessness ensued as repeated attempts to reduce the size of daily physical education classes fell on the deaf ears of administrators, classroom teachers, and even parents.

Only three articles concerning class size could be identified in the twenty-first century. Barroso, McCullum-Gomez, Hoelscher, Kelder, and Murray (2005) addressed the issue of class size when investigating barriers to quality physical education. The investigation centered on surveying elementary physical specialists in Texas that had

attended the CATCH (Coordinated Approach to Child Health) training. The specialists answered questions concerning barriers to quality physical education and the top two barriers were low academic value of physical education and large class sizes. Keating and Silverman (2005) hypothesized that class size, among other variables, was a factor influencing teachers' use of fitness testing. Their research concluded that attitudes toward fitness testing, grade level, and school type were the top three factors, not class size. AAHPERD (2002) addressed class size as an issue in physical education in the *Status of Physical Education in the USA: Shape of the Nation Report, 2001,* but did not address class size in the 2006 report. Gross (2008) examined the effects of class size on the amount of moderate to vigorous physical activity and class management content using the System of Observing Fitness Instruction Time (SOFIT) concluding that physical education specialist could face higher levels of management content in larger classes. Despite some of the known effects of large class sizes in elementary physical education, there is little evidence of an impending reduction in student/teacher ratios.

Purpose

The purpose of this study was to determine the effects of teaching large classes on the professional and personal attitudes of elementary physical education specialist that teach in large student/teacher ratios. Physical education specialists are a very small percentage of the professional work-force within a school, usually receiving little support from administration and classroom peers. Concerns and suggestions quite often are disregarded and ignored by administration personnel who seek to appease larger segments of the teaching profession. It is important that physical education specialists are given an opportunity to voice their perspectives concerning the environments in

which they are required (and sometimes forced) to teach. The assumption of this research is that teaching large classes on a daily basis will adversely affect the perspectives of physical education specialists and have an effect on their ability to deliver daily quality physical education.

Participants

Ten physical education specialists, who teach elementary physical education in the River Region in central Alabama, participated in this study. Nine of the physical education specialists teach in a county school system and one physical education specialist teaches in a city school system. The teaching experience of the eight physical education specialists ranged from a first-year physical education specialist to a physical education specialist with 28 years in elementary physical education (Table 5.1). The physical education specialists consisted of five females and five males who teach daily classes as large as 54 students per physical education specialist.

Table 5.1

Participant Demographics

Physical Education Specialist	Teaching Experience (yrs.)	Highest Education Degree	Gender
#021619	22 years	M. Ed.	Female
#231619	10 years	M. Ed.	Female
#130519	1 year	B.S.	Male
#160305	17 years	E. Sp.	Female
#030519	18 years	M. Ed.	Male
#200519	7 years	M. Ed.	Male
#070519	2 years	B.S.	Male
#021620	5 years	M. Ed.	Male
#160519	25 years	M.Ed.	Female
#041605	28 years	M.Ed.	Female

Method

Personal interviews were conducted with the participating physical education specialist regarding their perspectives and attitudes toward teaching large class sizes in elementary physical education. The participants had previously participated in a research project concerning the effects of class size on student activity levels and class management time. Interview questions focused on the physical education specialists perceived effects of large classes and how large classes limited their ability to deliver daily quality physical education instruction (Appendix F). The questions were written to

inquire about specific variables that effect elementary physical education: biggest issue faced when teaching, delivering daily quality physical education, class management time, adequate equipment, safe learning environment, learning opportunities, adequate opportunity for moderate to vigorous physical activity, class size ratios in the State of Alabama, administrator attitudes toward physical education and class sizes, lack of professional consideration, demoralizing issues, and the saving grace that keeps them going. Some of the questions were derived from the *Teaching Large Class Sizes in Physical Education: Guidelines and Strategies* (NASPE, 2006) Large Class Size – Consequences. Each interview lasted less than 15 minutes and usually included unscripted follow-up questions that arose from answers given during the interview phase. Each physical education specialist was asked to answer each question as honestly and frankly as possible and was reminded that each interview was coded so that no one but the researcher would know their answer. The interviews were transcribed and recorded according to each participant's response to the question content.

Results and Discussion

The interview data for each question was recorded and analyzed for common attitudes and perspectives in teaching large classes. Each physical education specialist teaches in a different professional environment which brings a variety of view to each answer. All of the participants' team-teach with at least one other certified physical education specialist, and two have teaching aides assigned to assist in physical education. Only four of the specialist teach in a gymnasium but share the gymnasium with other specialist. Perspectives from each physical education specialist were obtained concerning each variable considered to have an effect on teaching in a large class.

Biggest Issue Faced

Discipline or maintaining discipline was one of the reoccurring answers from the interviews. Discipline was a concern as it is related to off-task behavior.

> Discipline. When our time is spent handling discipline problems, we can't use the time to teach effectively. (#160519)
>
> Discipline issues and off-task behavior while waiting for turns. When every child is actively participating, I very rarely have discipline issues due to not being on-task. (#230519)
>
> Discipline is the biggest issue. I have to be on one end of the gym and then the other and there is always a problem with kids putting their hands on each other. (#030519)

Other issues touted by the participants included safety and the inability to work with the students individually.

> Safety-if you try to have all the children moving, there is a risk of injury if they are not paying attention. (#160305)
>
> Safety, too many children….can be very dangerous. (#041605)
>
> One on one interaction with students and space. It is hard to get around to observe all students and give them feedback on skills. (#021619)
>
> Keeping students on task. It is very difficult trying to get a lot of students together at the elementary level and have them stay still and quiet long enough to explain and demonstrate a new activity, skill or game. (#130519)

Producing Daily Quality Physical Education

Each of the participants of this study was asked to participate based on his/her desire to produce and develop a quality physical education program at his/her respective school. Each participant makes a strong effort to deliver quality lessons to his/her students, within a balanced and sequenced curriculum.

> For me it affects the quality by limiting what I can teach, I am still going to provide a quality physical education program for the children, but I believe the children will be bored with the program and I think it might discourage P.E. in their future. (#130519)
>
> The inability to work with each student individually. (#160519)
>
> It has a negative in the sense that you can't devote too much time to one student if they are having trouble with a skill. Having to re-teach skills more often. (#021619)
>
> I am not as able to give one on one instruction because there are so many other children to watch. (#160305)
>
> Large classes are hard to talk over. It takes forever to get them all quiet so everyone can hear instructions. There is no way to have interaction with every child. The best I can do is to show them an activity and hope they are doing it correctly as I walk up and down watching for fights and bad behavior. (#030519)
>
> I believe it causes teacher frustration/burnout near the end of the day/week, and my instruction is not delivered as well or effectively later in the day/week. (#230519)

Additional Class Management Time

All of the participants believed that larger classes cause them to spend more time in class management, with most equating it to increased discipline problems.

