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An examination of literature concerning physical education and why it is important to the learning process and academic achievement

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An Examination of Literature
Concerning Physical Education and Why it Is Important
To the Learning Process and Academic Achievement

Master's Project

Submitted to the School of Education
University of Dayton, in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Education

by

Stephanie Yvette Bobbitt

School of Education

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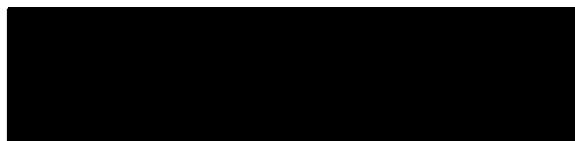
Dayton, Ohio

July 1994

Physical Education

2

Approved by:



Official Advisor

To my family and friends, for all their love and encouragement.

TABLE OF CONTENTS

	Page
Chapter I	
Introduction	5
Background	6
Purposes	8
Definitions	8
Chapter II	
Review of Literature	11
Chapter III	
Methodology	27
Chapter IV	
Results	29
Chapter V	
Summary	39
Bibliography	54

CHAPTER I

INTRODUCTION

In working with teachers and administrators in a public elementary school, it was noted that most teachers and administrators did not understand the importance of physical education to the total learning process. The author first became aware that they were very uninformed through a long term teaching assignment as a 4th grade science teacher because the district was unable to secure a physical education position because of budget cuts. During that time the researcher experienced comments from teachers such "I will keep students from physical education if they do not complete their work, and I will teach health if I have time after teaching reading and math."

Furthermore, in the researcher's opinion, many administrator used physical education first as a dumping ground to give the classroom teacher a break, in most cases not providing enough support to the physical education teacher to ensure a quality program.

Upon further observation the researcher noted that the "Key Decision Makers" also had a very uniformed perspective of physical education to the Total Learning Process, based on the decisions to cut programs and

funding. The decisions and attitudes of the Teachers and Decision Makers, in the researcher's opinion were, not based on the available literature and programs to support the importance of physical education to the total academic and physiological development of our students.

There is a wealth of research supporting the researcher's concerns.

Background

Keller (1982) expressed that our relation between the physical and psychological domains can be traced to the early Greeks. The importance of physical education within the academic curriculum is slowly being recognized.

A study that began in Van Ves France in 1951 Keller (1982) represents one of the first attempts to strike a better balance between school children's physical and intellectual activities.

Political policy at the local, state and national levels have lacked significant impact on the quality of Physical Education and its integration to the total learner.

Cesarone (1993) stated that goal one of the six national education goals of Goals 2000: Educate America

Act states that "by the year 2000, all children will receive the nutrition and health care needed to arrive at school with healthy minds and bodies." However, there is no mention of how physical education will be integrated to achieve the essential skills and fitness development for the body. There are many other articles that demonstrate that there is a definite uninformed chain of policy makers who have not considered the research, literature and programs before making policies. According to the Healthy People 2000 report (U.S. Department of Health and Human Services) having higher levels of cardiorespiratory fitness helps to enable people to carry out their daily occupational tasks and leisure pursuits more easily. The researcher feels that this is the basis of having a quality physical education program, addressing the development of the whole child for life.

There are many existing programs across the United States which integrate physical education as a key component, embedded throughout the curriculum. According to Carpenter, Eisnaugle & Stroot (1990) four schools in Columbus, Ohio emphasize physical education integrated within the school curriculum, Westgate School's philosophy is based on educating the total

child physically, intellectually and emotionally.

Purposes

To conduct a synthesis of the researched literature addressing the relationship between academic achievement and physical education.

Definitions

Goals 2000 - On March 31, President Clinton signed Goals 2000; Educate America Act, establishing for the first time a national mission statement for America's schools.

Healthy People 2000 - To ensure that health-related dimensions of physical activity that encompass key physiologic and physical mechanisms become part of regular behavior patterns.

Physical Fitness - The degree to which a person is physically able to function.

Physical Education - The part of the educational process that contributes to the physical, emotional, social and mental development of each child through the medium of physical activity.

Locomotor Skills - Basic, motor skills involving change of position of feet and a change of direction.

Non-Locomotor - Movement of the body performed from a relating stable base.

Integrated program - Describes the mutual relationship between subject areas. Integration implies a two-way street in which each subject area has a unique place and role in the child's total education.

California Achievement Test - Set of normal reference tests, from which mastery scores for specific instructional objectives can be obtained. The tests are used to assess skill development in seven content, areas K-12. These areas include language, mathematics, reading, science, social studies, spelling, and study skills.