> When students realize you have more students to manage and you cannot always see them all at the same time, they tend to try and get away with more….whether it is during lining up, forming groups, etc. (#230519)
>
> If there is no organization and discipline there is no way to get them going. (#300519)
>
> …getting classes, esp. large classes, under control first, is most important before doing a lesson. (#041605)
>
> In smaller classes you might have one or two that want to act up but in larger classes that double or even triple. (#130519)

Adequate Equipment

Equipment, or a lack of equipment, is a common interest among physical education specialists who are striving to produce lessons containing maximum participation for each student. Physical education specialists find it increasingly difficult to deliver quality instruction if students are standing and waiting to take a turn with a particular piece of equipment. Equipment is a major issue in elementary schools due to large class and the expense of buying large quantities to meet the need of each student in a class.

> We don't have enough money to buy a piece of equipment for each child. We have 120 to 180 students per class. On rainy days they have to share equipment and wait for a turn. (#030519)

…due to the small amount of money that P.E. teachers get allocated to them each year it is not possible to provide equipment for the whole class, it takes a long time to build your inventory up and by the time you get it established the equipment is worn out. (#130519)

In most cases, based on the amount of equipment we have in stock, providing appropriate amounts of equipment is nearly impossible, (i.e.) one jump rope per student is highly unlikely were you to combine two classes. (#070519)

PE equipment is expensive, instructional funds are being cut, and we have to provide appropriate equipment for all of our K-6 students. What is appropriate for 6th may not be appropriate for lower grades. (#160305)

It is expensive to purchase equipment for every child when you have anywhere from 40-100 children in a class. (#230519)

Providing each student with their own individual piece of equipment can be very expensive. (#160519)

Providing a Safe Learning Environment

Due to a litigious society, physical education specialists must deliver age-appropriate lessons in a safe learning environment to protect themselves from lawsuits. Specialists are prone to err on the side of caution and limit the activities that they offer during a physical education lesson. Even to the point of reducing the amount of activity during the lesson.

Large classes make it difficult to see every potential dangerous situation that can occur. (#160519)

There are some games that I cannot teach simply because of the large class sizes and students bumping into one another. I especially have to change lesson plans when we are inside during inclement weather. (#230519)

I plan every lesson with safety in mind, which means that lots of kids are sitting or standing in line awaiting their turn. (#030519)

You cannot see everything that goes on in any environment, but 60 kindergarteners make it impossible. (#160305)

I believe that it reduces the overall safety of the class as a whole, as it is generally impossible to keep your eyes and ears on the entire class as larger class sizes generally have four sides, as compared to two sides with smaller class sizes. (#070519)

Providing Moderate to Vigorous Physical Activity

In the area of increasing overweight and obesity levels among children and adolescents, it is recommended that children should accumulate at least 60 minutes, and up to several hours, of age-appropriate physical activity on all, or most days of the week (COPEC, 2003). Although schools are not expected to produce all recommended moderate to vigorous physical activity, large classes severely limit the ability to provide an adequate portion of the daily recommendations. Consideration for safety and limited space are variables that sometime limit moderate to vigorous physical activity.

…because there may not be enough space to safely move. Sometimes we have to give up vigorous movement in order to reduce safety and discipline problems. (#160305)

> Management, discipline, and safety issues and the time constraints created by these issues, make it very difficult for students to receive any significant level of aerobic activity. (#160519)
>
> Usually not, if we are outside. If inside, there is a lot of wait time and not enough fitness most times because locomotive type movements that get their heart rate up are limited when large groups are confined to our small room or gym with multiple classes. (#230519)

…because of time children don't get to play as much with large numbers (#041605)

Student/Teacher Ratios in Physical Education

Although there is no indication that student/teacher ratios for physical education are forthcoming in public school within the state of Alabama, there is continued hope for this change. The Statewide Committee to Review the State of Health of America's Youth with Particular Emphasis on Alabama's Youth Task Force (2006, p. 13) recommended to the Alabama Superintendent of Education a student/teacher ratio for elementary and secondary physical education class size of 25:1, kindergarten through second-grade, and 33:1, third-grade through sixth-grade. Even with this recommendation, there seems to be a marked difference between what is desired and what is expected, as few believe that physical education class exists for the sole purpose of teaching physical activity as a legitimate academic discipline.

> Absolutely not. Physical education in the state of Alabama is not for the kids. It is so classroom teachers can have a break. No one cares how many students we have. (#030519)

No, especially with proration and the ARI [Alabama Reading Initiative] requiring all teachers on grade level to have a shared planning time. (#160305)

No, because of our economic situation and the misconception that our discipline is not as important as others. (#230519)

No. The time frame for a regular day, would not allow the students to have daily physical education. More physical education teachers are needed to adequately handle the load. (#160519)

I do not believe this will ever be made possible. The main issue involved, in my opinion, is the fact that classroom teachers often argue that it is unfair or unjust to prevent them from having 'planning' time. (#070519)

No, because administrators know they can overload PE classes (#041605)

No, because Physical Education is not as important to the people making decisions in Alabama. (#021619)

Yes. I believe that physical educators will continue to fight for the cause. As we educate these kids of today about the importance of physical education and choosing to live a healthy lifestyle, that when they become our future, they will have this seed planted in their minds and along with the continuing effort of the physical educators that have sacrificed and fought in the past and present we will reach this goal. (#130519)

Administrative Attitudes toward Physical Education

Superintendents and principals are the leadership of school systems and schools. Teachers look to their administrators for guidance, structure, and opportunity to teach in a receptive environment. Physical education specialists are no exception to this rule,

desiring equal opportunity to apply their trade to the lives of the students in their charge. Yet, physical education is constantly under attack through large classes, shortening class time to accommodate for other school functions, and requiring physical education specialists to perform tasks at school not required of classroom teachers. Smartschan (2004) says that school leaders need to see the harm they might commit by reducing instruction in second languages, the arts and physical education in order to maximize time for preparing students for high-stakes tests. Administrators are under pressure for academic accountability but it cannot come at the expense of physical education.

> It is possible that higher student/teacher ratios are a reflection of how physical education is viewed in the eyes of key administrators. It is possible that their thoughts are, "All they do is throw a ball out there or let them play." So why not give them double or in some cases triple classes. (#070519)
>
> They don't care how many students we have. All they care about is not having discipline problems in the office… (#030519)
>
> My administrator is very supportive and understanding of our situation. However, I don't think this is true in most schools. (#160305)
>
> I believe that is how it was in the past but I do believe it is changing, very slowly. (#130519)

Hastie, Sanders, and Rowland (1999) determined that two outcomes of physical education specialists that teach in large class setting are the perception of hopelessness and perception of marginalization. Specialists are saddled with a prevailing attitude that their teaching situations will not change and they will continue to teach in environments that marginalize their career and professional education.