Cognitive Domain - The transmission of knowledge and intellectual skills.

Affective Domain - The growth of attitudes or values.

Psychomotor Domain -- Development of muscular skills and coordination.

Academic Achievement - Defined standard of achievement or performance. Criteria: referenced tests, comparing aptitude, effort, letter grades, check lists, numerical.

Limitations

Focusing on studies from the past 14 years 1980-1994, grades K-12, specifically focusing on

physical education and academic achievement.

Significance

Influence policy makers, administrators and educators in the belief that physical education has a significant part in the total learning and development of students in grades (K-12) for life-time physical activity and academic achievement,

CHAPTER II

REVIEW OF LITERATURE

Physical Education is a part of the learning process for students to experience an integration of motor skill development, life-time fitness, and academic concepts. However, physical education has been for a long time a controversial issue among educators and decision makers. There is much argument about its importance.

Most research reports on academic achievement and physical fitness. Policy makers trying to decide what is important? academics? physical education? or both?

RELATIONSHIP BETWEEN ACADEMIC AND PHYSICAL EDUCATION

One of the major controversies with physical education is how much time is enough? Keller (1982) states that a study that began in 1951 in Van Ves, France represents one of the first attempts to strike a better balance between school children's physical and intellectual activities. To accommodate an experimental daily physical education program, academic instruction was reduced from 23-1/2 to 15 hours a week and physical education was increased from 2 to 8 hours a week. Academic achievement, social and physical well-being were compared between the experimental and

matched control schools which maintained the regular school schedules. By 1960 the physical education groups were superior to the control classes in health, fitness, discipline and attitude. The experimental group not only performed better academically, they matured more quickly, were more independent, and were less susceptible to stress.

The Van Ves study triggered many other studies between physical and academic achievement. Keller (1982) shares a study by Plack (1968) who looked at the relationship between selected motor skills and reading achievement in first, third, and fifth grades. Motor skills were measured by performance on the Johnson Motor Achievement Battery, while reading proficiency was measured by a subjective teacher rating in grade one. The Iowa basic skills test was used in grades three and five; both Reading comprehension and vocabulary correlated highly with the motor skills of throw and catch and zig-zag runs.

Physical Fitness has been a major concern for the children in grades K-12. Is the amount of time we are giving adequate? According to Corbin and Pangrazi (1993) some children will take longer to get fit than others. With regular exercise, fitness at an above

minimum criterion levels is possible for most children during the course of the year. However, limited physical education time cannot accomplish adequate fitness levels for all children. Children must be encouraged to exercise outside of school and to do activities that will promote fitness for all body areas for life-long fitness. The researcher agrees that not only will fitness be life-long, but also the ability to tolerate stress will improve, therefore, the result will be academic achievement for life.

Harris and Jones (1982) reports of low reading and mathematical scores in Georgia and a feeling that low physical fitness levels might be connected with the lack of elementary physical education specialists in the state. This raised the question of a possible relationship between reading and mathematical disabilities and motor performance in these children.

The study involved 18 schools representing districts of The Georgia Association of Education in a random stratified selection. The findings seem to suggest the inclusion of motor performance objectives in the elementary physical education curriculum and to further solidify the rate of physical education in the "back to basics" movement with reading and mathematics.

Another way academic achievement and physical education can be integrated is to help build open relationships between the classroom teacher and the physical education leader to see how they relate.

Humphrey's (1975) study strongly indicates that children tend to learn certain academic concepts better through a Kinesthetic medium than through a Paper and Pencil medium. Also, teaching academic skills and concepts through a Kinesthetic medium seems to be more favorable for children with average or below average intelligence.

According to Kirchner (1992) whenever a concept, or a skill in one subject area can be fortified or acquired through another subject, the relationship should be consciously planned. This may occur in two ways in the elementary school. The first approach is to use the assigned time for an academic subject, such as math and use physical activities within this time period to teach and reinforce a particular skill or concept. The second approach, is first to plan a well balanced physical education program for a particular grade. Once the program is established the classroom teacher can modify activities within each unit to reinforce academic skills and concepts concurrently

taught in the classroom.

Another way of building a classroom and physical education relationship among educators is to conduct pilot programs that focus specifically on the integration process. Christie and Saccone (1984-1985) conducted a pilot program, "Fitness, Academic, and Self-Esteem Training" (FAST), it was conducted during the 1984-1987 school year at the Meridian School to test the hypothesis that a program of aerobic exercise with the focus on running, conducted by the classroom teacher, would result in a higher rate of academic achievement, better cardiovascular fitness and respiratory efficiency, and higher self-esteem as measured by academic aspiration. The comparison group participated in the normal physical education activities for fourth and fifth graders, but with no aerobic exercise running program. At the end of the year participants in the FAST Program were found to be achieving at a higher rate in reading, language and math and to have better cardiovascular fitness and respiratory efficiency than non-participants. There was no difference in scores on academic aspiration between participants and non-participants.

According to Jequier, Lavallie, LaBarre, Rajic,

Shephard, and Valos (1982), the Trais Riveires regional experiment is unique in that it provides a controlled perspective trial of the impact of added physical activity upon the academic achievement of French Canadian children throughout 6 years of primary school. The sample of 546 students was essentially unselected, entire classes of boys and girls from one urban and one rural school being allocated to an experimental program where a nominal hour of physical activity was undertaken each day under the supervision of a qualified physical education instructor. During the first two years, the enhanced program gave emphasis to the development of basic motor skills over the following three years (grades 3 through 5). The emphasis was upon the development of cardio-respiratory and muscular fitness, while in the final year of primary school the children were introduced to a variety of vigorous team sports.

Control cohorts were formed from immediately preceding and succeeding classes at the same two schools. The control students thus received their academic instruction from the same group of teachers as the experimental subjects, but they undertook only Standard Quebec primary physical education for 40

minutes per week under normal primary teachers.

The influence of the experimental program upon academic attainment was assessed from the classroom marks reported by individual teachers and from the performance of students in a province-wide examination that was held in Grade 6.

The teachers' reports show that the control students had slightly better marks than the experimental subjects in Grade 1, but in the remaining five years of primary school the experimental group attained consistently higher marks. The provincial examination confirmed that the experimental students had an enhanced mathematical ability. In agreement with the teachers' marks for Grade 6, there was also no difference in French language ability between the two groups. However, provincial scores for English language and "intelligence" were lower in experimental than in control students.

Some 80% of 38 teachers involved expressed a favorable attitude towards the enhanced activity programs. The remaining 20% were neutral rather than negative in their reactions. The main point of this study is that more time can be allocated to primary school physical education without academic penalty.

Creating a program that would use physical education as key component of school programs is currently a growing trend in parts of the United States. According to Carpenter, Eisnaugle and Stroot (1990) of the 33 alternative schools in the Columbus Public School District, four schools endorse a physical perspective to focus on adventure education, and two emphasize physical education integrated within the school curriculum.

The Westgate philosophy is based on educating the total child physically, intellectually, and emotionally. The school teaches the total child by using the instruction approach in which physical education, critical thinking skills, health and fitness are integrated deeply into the academic curriculum. Written communication skills are emphasized in all areas.

Charts and posters emphasizing these concepts are found throughout each classroom, addressing these concerns in a setting that will assist children in making wise choices even when social pressures make the choices difficult. This is a major focus in the school.

Daily structured physical movement is planned and

directed by the classroom teacher in cooperation with the physical education specialist; classroom teachers participate in at least one physical education class per week to assure continuity between the classroom and physical education teachers and to enhance the integration process within the classroom setting.

Proof of Westgate's success is seen in a high attendance rate, surveys of teachers and parents and comparison of academic performance between students at Westgate and student averages for the district.

The California Achievement Test of Basic Skills (CTBS) indicate that scores for each grade level in both reading and math were higher for Westgate than the average for the district except for the second grade reading scores.

Attendance scores, surveys, and test scores provided formal data, suggesting that Westgate is successful and a "school that works."

STRATEGIES AND POLICIES THAT TEACHERS, AND OTHER DECISION MAKERS HAVE HAD ON THE INTEGRATION OF PHYSICAL EDUCATION AND ACADEMIC ACHIEVEMENT

President Kennedy was the first recorded president to make an open effort to change the state of physical fitness among children and adults. According to

Kennedy (1961) since we can no longer count upon the routine conditions of daily life to maintain our physical fitness, we have only one alternative to continued decline and that is the establishment of systematic and readily accessible fitness programs in every school and community in the nation. He reorganized the President's Council on Youth Fitness under the leadership of Charles Wilkenson.

This came at a time when, according to Kennedy (1961), only 52 percent of Americans could the pass the same fitness test that was mastered by more than 90 percent of young Europeans. The most interesting point of the entire article is that Kennedy (1961) also emphasizes that this department is just a catalyst to provide information and stimulus to the wide range of school systems and also make physical fitness a goal as a part of daily life.