Marginalization of Professional Degree

The physical education specialist were asked how they felt knowing that they had to complete a four-year university program to become certified to teach in the state of Alabama, and then are required to teach in large class settings, unlike any other teachers. This professional marginalization can lead to resentment toward other teaching professionals and can produce a sense of dread toward teaching that arises from the sense of hopelessness produced from teaching in large class setting on a daily basis with no relief in sight.

> I think it's stupid and a double standard. (#030519)
>
> I feel very frustrated. Having large classes is overwhelming, but you have to take what is given to you and make your program as beneficial as possible to your students. (#160519)
>
> It is not right, not fair. I should be able to teach my lesson/unit with appropriate numbers and time--just like classroom teachers. (#041605)
>
> At this juncture, I am just happy to have a job. Although, I have never really thought that it would change so you just deal with it. (#021619)

Demoralizing Issue of Teaching Large Classes

> Having to have morning duty every day when all the other teachers (homeroom and non-homeroom) have it once every 6 weeks. (#030519)
>
> I would like to be able to schedule similar age groups together, instead of having a 5^{th} grade class, followed immediately by K, followed immediately by 6^{th} with no time in between. (#160305)

> Classroom teachers continually trying to discipline children by asking me to have them 'sit-out' for my class or when a parent asks if you actually need a degree to teach P.E. (not Physical Education). (#230519)
>
> When your peers don't believe what I teach is important. They don't respect me as a teacher. All they want is for the students to come back exhausted so they won't have to deal with discipline problems. (#160519)
>
> The most demoralizing issue that I face is the outlook on 'specialists' as a whole. Teachers and administrators in some cases often believe that we have the easiest schedules, and simply throw a ball out or just let classes play on the playground. Often times classroom teachers will make the statement that PE teachers are not really teachers, they are babysitters. Well, that is true in cases where we have extra classes 'dumped' on to our already high class sizes. (#070519)
>
> That fellow worker's don't appreciate what you do and everyone in the PE Department doesn't carry their load. (#041605)

Saving Grace

In the last interview question, the physical education specialists were asked, "what is your saving grace?" What is that one thing that keeps them going in the midst of their daily routines and schedule? For some, it is an extrinsic motivation that keeps them pressing forward, but for most it is an internal drive, a desire to make a difference. Through the chaos that sometimes is elementary physical education, it is a passion for teaching, a desire to see their students gain not just the physical understanding but the cognitive understanding of their performance, and a genuine care and concern for their students.

Insurance for my family and 8 years till retirement. (#030519)

I hope I am making a difference! (#160305)

The children are my saving grace, because I see how important my discipline is each day I teach them about lifetime physical activity, interactive and cooperative behavior. To add icing to the cake, I know they are having a wonderful time during the process. (#230519)

Being around my students. I have always strived to make a difference in their lives. Letting them know that I care about them is very important to me. All the smiles and hugs are the most rewarding parts of my job. To also see them succeed is one of the highlights of my day. To have students come up to me years later and tell me how much fun they had in my class, is very special. (#160519)

The one thing that keeps me coming back is my relationship with my students, the fact that I am making a difference in the lives of children. That I am a positive role model, and to some the only male figure they have. (#070519)

I love teaching and I absolutely LOVE the students. (#021619)

The Human Spirit

Ann Richards, the former governor of the state of Texas, during the keynote address at the 1988 Democratic Convention said, "Teaching was the hardest work I had ever done, and it remains the hardest work I have done to date." There is both conformation and hesitancy in this statement. Teaching is hard work. And depending on the subject matter, the degree of difficulty in teaching can increase or decrease. Most of the time the difficulty is not found in the subject content, but as indicated by the responses of the teachers in this study, within the variables that encompass their

educational domain. As seen in the results of this study, insufficient levels of equipment, lack of administrative support, large number of students per lesson, inadequate teaching facilities, and a lack of professional respect for physical education from their peers, does make teaching difficult in most situations. And although some teaching professionals do not view physical education as an important component in the academic structure of education, it in no way justifies the professional settings many physical education specialists are forced to teach within. Yet in spite of these overcrowded conditions, most physical education specialists press on toward the goal of educating the students within the realm of their influence.

Although the physical education specialists that participated in this study indicated their frustration with many aspects of teaching in large class setting, they also indicated that their desire to teacher was greater that the obstacles before them. Their love for teaching and desire to see their students succeed motivates them to go forward. Their enthusiasm for imparting knowledge and to see that knowledge grow in the life of each student, is at the heart of their passion for teaching. To teach is to touch a life forever. Carl Jung, the famous Swiss psychologist said of teachers,

> An understanding heart is everything in a teacher, and cannot be esteemed highly enough. One looks back with appreciation to the brilliant teachers, but with gratitude to those who touched our human feeling. The curriculum is so much necessary raw material, but warmth is the vital element for the growing plant and for the soul of the child (http://www.quotationspage.com/quote/9787.html).

Well said Carl, well said indeed.

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CHAPTER VI

SUMMATION

Summary

The purposes of this research were to investigate various aspects of class size effects in elementary physical education. These included to determine if class size effects limit a student's opportunity to learn meaningful content with appropriate instruction, to determine if class size effects a physical education specialist ability to deliver daily quality instruction in an atmosphere that is as free from disruption and distraction as possible, to determine if teacher morale and attitudes are effected by the daily routine of teaching in large class settings, and to determine if large classes are the exception or the norm in the state of Alabama. Qualitative descriptive design, quantitative descriptive design and experimental design were employed to collect data for the three articles with this body of work.

Article I examined the demographic information of elementary physical education programs throughout the state of Alabama coupled with a survey of physical education specialist attitudes and beliefs concerning the effect of class size on their ability to delivery daily, quality physical education (NASPE, 2006). Article II focused on the effect of large class size in relation to student activity levels and increased physical education specialist class management time. Article III investigated the professional and personal attitudes of physical education specialist who teach in large class settings.

Study Findings

Study I data were collected through the use of a questionnaire that was distributed to elementary physical education specialist within the state of Alabama at the Alabama State Association for Health, Physical Education, Recreation, and Dance Fall conference in Birmingham, Alabama. One hundred thirty-two responses were returned, representing 40 of 67 counties with the state. The questionnaire consisted of two parts, part one collected demographic data concerning: a) the number of students enrolled at each school, b) the number of students enrolled that received daily physical education, c) the number of students per physical education class, d) the number of physical education class periods taught per day, e) the number of certified physical education specialist employed at the school, f) the number of aides employed at the school who assist in physical education class, and g) the grade levels taught at the school. The data revealed, as an average, that 600 students being taught physical education by two certified physical education specialists, with the help of one aide, in class sizes that average 85 students per class. Part two of the questionnaire collected information concerning the attitudes and beliefs of the physical education specialist. A 5-point Likert scale was used to rate the answers given by the physical education specialist. Eighty-nine percent of the participants believe that large classes limit their ability to deliver daily, quality physical education and 88% believe that learning is limited in large physical education classes.

Study II data were collected through direct observation of students participating in an elementary physical education class. Eight physical education specialists taught a 30-minute elementary physical education lesson to both a class of 18 students and again to a

class of 36 students. The lessons were analyzed for changes in student activity levels and class management time for the physical education specialist. The data collection instrument used in Article II was the System for Observing Fitness Instruction Time (SOFIT). SOFIT is a time sampling instrument that requires data to be collected during 3-20 second recording intervals per minute. Student activity levels were measured using two of the SOFIT categories, (4) walking and (5) very active. Any observed activity in these two areas was considered moderate-to-vigorous physical activity (MVPA). One hypothesis of this study was that student MVPA would decrease significantly in larger classes. A paired sample t-test yielded no statistical significance (t (7) = 1.45, p = .094) between the two conditions. Pedometers were also used in Study II to measure student activity levels during the 30-minute lesson. Step count readings were taken for each student during the lesson and the mean scores were calculated for each class size (18 – students = 349.87; 36 – students = 376.75). A paired sample t-test of the mean scores also revealed no statistical significant differences (t (7) = -0.88, p = .201).

Another hypothesis of this study was that class management time for the physical education specialist would rise significantly during larger class settings. Class management time was measured using one of the categories in the lesson content component the SOFIT: (M) management, categorized as time spent away from imparting knowledge of the lesson content and the students are not engaged in active lesson content. A paired sample t-test yielded no statistical significance (t (7) = -.91, p = .196).

In Study III, a qualitative study, data was audio recorded and written information collected from personal interviews with 10 physical education specialists who teach in large class settings. Questions asked of each specialist were directly related to effects of

teaching in large class settings. Based on conditions of anonymity, the physical education specialists were asked to answer as honestly and candidly as possible. The intent of the questions was to invoke the attitudes of each physical education specialist concerning various variables associated with teaching in large class settings. Although the physical education specialists that participated in this study indicated their frustration with many aspects of teaching in large class setting, they also indicated that their desire to teacher was greater that the obstacles before them. Their love for teaching and desire to see their students succeed motivates them to go forward. At the heart of every lesson taught in schools around the world is fact that each class is made up of humans. Humans that yearn to know, move, be creative, receive praise for their accomplishments, and socialize (Pangrazi, 2009). The goal of teaching is not to suppress these yearnings, but to expound them. Nowhere is this truer than in a physical education class, where the heart of the lesson is movement. The mean scores from the pedometer data (Figure 4.1) show that six of the eight schools had a higher mean score of steps in the larger classes. Children like to move. And in physical education class they should have that opportunity of expression, but with a structured environment.

Tying It All Together

Although the hypotheses of this research were shown to be not true, the practical application of teaching must also be considered in the conclusion. There are practical variables in this research that should be considered when forming a conclusion.
It was important to look at the big picture when examining large class setting effects in elementary physical education. Would it even make sense to examine this trend if it is not the norm rather than the exception? The linked purposes of the articles in this

dissertation was to find out in what numerical environments physical education specialists are teaching in, take a closer look at these environments by examining certain variables during physical education activity lessons, and determine how physical education specialists are affected in their professional and personal attitudes. Study I set a baseline toward understanding the degree to which physical education specialist are teaching in large class settings within the State of Alabama. Although information from 124 schools in the state does not give an exact portrayal of the elementary physical education environments, it is a good representation of the conditions may physical education specialists are required to teach in each day. Knowing that large classes are the norm, Study II purposed to examine the effects of large class settings on student activity levels and class management time.

Specific follow up is necessary to determine those factors which resulted in no observable teaching differences with larger classes. Postulates include that teachers have little or no experience with small groups and could thereby make appropriate adjustments, or that the equipment conditions were such that all students could be involved. Alternately, the data collection techniques may not have been sophisticated enough to measure learning differences (e.g. opportunities to respond and success rates).

And although Study III revealed that physical education specialist have various attitudes and opinions toward teaching in large class settings, is this just grumbling on their part or legitimate complaints that simply could not be confirmed through this limited research?

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APPENDICES

APPENDIX A

STUDY I: CONFERENCE SURVEY FORM

Elementary Physical Education Class Size Questionnaire

Thank you for agreeing to answer this questionnaire concerning elementary physical education class size in the State of Alabama. Please answer the questions to the best of your ability and only answer the questionnaire if you teach elementary physical education. As you can see the questions are anonymous and the answers will be used to further research on the effects of class size in elementary physical education.

1. In which county do you teach? _____
2. Do you teach at a public or private school? _____
3. Are you the only certified physical education specialist at your school? _____
   a. *How many certified physical education specialist teach at your school?* _____
   b. *How many teacher aides work in the Physical Education Department?* _____
4. How many students are enrolled at you school? _____
5. What grade levels are taught at your school? _____
6. How many students per day receive physical education with a certified physical education specialist? _____
7. How many physical education class periods are taught per day? _____
8. How many grade level classes are taught during each physical education class period? _____
9. How many students are taught per physical education class period? _____

The following questions are concerned with your perception of class size and its effect on your ability to teach. You will use a 5-point Likert Scale to answer the questions: 1 – SD (strongly disagree with the statement, 2 – D (disagree with the statement, 3 – NO (no opinion on the statement, 4 – A (agree with the statement),
5 – SA (strongly agree with the statement). Circle the corresponding number to match your answer.

1 2 3 4 5 Large classes limit my ability to deliver daily quality instruction.

1 2 3 4 5 Large classes limit the amount of time my students are engaged in moderate to vigorous activity.

1 2 3 4 5 Large classes limit my ability to deliver specific, positive feedback.

1 2 3 4 5 Large classes cause me to spend more time on classroom management.

1 2 3 4 5 Large classes create problems with providing adequate equipment.

1 2 3 4 5 Large classes are a major contributing factor to the overweight epidemic among elementary age children.

1 2 3 4 5 Large classes limit the learning opportunities of students.

Please return the Questionnaire to the drop box in the lobby
and thank you for your participation in this project.