According to the NEA Today (1994) President Clinton has signed the Goals 2000; Educate America Act. It is about new and more meaningful ways to measure student achievement. Goals 2000 formalizes the national goals adopted in 1989 by all 50 of the nation's governors. Congress added Goals Four and Eight (See Appendix for the National Goals).

Although the main focus of Goals 2000 is core subjects, it makes no mention to how physical education and fitness would be integrated, especially since Goal Number One states that "by the year 2000, all children will receive the nutrition and health care needed to arrive at school with healthy minds and bodies."

In support of the U.S. Government, there is yet another project titled Healthy People 2000 (U.S. Department of Health and Human Services). It directly supports physical activity and serves as a benchmark for schools and community-based programs. The main idea of Healthy People 2000 (U.S. Department of Health and Human Services) is that it proposes to ensure that health-related dimensions of physical activity which encompass key physiological and physical mechanisms become a part of regular behavioral patterns.

The goals range from 1.1 through 1.12 (Physical Activity & Fitness). Objective 1.8 (U.S. Department of Health and Human Service, Healthy People 2000) proposes to increase to at least 50 percent of the portion of children and adolescents in 1st through 12th grade who participate in daily physical education. Healthy People 2000 (1990) also states that participation in school physical education assures a minimum amount of

physical activity for children. Presumably it also encourages extracurricular physical activity by children and continued physical activity into adulthood.

Findings from the National Children and Youth Fitness Studies I and II (U.S. Department of Health and Human Services) suggest that the quantity and, in particular, the quality of school physical education have significant positive effect on health-related fitness of children and youth. In addition, Bennett (1986) states that physical education programs in early childhood not only promote health and well-being but also contributes to academic achievement. Concerns about the amount of time that is spent in physical education have also been expressed by the American Academy of Pediatrics and The American College of Sports Medicine.

Healthy People 2000 (1990) reports that in 1987, both houses of Congress passed a resolution (H. Con. Res. 97) encouraging State and Local educational agencies to provide high quality daily physical education programs for all children in kindergarten through 12th grade. Only one, Illinois, currently requires daily physical education as a part of the

curriculum in kindergarten through the 12th grade.

The researcher is definitely satisfied with the government's strategies and proposals in integrating physical education. However, the State and Local levels are where the decisions are really enforced and changed. The researcher took a look at how senators and educators worked together to make changes.

Senator Thomas H. Kean wrote an article for the journal The School Administrator (1990). In this article he debated with David A. Feigley the president of the New Jersey Association of Health, Physical Education, Recreation and Dance on whether schools should eliminate mandatory physical education.

Kean (1990) proposed eliminating the 72 year old physical education requirement to give students more time in serious academic work. This proposal was defeated June 1991 after which The School Administrator invited Governor Kean and David Feigley, to share their views.

Kean (1991) stated that his reasoning for eliminating physical education was because when the math skills of American 13 year olds were matched against counterparts in six other countries, our children finished sixth. Kean (1990) further stated

that he proposed making the mandatory five day a week physical education requirement an option. He wanted parents and their children to decide whether they wanted to spend more time on academics than athletics. Finally, Kean (1990) stated that in an age of shrinking budgets and shrinking academic performance, we must make more, not fewer academic opportunities available. Kean, in the researcher's opinion, really demonstrated his misunderstanding of physical education in the total learning process. However, David Feigley does an outstanding job of presenting the evidence to Kean.

Feigley (1990) stated that the time allocated to physical education has not created the current academic crisis. If it had created academic deficits then they would have appeared long ago. Furthermore Feigley's (1990) recent evidence suggests children in the early elementary years who receive daily physical education show a significant improvement in academic performance. Feigley (1990) expressed the same factors that undermine academic performance are undermining physical fitness performance.

Some of the issues contributing to the controversy of eliminating physical education stated by Feigley (1990) -- the lack of parental involvement, the

pervasiveness of television, the lack of teacher accountability, labor saving technology, working students, and a lack of quality teaching time -- can be equally devastating to intellectual and physical performance.

Solutions to the controversy according to Feigley (1990) are that physical educators and their direct administration must demand and maintain quality physical education programs.

Feigley (1990) states that Physical Fitness is not enough. Just as English classes are more than grammar and spelling, physical education programs are and should be more than physical fitness. Feigley (1990) describes that programs that promote fun, motor development, sportsmanship, self-esteem, and attitudes consistent with active life styles are more likely to promote fitness. The truly educated students develop physical, cognitive and attitudinal components of a healthy life-style.

The review of related literature indicated that there is an integration of physical education to the total learning process. Policy makers, administrators and educators at all levels must communicate and work together to eradicate their ignorance of the importance

to all disciplines and how they work together to
prepare our children to be life-long healthy learners.

CHAPTER III

METHODOLOGY

The researcher selected this project topic because of the interest in proving that physical education is vital to the total learning process.

Through research from journals, professional textbooks, and educational indexes, the researcher obtained pertinent research from three categories:

- 1) physical education and academic achievement;
- 2) integrating physical education with all subjects;
- 3) policies and strategies that influence "administrative policy makers" and teachers.

The information was then read and studied. The researcher organized the literature review to reflect the above mentioned categories with related research from mainly *Journal of Health, Physical Education, Recreation, and Dance*, *The School Administrator*, *Healthy People 2000 Reports*, and one textbook, *Physical Education for Elementary School Children*, eighth edition.

Chapter IV serves as a more detailed synthesis of current literature on the relationship between physical education and academic achievement.

Four tables in Appendix C explain:

Table 1 -- Lists the current magnet schools in Columbus, Ohio that emphasize physical education in the total curriculum.

Table 2 -- Describe the monthly themes at Westgate School.

Table 3 -- Results from the California Test of Basic Skills (April 1989).

Table 4 -- Federal projects that support physical education and academic achievement integrated in the curriculum.

Finally, the researcher concluded that in the literature it is evident that physical education is indeed a part of the total learning process.

CHAPTER IV

RESULTS

This paper is a research based background paper to provide school officials and policy makers with a synthesis of the literature on the relationship between physical education and academic achievement.

Instructors specializing in teaching children physical education have been striving for years to be acknowledged as full partners on the professional elementary education team. Despite progress, many classroom teachers and administrators still view the physical educator as less "professional." Classroom teachers too often perceive physical educators as playing games all day. While most contemporary physical educators and other knowledgeable professionals consider these remarks inaccurate and archaic, the elementary physical education profession still has much to accomplish toward greater recognition and acceptance as part of the professional elementary education team.

Physical education definitely belongs on the elementary team. Most physical educators work very hard at trying to work on the team.

James, Tanehill, O'Sullivan and Stroot (1989)

found that the specialists studied went beyond traditional routines of teaching and instead involved themselves in additional activities such as team teaching with faculty in other special subjects. The research also found that these specialists integrated reading into physical education programs and conducted special programs for both parents and children.

Other researchers examined students' levels of self-image as a result of physical and motor fitness. Krornas, Enberg, Guzman, and Ryder (1974) examined the results of physical and motor fitness and students' changes in self-image when taught by physical educators. They found that the students studied experienced increases on all measures. Additionally they reported that associate classroom teachers' opinions of the value of physical education to the total school program increased.

Several researchers focused on classrooms that did not have a specialist in their school program at all. Faucette, McKenzie, and Patterson (1989) discussed the types of activities made available to children and how classes were organized by classroom teachers. These researchers indicated that the students in 226 Kindergarten through Sixth grade classes spent

organized activity time predominantly in game type activities such as relays, kickball and dodgeball. They found that children in these classes enjoyed few opportunities to engage in skill practice, gymnastics, or dance activities. Frequently, classroom teachers dropped physical education from the day's schedule or permitted children to engage in free play during these classes.

The development of the whole child is a major focus in today's learning process. There is a major concern with how physical education contributes to the whole child through movement experiences and integration.

According to Werner (1994) the use of action words from dance and language experience with children, supported by the movement framework of Loban***** can be used effectively to help children define and understand words through concrete movement experiences. Children can say and write their own movement experiences as a part of whole language development. Children's literature is full of creative stories which can be read, then integrated through movement.

Math skills can also be simply enriched through movement. Werner (1994) expressed many enriching

experiences can be developed which integrate gross motor experiences with math concepts. Make tall/short, wide/narrow, curved/angular (pointed), and straight body shapes; same/different on both sides (symmetry); balancing on 1, 2, 3, or 4 body parts; pulling a short movement sequence together (1, 2, 3); and counting while clapping, snapping, tapping, walking, and hopping are examples of large group activities.

Science can also be integrated in physical education through large group movement experiences. According to Werner (1994) movement experiences should be designed to parallel and reinforce these activities. For example, using creative dance to enact the "Three Little Pigs" and "Itsy, Bitsy Spider" during the farm animal or insect themes or to develop movement sequences such as crawl, anchor, flutter during the caterpillar and butterfly theme.