APPENDIX B

STUDY I: DATA COLLECTED FROM SURVEY

Raw Data collected from the Elementary Physical Education Class Size Questionnaire

County	Public School	# PES	#Aides	# Stds Enrolled	Grade Levels	Periods /Day	# St/Class
Autauga	y	4	0	1097	1-6	7	140-175
Autauga	y	3	0	670	1-2	8	90
Autauga	y	2	0	700	3-4	7	100
Autauga	y	3	0	610	5-6	8	80
Autauga	y	5	0	1260	1-6	7	160-230
Baldwin	y	2	2	770/470	k-5	6	160
Baldwin	y	2	1	825	k-6	7	100-140
Baldwin	y	2	1	600	k-6	7	75-90
Baldwin	y	1	1	330	4-5	8	50
Barbour	y	1	2	350	1-5	5	60
Barbour	y	1	2	700	4k-5	10	70
Butler	y	2	1	600	k-2	6	75
Calhoun	y	3	0	750	k-4	10	80-100
Calhoun	y	1	3	535	k-4	10	50-80
Calhoun	y	1	3	785	k-6	7	100-120
Calhoun	y	2	1	670	5-6	7	80-100
Calhoun	y	2	0	495	4k-5	6	65-95
Cherokee	y	2	1	600	k-12	6	100
Chilton	y	3	0	760	k-2	8	80-115
Chilton	y	3	0	927	k-4	10	109
Clarke	y	2	2	650	k-4	5	120-150
Clarke	y	2	0	510	3-5	6	52
Coffee.	y	2	1	640	4k-6	8	75-98
Colbert	y	1	0	340	k-2	9	38-40

Colbert	y	1	0	370	3-5	7	40-64
Conecuh	y	1	0	353	k4-3	10	25-30
Cullman	y	2	0	550	7-12	6	60-100
Dale	y	2	1	400/375	5-8	10	40-50
Dale	y	1	2	250	k-6	7	25-60
DeKalb	y	3	3	650/500	k-12	9	70
DeKalb	y	3	1	830	k-2	7	150
Elmore	y	3	1	820	k-4	9	75-100
Elmore	y	3	2	1100/900	k-3	8	150
Elmore	y	2	1	625	k-4	8	75-90
Elmore	y	3	2	1000	k-2	7	160-180
Etowah	y	1	0	270	k-8	9	40
Hale	y	2	1	350	6-8	5	50
Jackson	y	1	0	350	k-4	11	30-45
Jackson	y	1	0	220	k-6	6	24-56
Jefferson	y	1	0	227	k-5	6	36-55
Jefferson	y	1	1	325	6-8	6	50-60
Jefferson	y	1	0	362	k-5	9	50-65
Jefferson	y	1	0	370	k-5	6	20-40
Jefferson	y	1	1	450	k-8	9	50
Jefferson	y	2	1	500	k-9	9	60
Jefferson	y	1	1	515	k-5	6	45-50
Jefferson	y	1	1	600	k-5	12	40-50
Jefferson	y	2	0	600	k-6	9	36-95
Jefferson	y	1	2	600	k-8	8	80
Jefferson	y	2	1	625	4-5	11	40-72
Jefferson	y	2	0	640	4k-5	9	84-100
Jefferson	y	2	0	650	k-3	10	50-90
Jefferson	y	2	1	700	k-3	11	50-95
Jefferson	y	2	0	700	k-6	10	30-60

Jefferson.	y	2	1	730	k-6	10	60-100
Jefferson	y	3	0	741	k-6	10	60-110
Jefferson	y	3	0	750	k-2	10	60-125
Jefferson	y	3	2	800	k-2	10	120
Jefferson	y	3	0	800	k-2	10	100-120
Jefferson	y	3	0	960	k-5	12	80-100
Jefferson	y	2	1	1000	k-6	10	42-72
Jefferson	y	3	1	1000	k-6	10	40-60
Lauderdale	y	2	0	450	k-4	10	32-56
Limestone	y	2	0	150	k-6	4	24-53
Limestone	y	2	1	459	5-6	6	60-140
Macon	y	1	0	380	4-5	8	65
Madison	y	1	1	300	k-5	9	50-60
Madison	y	1	1	480	k-8	9	60
Madison	y	1	1	450	k-6	7	50-80
Madison	y	1	1	400	k-5	9	40-62
Madison	y	1	2	735	k-5	10	90
Madison	y	1	2	750	k-5	10	85
Madison	y	3	0	325	6-8	7	60-70
Madison	y	2	2	920	k-5	12	60-90
Madison	y	1	1	310	k-5	9	20-48
Marengo	y	2	2	700	k-2	10	80
Marion	y	2	1	730	k-4	8	75-150
Marion	y	3	0	550	k-4	5	100-137
Marshall	y	3	0	900	k-5	6	142-167
Marshall	y	1	2	450	k-2	9	60
Marshall	y	3	3	1389	1-4	8	50-78
Marshall	y	3	0	1000	3-5	6	150
Mobile	y	1	1	540	k-5	6	80-125
Mobile	y	2	2	900	k-5	6	80-100

Mobile	y	1	2	573	4k-5	7	100+
Mobile	y	2	2	950	k-5	6	150
Monroe	y	2	0	430	3-5	6	30-59
Montgomery	y	2	0	560	k-5	7	35-48
Montgomery	y	2	0	575/415	k-6	9	25-50
Montgomery	y	2	0	327	k-5	11	22-35
Morgan	y	1	1	240	k-5	14	13-34
Morgan	y	1	2	400	k-8	8	50-100
Morgan	y	2	0	662	k-5	6	100
Morgan	y	1	1	525	k-4	10	50
Perry	y	2	0	600	k-6	7	80
Pickens	y	1	1	240	4-6	5	34-62
Pike	y	1	1	200	k	5	40
Pike	y	4	1	1000	1-5	10	120-150
Randolph	y	3	1	620	4-8	5	105
Shelby	y	2	0	700	k-5	11	70-80
Shelby	y	2	1	800	4-5	8	85-115
Shelby	y	2	1	820	k-2	11	80
Shelby	y	2	1	940	k-5	12	58-100
Shelby	y	3	0	950	4-5	9	90
Shelby	y	3	0	970	4-5	10	27-45
St. Clair	y	1	1	315	1-6	6	58
St. Clair	y	1	0	350	k-5	7	60-70
St. Clair	y	2	0	425	3-5	6	75-90
St. Clair	y	3	0	500	k-4	8	60-100
St. Clair	y	2	0	681	k-5	6	94-133
St. Clair	y	2	0.5	830	k-4	10	80-120
Sumter	y	2	0	536	k-8	7	40
Talladega	y	2	0	523	k-6	8	30-40
Talladega	y	1	2	650	k-2	9	75

Tuscaloosa	y	1	2	470	k-5	6	75-80
Tuscaloosa	y	1	1	500	4k-5	6	65
Tuscaloosa	y	1	2	550	4k-5	7	80-90
Tuscaloosa	y	2	1	700/650	k-5	6	85-115
Tuscaloosa	y	2	0.5	725	k-5	9	85-140
Tuscaloosa	y	2	2	1000+	k-5	10	60-95 /
Walker	y	1	0	220/150	k-6	5	16-50
Walker	y	1	1	278/248	4k-5	8	20-60
Walker	y	1	0	290/200	k-6	6	22-35
Walker	y	1	2	525	4k-5	7	88
Unknown	y	2	1	575	3-4	8	75-80

APPENDIX C

STUDY II: INFORMED CONSENT FORM

INFORMED CONSENT

The effects of class size on instruction
in elementary physical education.

You are invited to participate in a research study to examine the effects of class size on instruction in elementary physical education. For this study, class size was chosen because of the large class sizes that are customary in elementary school physical education settings. This study is being conducted by Michael K. Gross (Auburn University Ph.D. candidate in physical education pedagogy), under the supervision of Dr. Peter A. Hastie (Professor, Department of Kinesiology, Physical Education Pedagogy, Auburn University, Auburn, Alabama). The anticipated findings of this study are: (1) that larger class sizes limit the amount of hands-on instruction that physical education teachers provide to each student, (2) that students are remain static longer during a lesson in larger classes, (3) that physical education teachers spend more time in management content in larger classes, and (4) physical education teachers have less opportunity to provide direct feedback to students in larger classes. You were selected as a possible participant because: (1) you teach Third Graders, physical education, in an elementary public school setting, (2) your years of experience teaching elementary physical education, and (3) your experience teaching large class sizes.

If you decide to participate, you will be videoed and audio taped teaching two elementary physical education lessons, to Third Grade students. One lesson will contain eighteen (18) students and the one lesson will contain thirty-six (36) students. You will teach the same soccer lesson, provided for you, in the two lessons. Soccer equipment is also provided if necessary. Your lessons will be taught one week apart.

The instruction should cause no risks or discomforts associated with participation other than those incurred during regular physical education instruction.

Any information obtained in connection with this research project and that can be identified with you will remain confidential and anonymous. The data will be kept in room 307E Education Building, Auburn University Montgomery. The information gathered through your contribution in this project: (1) used to complete a dissertation in an educational requirement, (2) published in a professional journal, and/or (3) presented at a professional conference or meeting, by the afore mentioned doctoral candidate. Participation is voluntary and the participant may withdraw at any time without prejudice.

If you have any questions you are invited to ask them now. If you have questions later, contact Michael K. Gross, (334) 244-3426, mgross3@mail.aum.edu, or Dr. Peter A.

Hastie, (334) 844-1469, hastipe@auburn.edu, and we will be happy to answer them for you. You will be provided a copy of this form to keep.

For information regarding your right as a research participant you may contact the Auburn University Office of Human Subjects Research of the Institutional Review Board by phone (334) 844-5966 or email at hsubjec@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

_____	_____
Participants signature Date	Investigator obtaining consent Date
_____	_____
Print Name	Print Name

APPENDIX D

STUDY II: SOFIT RECORDING FORM

SOFIT RECORDING FORM

Date _____ School _____ Grade ___ Teacher _____ Tchr Gen: M F
Time start _____ Observer _____ Rel obs ____ No girls ____ boys ____ Location: O I
Time end _____ Lesson Length _____ No of obs _____ Page 1 2 3 4 of ___

	Interval	Student Activity	Lesson Context	Interactions	NOTES
	1	1 2 3 4 5	M K F S G O	I O N	
	2	1 2 3 4 5	M K F S G O	I O N	
	3	1 2 3 4 5	M K F S G O	I O N	
o	4	1 2 3 4 5	M K F S G O	I O N	
n	5	1 2 3 4 5	M K F S G O	I O N	
e	6	1 2 3 4 5	M K F S G O	I O N	
	7	1 2 3 4 5	M K F S G O	I O N	
m/f	8	1 2 3 4 5	M K F S G O	I O N	
	9	1 2 3 4 5	M K F S G O	I O N	
	10	1 2 3 4 5	M K F S G O	I O N	
	11	1 2 3 4 5	M K F S G O	I O N	
	12	1 2 3 4 5	M K F S G O	I O N	
	13	1 2 3 4 5	M K F S G O	I O N	
	14	1 2 3 4 5	M K F S G O	I O N	
	15	1 2 3 4 5	M K F S G O	I O N	
t	16	1 2 3 4 5	M K F S G O	I O N	
w	17	1 2 3 4 5	M K F S G O	I O N	
o	18	1 2 3 4 5	M K F S G O	I O N	
	19	1 2 3 4 5	M K F S G O	I O N	
	20	1 2 3 4 5	M K F S G O	I O N	
m/f	21	1 2 3 4 5	M K F S G O	I O N	
	22	1 2 3 4 5	M K F S G O	I O N	
	23	1 2 3 4 5	M K F S G O	I O N	
	24	1 2 3 4 5	M K F S G O	I O N	
	25	1 2 3 4 5	M K F S G O	I O N	
	26	1 2 3 4 5	M K F S G O	I O N	
	27	1 2 3 4 5	M K F S G O	I O N	
t	28	1 2 3 4 5	M K F S G O	I O N	
h	29	1 2 3 4 5	M K F S G O	I O N	
r	30	1 2 3 4 5	M K F S G O	I O N	
e	31	1 2 3 4 5	M K F S G O	I O N	
e	32	1 2 3 4 5	M K F S G O	I O N	
	33	1 2 3 4 5	M K F S G O	I O N	
m/f	34	1 2 3 4 5	M K F S G O	I O N	
	35	1 2 3 4 5	M K F S G O	I O N	
	36	1 2 3 4 5	M K F S G O	I O N	
	37	1 2 3 4 5	M K F S G O	I O N	
	38	1 2 3 4 5	M K F S G O	I O N	
	39	1 2 3 4 5	M K F S G O	I O N	
f	40	1 2 3 4 5	M K F S G O	I O N	
o	41	1 2 3 4 5	M K F S G O	I O N	
u	42	1 2 3 4 5	M K F S G O	I O N	

r	43	1 2 3 4 5	M K F S G O	I O N
	44	1 2 3 4 5	M K F S G O	I O N
	45	1 2 3 4 5	M K F S G O	I O N
m/f	46	1 2 3 4 5	M K F S G O	I O N
	47	1 2 3 4 5	M K F S G O	I O N
	48	1 2 3 4 5	M K F S G O	I O N

APPENDIX E

STUDY II: SOFIT SUMMARY FORM

SOFIT SUMMARY SHEET

Date _____ School _____ Grade ___ Teacher _____
Observer _____ Rel obs _____ No of Students _____
Lesson length _____ min Total observed intervals _____