Including music and art is also an important element in completely integrating physical education. Werner (1994) states that "children can draw, paint, and sculpt while learning about line design (wiggly, straight, broken, wavy, shape, smooth, angular, light, heavy). They can learn about music through dynamics (loud, soft) time (fast, slow)."

The research found that although Werner's recommendations were primarily geared for pre-school, the same ideas can easily be applied to all levels of elementary, middle, and high school.

A skill that most educators have considered a by-product of the learning experience is critical thinking. It was found to be most interesting that it very simply fit in the journey of proving physical education's importance. According to Labate and Schwager (1993) many elementary physical education teachers already incorporate critical thinking skills in their teaching perhaps without realizing they are doing so. Since the performance of motor skills can be described as a series of information processing tasks, students must engage in some form of critical thinking to learn many of the activities and skills commonly included in physical education.

For example, in the context of a movement education lesson, students might be asked how many ways they can travel over a rope on the floor. In terms of critical thinking they are being asked to analyze the problem. Students can be challenged. Labate and Schwager (1993) concluded by stating that focusing on critical thinking and encouraging students to use

cognitive skills can result in improved skills and fitness in addition to greater knowledge.

Decision makers at the federal and local levels of education have repeatedly overlooked the importance of physical education to the total learning process and academic achievement. Goals 2000, senators, principals teaching staffs and parents have all had a very narrow perspective of its importance. It is important that we now consider the evidence and move on by working as a team to develop the whole child.

Saddler, Tentinger, and Weidow (1993) wrote recommendations on how to implement the six national goals of education through physical education.

Goals #1 -- By the year 2000 all children in American will start school ready to learn. How will physical education contribute?

According to Saddler et al. a major step toward identifying children with special needs and providing early intervention has already been initiated in the form of federal disability laws, specifically Public Law 99-457. An amendment to Public Law 94-142 (The Education for All Handicapped Children Act), this legislation provides for the screening opportunity of all infants and toddlers. A multi-disciplinary panel

is utilized to detect deficiencies in cognition, motor, language and speech and social development. The team of experts may include the physical educator, physical therapist, and language art specialist for screening.

Once readiness has been established and the child has formally entered elementary school, the task shifts from resource professionals to the traditional learning environment. The stage is now set for the physical education specialist to assume an essential part in successful implementation of the objectives of Goal One.

Goal #2 -- By the year 2000, the high school graduation rate will increase to at least 90%.

How will physical education contribute? According to Saddler et al. (1993) the physical educator can serve a complementary role in making the connection between success and educational attainment a reality. A dynamic physical education curriculum offers sequentially planned activities to develop motor skills and also maximizes participation and interest. Additionally, opportunities to experience success may be exhibited through innovative strategies. These strategies include: interdisciplinary cooperation; physical education homework, a diversity of short,

novel courses, and an empowering role of student activity choice, all in the name of self-image.

Goals #3 -- American students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, history and geography and every school in America will ensure that all students learn to use their minds well, so that they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.

How will physical education contribute? According to Saddler et al. (1993) numerous objectives accompany Goal Three and illuminate the magnitude of the challenge. Those for which physical education can play a participatory role include: (1) academic achievement (2) citizenship and (3) cultural diversity.

Goal #4 -- By the year 2000, U.S. students will be first in the world in mathematics and science achievement.

How will physical education contribute to Goal #4?

Saddler et al. (1993) state that the physical education environment can foster innovative thought in understanding the laws of motion, force, equilibrium, trajectory, and levers. Harrison, Fronske and Bayles

(1990 for example utilized tasks sheets with secondary students to examine bio-mechanical concepts. For part of their assignment students were asked to throw softballs from different positions to develop a working knowledge of force.

Goal #5 -- By the year 2000, every adult American will be literate and will possess the knowledge and skill necessary to compete in a global economy and exercise the responsibilities of citizenship.

How will physical education contribute? Saddler et al (1993) state that by having the aptitude to organize one's decisions on health related fitness requirements, the individual is in a better position to enjoy life-long benefits.

Goals #6 -- By the year 2000, every school in America will be free of drugs and violence and will offer a disciplined environment conducive to learning.

How will or has physical education contributed? Physical educators can forge partnerships with outside agencies for supplementary intervention programs. One such program is the National Youth Sports Program (NYSP) administered by NCAA and held on college campuses.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

In Chapter I the author expressed that in working with teachers and administrators in a public elementary school it was noted that most teachers and administrators did not understand the importance of physical education to the total learning process.

Chapter II elaborated through studies and research how academic achievement and physical education are important to the learning process. This chapter takes a look at programs that focus on the integration of a specific fitness life skills that promote life-long learning. Lastly this chapter focuses on schools that structured their program on educating the total child physically, intellectually, and emotionally. The school teaches the total child by using the instruction approach in which physical education, critical thinking skills, health and fitness are integrated deeply into the academic curriculum.

Finally, Chapter II looks at how teachers and other decision makers have viewed the integration of physical education and reading achievement. Also it specifically explains Goals 2000 and Healthy People 2000.

Chapter III overviews how the project was planned and conducted, stating the interest and methods of finding the resources.

Chapter IV is a detailed synthesis of studies particularly on how physical education status has changed in the learning process, how teachers' attitudes have changed, and how two classes compared -- one with a specialist and one without. Suggestions on how to implement the integration of physical education are clearly expressed giving concrete examples. Finally, ways to implement Goals 2000 are clearly explained.

Summary

The main purpose of physical education is to teach motor skills and physical fitness that integrated in the total learning process.

After an examination of the literature, it would seem that the following conclusions can be made:

- 1) Research does show a positive relation in Physical Education and Academic achievement;
- 2) There are programs that advocate using physical education as a medium in its curriculum and they are effective;
- 3) The Federal Department of Health and Human Services and Department of Education have established Healthy

People 2000 and Goals 2000 Educate America Act. That are benchmarks for education.

Recommendations

The researcher believes the following recommendations should be acknowledged.

- 1) Administrators and researchers must work together at the school level to understand the importance of physical education and academic achievement;
- 2) Senators, Congress and local decision makers must begin to help advocate physical education through awareness and promotion of the set Federal Benchmarks.

Additionally, the researcher feels it is quite evident from the related literature that Physical Education and academic achievement is a significant part of the total learning process. While physical education is faced with many controversial variables such as budget cuts, student enrollment, and teacher competency, physical education is a catalyst to academic achievement, and life-long fitness. The researcher agrees with Feigley (1990) who states:

Physical Educators and their direct administrators must demand and maintain quality physical education programs.

Physical fitness is not enough. Just as

English classes are more than grammar and spelling, physical education programs are and should be more than physical fitness.

Programs that promote fun, motor development sportsmanship, self-esteem and attitudes consistent with active life styles are more likely to promote fitness. The truly educated students develop physical, cognitive, and attitudinal components of a healthy lifestyle.

APPENDICES

APPENDIX A

GOALS 2000 OBJECTIVES:

EDUCATE AMERICA ACT

The National Education Goals

The Goals 2000: Educate America Act includes these eight goals to be achieved by, no surprise, the year 2000.

1. All children in America will start school ready to learn.
2. The high school graduation rate will increase to at least 90 percent,.
3. All students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter. . . and (all students will be) prepared for responsible citizenship, further learning, and productive employment
4. The nation's teaching force will have access to programs for the continued improvement of their professional skills
5. United States students will be the first in the world in mathematics and science achievement.
6. Every adult American will be literate.

7. Every school in America will be free of drugs and violence and will offer a disciplined environment conducive to learning.
8. Every school and home will engage in partnerships that will increase parental involvement and participation in promoting the social emotional, and academic growth of children.

APPENDIX B

(objectives excerpted from) HEALTHY PEOPLE 2000:

PHYSICAL ACTIVITY AND FITNESS OBJECTIVES

- 1.0 Reduce coronary heart disease deaths to no more than 100 per 100,000 people.
- 1.1a Reduce coronary heart disease deaths among blacks to no more than 115 per 100,000.
- 1.2a Reduce overweight to a prevalence of no more than 25 percent among low-income women aged 20 and older.
- 1.2b Reduce overweight to a prevalence of no more than 30 percent among black women aged 20 and older.
- 1.2c Reduce overweight to a prevalence of no more than 25 percent among Hispanic women aged 20 and older.
- 1.2d Reduce overweight to a prevalence of no more than 30 percent among American Indians and Alaska Natives.
- 1.2e Reduce overweight to a prevalence of no more than 25 percent among people with disabilities.
- 1.2f Reduce overweight to a prevalence of no more than 41 percent among women with high blood

pressure.

- 1.3 Increase to at least 30 percent the proportion of people aged 6 and older who engage regularly, preferably daily, in light to moderate physical activity for at least 30 minutes per day.
- 1.4 Increase to at least 20 percent the proportion of people aged 18 and older and to at least 75 percent the proportion of children and adolescents aged 6-17 who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion.
 - 1.4a Increase to at least 12 percent the proportion of lower-income people aged 18 and older with an annual family income less than \$20,000) who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion.
- 1.5 Reduce to no more than 15 percent the proportion of people aged 6 and older who

engage in no leisure-time physical activity.