_____

	PAGE				
	1	**2**	**3**	**4**	**TOTAL**
Student Behavior 1. lying down					
2. sitting					
3. standing					
4. walking					
5. very active					
Lesson Context Management (M)					
General knowledge (K)					
Fitness activity (F)					
Skill practice (S)					
Game play (G)					
Other (O)					

APPENDIX F

STUDY II: SOCCER LESSON PLAN

Lesson Plan

Warm-up Activity: Fire and Ice (5 minutes)

Choose three students to represent ice (blue or white balls) and two students to represent fire (red balls). The rest of the students are "free" and can go anywhere they want inside the boundaries. The "ice people" try to freeze the "free people" by tagging them with their blue ball. When a student gets tagged by an ice person, the student will become frozen standing with their hands on their heads. The "fire people" (who cannot be tagged by the ice people) must try and unfreeze the frozen students by handing the frozen student the red ball. The student who is frozen must say thank you in order to be unfrozen, and if they do not say thank you, they remain frozen until another "fire person" comes to unfreeze them. If the student does say thank you, they receive the red ball and become unfrozen. When the student who has the red ball unfreezes the frozen student, they become a "free person" and the student receiving the ball becomes a "fire person". The fireballs keep getting passed on and on throughout the game.

Teaching Suggestions: Music could play in the background. After each minute of activity, change the locomotor movement. Start with a walk, then skip, gallop, slide and run. Make sure no student remains frozen for long periods of time.

Fitness Development: Animal Walks (6 minutes)

1. Inchworm Walk: start with hands and feet on floor. Walk out with hands only until body is stretched outward then walk feet only until close to hands again. Repeat movement.
2. Lion Walk: start on all fours while keeping the back arched. Move deliberately and lift the "paws" to simulate moving without sound.
3. Elephant Walk: move heavily throughout the area, extend one arm forward from the face and swing back and forth like an elephant trunk while walking about.
4. Seal Walk: move using the arms to propel the body. Allow the legs to drag along the floor much as a seal would do.
5. Kangaroo Jump: keep arms close to chest with palms facing forward and move in different directions by taking small jumps.
6. Lame Dog Walk: move using only three limbs. Hold the injured limb off the floor. Vary the walk by specifying which limb is injured.
7. Crab Walk: move on all fours with the tummy facing the ceiling. Try to keep the back as straight as possible.
8. Frog Jump: start in a squatting position with the hands on the floor. Reach forward with the hands and support the body weight. Jump both feet towards the hands.

Teaching Suggestions: Each walk should be performed for 30 seconds with a 10 second pause between each movement. Playing music for 30 second intervals with 10 seconds pauses in between might help motivate the children. Teacher will demonstrate walks between each 30 second interval. The Inchworm walk should be demonstrated before the activity begins.

Lesson Focus: Kicking and Trapping - Soccer (15 minutes)

Sole of the Foot Trapping (explanation and demonstration time – 2 minute)

This method of control, sometimes called trapping the ball, is used to stop the ball. The student raises the trapping foot by bending the knee shifting body weight onto the opposite leg. As the ball approaches the student, the student uses the sole of the raised foot to lightly step on the ball to stop its forward momentum. Being careful not to put too much weight on the ball as they trap it, this may cause them to loose balance and fall.

Practice Time (3 minutes)
Each student should have a partner. Partners should be approximately 10 feet apart and have enough room to safely pass and trap the ball without interfering with other students. Each set of partners has one soccer ball. To start, one student will roll the ball to their partner. The receiving partner will trap the soccer ball using the *Sole of the Foot Trapping* method. The receiving partner will then roll the ball back to his/her partner, who will trap the ball using the Sole of the Foot Trapping method. Each student will attempt to trap the ball with their right foot as many times as possible for one minute. Then each student will attempt to trap the ball with their left foot as many times as possible of one minute. Then each student will attempt to trap the ball, alternating right foot and left foot traps, as many times as possible for one minute.

Inside of the Foot Pass (Push Pass) (explanation and demonstration time – 1 minutes)

The basic purposes of passes are to advance the ball to a teammate and to shoot on goal. The following are instructional cues to enhance accurate passing:

1. Place nonkicking foot along side the ball
2. Keep head down and eyes on the ball.
3. Spread the arms for balance.
4. Follow through with the kicking leg in the intended direction of the ball.

The Inside of the Foot pass is used for accurate passing over distances of up to 15 yards. The nonkicking foot is placed alongside the ball. As the kicking foot is drawn back, the toe is turned out. During the kick, the toe remains turned out so the inside of the foot is perpendicular t the line of flight. The sole of the foot is kept parallel to

the ground. At contact, the knee of the kicking leg should be well forward, over the ball, and both knees should be slightly bent.

Practice Time (3 minutes)
Students continue activity with same partner from the Trapping activity. Partners should be approximately 10 feet apart and have enough room to safely pass and catch the ball without interfering with other students. Each set of partners has one soccer ball. To start, one student will kick the ball to his/her partner using the *Inside of the Foot Pass*. The partner will then catch the ball with the hands and place the ball in front of them to return the ball to their partner by executing the Inside of the Foot pass. Each student will attempt to pass the ball with their right foot as many times as possible for one minute. Then each student will attempt to pass the ball with their left foot as many times as possible of one minute. Then each student will attempt to pass the ball, alternating right foot and left foot kicks, as many times as possible for one minute.

Passing and Trapping (explanation and demonstration time – 1 minute)
Demonstrate the combination of the two skills (trapping and passing). One student passes the ball using the Inside of the Foot Pass method to the partner, who traps it using the Sole of the Foot method. And the process is repeated between partners.

Practice Time (5 minutes)
Partners will practice passing and trapping techniques. Partners should be approximately 10 feet apart and have enough room to safely pass and trap the ball without interfering with other students. Each set of partners has one soccer ball. Remind students not to rush through activity but to focus on using the proper techniques in each skill. Students should use right foot to pass using the Inside the Foot Pass method and trap the ball using the Sole of the Foot Trap method for one and one-half minutes, the left foot for one and one-half minutes, and alternate foot use for two minutes during the practice time.

Closing Activity: I See (4 minutes)

Students will move around the instruction area as instructed by the teacher. Teacher will call out to the students "I See" and the students will respond by saying, "What do you see?" (the teacher may need to practice this with the students one or two time before proceeding with the activity). The teacher then responds with, "I See children…

…flying like a bird.
…tip-toeing quietly.
…driving their race car.
…walking like a duck.
…walking like Frankenstein.
…flying like an airplane (as the class is coming to a close, have the students land

their airplane so that they are sitting and ready to exit the class upon the command of the teacher)

Teaching Suggestions: Remind the students to move carefully during the activity so that they do not bump in to another student. Each activity should be preformed for 30 seconds with a 10 second pause in between each activity. Playing music for 30 second intervals with 10 seconds pauses in between might help motivate the children.