- 1.5a Reduce to no more than 22 percent the proportion of people aged 65 and older who engage in no leisure-time physical activity.
- 1.5b Reduce to no more than 20 percent the proportion of people with disabilities who engage in no leisure-time physical activity.
- 1.5c Reduce to no more than 17 percent the proportion of lower-income people aged 18 and older (annual family income less than \$20,000) who engage in no leisure-time physical activity.
- 1.6 Increase to at least 40 percent the proportion of people aged 6 and older who regularly perform physical activities that enhance and maintain muscular strength, muscular endurance, and flexibility.
- 1.7 Increase 50 percent the proportion of overweight people aged 12 and older who have adopted sound dietary practices combined with regular physical activity to attain an appropriate body weight.
- 1.8 Increase to at least 50 percent the proportion of children and adolescent in

1st-12th grade who participate in daily school physical education.

- 1.9 Increase to at least 50 percent the proportion of school physical education class time that students spend being physically, preferably engaged in lifetime physical activities.

NOTE: Lifetime activities are activities that may be readily carried into adulthood because they generally need only one or two people. Examples include swimming, bicycling, jogging, and racquet sports. Also counted as lifetime activities are vigorous special activities such as dancing. Competitive group sports and activities typically played only by young children such as group games are excluded.

- 1.10 Increase the proportion of worksites offering employer -- sponsored physical activity and fitness programs as follows:

Worksites with	2000 target(percent)
50-99 employees	20
100-249 employees	35
250-749 employees	50
750 or more employees	80

- 1.11 Increase community availability and accessibility of physical activity and fitness facilities as follows:

Hiking, biking, and fitness trail miles: 1
per 10,000 people

Public swimming pools: 1 per 25,000 people
Acres of park and recreation open space: 4
per 1,000 people (250 people per acre)

- 1.12 Increase to at least 50 percent the proportion of primary care providers to routinely assess and counsel their patients regarding the frequency, participation, type, and intensity of each patient's physical activity practices.

APPENDIX C

(Tables from Carpenter, Eisnagle, & Stroot. (1991).

Focus on physical education: academic and physical excellence at Westgate alternative school. Journal of Physical Education, Recreation, and Dance. 49-53.)

Table I

Westgate Alternate School:

Academic and Physical Excellence

Refer to Table II. Column one lists the school names and focus point in physical education. Column II lists school address and phone. Column III lists Physical Education Specialist. Column IV lists the Building Administrator.

School Name and Focus	School Address and Phone	Physical Education Specialist	Building Administrator
Physical Education Focus			
Westgate Alternative	3080 Wicklaw Road Columbus, Ohio 43204	Michele Carpenter	Krista Eisnagle
Windsor Alternative	1219 E. 12th Ave. Columbus, Ohio 43211 (614) 365-5906	Diane Barnes Bert Search	Joseph Copeland
Researcher Comments	The two schools listed are the only two located schools by the researcher		

Table 2

Monthly Themes at Westgate School

September	Success: A Cooperative Effort
October	A World United (International Focus)
November	Nutrition for Life (Nutrition)
January	Incredible Me (Human Body)
May	Positive Addiction

Table 3
Federal Projects that Support Physical Education and
Academic Achievement

Department	Project's Title	Main Point
U.S. Department of Health and Human Services, 1990	Healthy People 2000	Ensure definite objectives embedding physical education to the total learning process for life.
U.S. Department of Education	Goals 2000: Educate America Act	Establishes a direct mission for core subjects. However, indirectly includes physical education.

Note: The State and Local level is the weak point of the inclusion of Physical Education and academic achievement. These models should serve as benchmarks for these levels.

Table 4

Results from the California Test of
Basic Skills (April 1989)

		Number Tested	Number Tested	Average Percentile	Average Percentile
Grade	Subject	Westgate	District	Westgate	District
2	Math	97	5351	70	59
2	Read	97	5325	41	42
3	Math	67	4996	74	58
3	Read	67	5000	61	49
4	Math	76	4540	73	66
4	Read	76	4586	63	54
5	Math	61	4301	77	60
5	Read	61	4305	58	48

Researcher's Comment: The California Test of Basic Skills demonstrates a definite significant relationship in Physical Education and Academic Achievement.

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