APPENDIX G

STUDY II: SOFIT DATA

Percentages of Teaching Time Spent in SOFIT Categories during Lesson

School	CS	2	3	4	5	M	K	F	S	G
#021619	18	13.8	27.6	33.8	24.6	20.0	29.2	20.0	23.0	07.6
	36	30.1	45.2	10.9	13.6	23.2	46.5	09.5	13.6	06.8
#231619	18	39.7	19.2	10.2	30.7	15.3	37.1	11.5	20.5	15.3
	36	14.4	35.5	25.5	24.4	22.2	22.2	14.4	27.7	13.3
#130519	18	00.0	53.0	16.6	30.3	27.2	31.8	33.3	03.0	04.5
	36	00.0	58.0	12.9	29.0	28.7	20.9	20.9	09.6	17.7
#160305	18	29.6	35.8	09.8	24.6	23.4	32.0	13.5	13.5	17.2
	36	48.8	22.0	09.3	19.7	36.0	38.3	11.6	08.1	05.8
#030519	18	06.6	53.3	16.6	23.3	11.1	41.1	20.0	16.6	11.1
	36	02.2	57.7	20.0	20.0	15.5	33.3	11.1	27.7	12.2
#200219	18	34.1	15.8	19.5	30.4	25.6	24.3	09.7	21.9	18.2
	36	41.3	29.3	05.3	24.0	25.3	32.0	08.0	21.3	13.3
#070519	18	30.8	32.0	16.0	20.9	27.1	25.9	09.8	19.7	17.2
	36	27.3	39.7	15.0	17.8	19.1	43.8	05.4	16.4	15.0
#021620	18	32.4	36.4	14.8	16.2	32.4	29.7	12.1	14.8	11.4
	36	20.0	45.7	17.1	17.1	28.5	30.0	11.4	18.5	11.4
All Schools	18	23.9	35.5	15.8	24.6	23.6	32.2	15.3	16.3	12.2
	36	23.3	38.1	17.4	21.1	26.5	32.4	11.4	17.5	12.0

APPENDIX H

STUDY II: PEDOMETER DATA

Means and Standard Deviations for Steps Taken During Lesson

School Code	Class Size (n=8)	Mean (steps)	*SD* (steps)
#021619	18	333.46	119.36
	36	211.67	88.21
#231619	18	320.53	83.38
	36	478.77	219.43
#131519	18	461.23	293.14
	36	441.65	261.32
#160305	18	324.31	111.52
	36	340.44	195.09
#030519	18	473.93	237.56
	36	514.97	330.39
#200519	18	281.94	101.52
	36	404.32	412.02
#070519	18	323.43	140.70
	36	327.63	243.51
#021620	18	284.26	142.53
	36	299.35	181.92
All Schools	18	349.87	74.79
	36	376.75	100.92

APPENDIX I

STUDYII: SOFIT DATA (ADJUSTED)

Percentages of Teaching Time Spent in SOFIT Categories during Lesson (adjusted)

School	CS	2	3	4	5	M	K	F	S	G
#021619	18	10.0	28.8	31.1	30.0	31.1	27.7	14.4	21.1	05.5
	36	24.4	42.2	22.2	11.1	32.2	43.3	07.7	11.1	05.5
#231619	18	39.7	26.6	12.2	26.6	24.4	34.4	10.0	17.7	13.3
	36	16.6	33.3	24.4	25.5	22.2	22.2	15.5	25.5	14.4
#130519	18	00.0	47.7	21.1	20.0	28.8	32.2	24.4	10.0	03.3
	36	00.0	47.7	26.6	25.5	47.7	18.8	14.4	06.6	12.2
#160305	18	38.8	25.5	08.8	18.8	38.8	36.6	11.1	07.7	05.5
	36	26.6	42.2	08.8	22.2	31.1	28.8	12.2	12.2	15.5
#030519	18	06.6	53.3	14.4	25.5	11.1	40.0	18.8	16.6	13.3
	36	02.2	58.8	17.7	21.2	16.6	32.2	12.2	25.5	13.3
#200219	18	36.6	23.3	08.8	20.0	36.6	27.7	06.6	17.7	11.1
	36	32.3	22.2	17.7	27.7	32.2	22.2	08.8	20.2	16.6
#070519	18	31.1	32.2	17.7	18.8	33.3	24.4	08.8	17.7	15.5
	36	24.4	45.5	15.5	14.4	34.4	35.5	04.4	13.3	12.2
#021620	18	30.3	41.1	15.5	13.3	43.3	25.5	10.0	12.2	08.8
	36	18.8	48.8	18.8	13.3	41.1	26.6	08.8	14.4	08.8
All Schools	18	24.4	36.6	16.2	21.6	30.9	31.1	13.0	15.2	09.5
	36	18.1	42.6	19.0	20.1	32.2	28.7	10.2	16.1	12.3

APPENDIX J

STUDY III: TEACHER INTERVIEW QUESTIONNAIRE

Teaching Large Classes in Elementary Physical Education Questionnaire
The Harsh Realities

Below you will find a series of questions concerning your opinion toward teaching large classes in elementary physical education. Please answer as truthfully and frankly as possible. Your answers are coded and no one but me will know you made the statement.

1. In your opinion, what is the biggest issue you face when teaching large classes and why?

2. What affect do you think teaching large classes has on your ability to deliver quality physical education and why?

3. Do you think teaching large classes causes you to spend more time in class management content (lining up, getting into formations, discipline, etc) and why?

4. Do teaching large classes pose a problem concerning providing adequate equipment for each student and why?

5. Do large classes reduce your ability to produce a safe learning environment during your lessons and why?

6. Do large classes limit the learning opportunities of your students and why?

7. Do large classes limit your ability to provide activities that give your students adequate opportunity to engage in moderate to vigorous physical activity and why?

8. Do you think class sizes in elementary physical education in the State of Alabama will ever have the same student/teacher ratio as classroom teachers (classroom ratios: K-3rd = 18:1, 4th-6th = 26:1)? Why?

9. Do you believe that higher student/teacher ratios are a direct reflection of how most administrators (Superintendants, School Boards, Principals) view physical education?

10. How do you feel knowing that you had to spend at least 4 years in a university program to earn a degree in physical education to become certified to teach and then be place in large class situations that no other teachers are forced to teach in?

11. In your opinion, what is the most demoralizing issue that you face in your daily routine? Why?

12. In the midst of your daily schedule, large classes and all, what is your *saving grace* (the one thing that motivates you to keep going) and why?