

**THE EFFECTS OF ELEMENTARY PHYSICAL EDUCATION ON
COMPOSITE TCAP SCORES**

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THE EFFECTS OF ELEMENTARY PHYSICAL EDUCATION ON
COMPOSITE TCAP SCORES

A Field Study
Presented to the
Graduate and Research Council of
Austin Peay State University

In Partial Fulfillment
Of the Requirements for the Degree
Education Specialist

Marilyn Ashlee Bullington
Spring 2007

To the Graduate Council:

I am submitting herewith a Field Study written by Marilyn Ashlee Bullington entitled "The Effects of Elementary Physical Education on Composite TCAP Scores." I have examined the final copy of this paper for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Education Specialist, with a major in Educational Leadership.

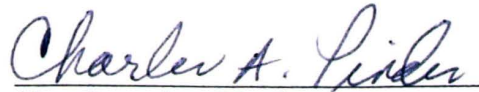

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Major Professor

We have read this Field Study
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DEDICATION

This project is dedicated to the most precious people in my life: my incredibly understanding husband, Bryan, whom I would be lost without, and to my children, Carson and Claire, who have made me feel more complete than I ever thought was possible.

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ABSTRACT

MARILYN ASHLEE BULLINGTON. The Effects of Elementary Physical Education of Composite TCAP Scores (under the direction of DR. BETTIE BARRETT).

This study analyzed and evaluated first grade and second grade composite TCAP scores from three rural elementary schools in which instruction in physical education ranged from 90 minutes, to 100 minutes to 150 minutes weekly. The total number of participants was 111. Two analyses of variances were performed using SPSS 14.0 and one post hoc test was performed. The study was conducted to test two null hypotheses. Results of the study indicated that there was not significance in the first grade composite TCAP scores based on the number of minutes spent each week in physical education classes; however, there was significance in the second grade composite TCAP scores between the schools having 100 minutes and 150 minutes of weekly physical education instruction. Interestingly, the mean scores for the 100 minute group was significantly higher than the mean scores for the 150 minute group receiving physical education instruction.

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CHAPTER 1

INTRODUCTION

School systems across the nation are finding it difficult to maintain their planned budgets because of an increase in expenditures. There have been many different budget cut proposals, one of which is a cut in physical education programs. Obviously, this cut is detrimental to the physical fitness of the youth, which has increasingly high obesity levels. Research studies such as the California Department of Education study done in 2002, The National Association for Sport and Physical Education done in 2001, and the Symons, Cincelli, James, & Groff study done in 1997, among others, show a positive correlation between physical fitness and academic achievement.

Statement of the Problem

A reduction in physical education instruction may arise from school district budget cuts. If research can provide evidence that there is a causal relationship between the time spent weekly in physical education instruction and higher achievement on the TCAP composite scores, then there is a strong possibility that budget cuts

in the area of physical education can be reduced or avoided.

Purpose of the Study

The purpose of the study is to determine if the number of minutes spent in physical education instruction in three rural elementary schools, namely 90 minutes, 100 minutes, and 150 minutes, respectively, will have an affect on TCAP composite scores for first grade and second grade students.

Significance of the Study

Determining whether or not longer amounts of time spent in physical education instruction effects academic achievement is important to parents, educators and students. Scientific studies have linked success in school with physical fitness (Kolber, 2004). Students will perform better academically and become more physically fit; therefore, parents will spend less time and expense taking their unhealthy child to the doctor. Teachers will benefit by having students whose minds are more susceptible to learning information presented.

Research Questions

1. Is there a statistically significant difference among schools spending 90 minutes, 100 minutes and 150

minutes per week on physical education instruction on first grade TCAP composite scores?

2. Is there a statistically significant difference among schools spending 90 minutes, 100 minutes and 150 minutes per week on physical education instruction on second grade TCAP composite scores?

Hypotheses

1. There is no statistically significant difference among schools spending 90 minutes, 100 minutes and 150 minutes per week on physical education instruction on first grade TCAP composite scores.
2. There is no statistically significant difference among schools spending 90 minutes, 100 minutes and 150 minutes per week on physical education instruction on second grade TCAP composite scores.

Limitations

This study was restricted to three rural public elementary schools in western Tennessee and therefore, the sample was limited. Moreover, even though each school had the approximate same percentage for socioeconomic status, gender, and ability levels as discussed in Chapter IV, there were six teachers involved. Since each of these six teachers had individual characteristics, the findings of

this study will be difficult to generalize to a larger population.

Each school had a certain amount of time allocated to physical education instruction, but not all of the schools offer the same number of days of physical education instruction per week. School A offers 45 minutes of instruction twice weekly. School B offers 50 minutes of instruction twice weekly. School C offers 30 minutes of instruction daily.

Assumptions

The following assumptions applied to this study:

1. The students in this study were considered demographically comparable in all three elementary schools.
2. The TCAP composite scores of the first grade students were obtained for school year 2004.
3. The TCAP composite scores of the second grade students were obtained for school year 2005.

Definition of Term

1. TCAP - Tennessee Comprehensive Assessment Program, published by CBT/McGraw-Hill.

CHAPTER II

REVIEW OF LITERATURE

An increase in standardized testing has changed many educators' perspectives on the division of time spent during the school day. Administrators have to make decisions on allocations of time for core subjects: reading, math, science, and social studies. Physical education classes are being sacrificed in an attempt to increase classroom learning time.

A study was conducted in a single southern California school district using the SPARK (Sports, Play and Active Recreation for Kids) program. The focus of SPARK was the development of healthy lifestyles, motor skills and move knowledge, and social and personal skills (SPARK program, 2004). The SPARK objectives claim students who are physically fit enjoy better health, have more energy to devote to activities of daily life, learn physical skills easier, are more successful at them, and thus have more opportunities for social interaction and personal meaning through physical activity and sport (SPARK program, 2004). The study showed through standardized testing scores that devoting substantially increased school time to health-

related physical education does not have detrimental effects.

For years, physical educators have believed that active, physically fit children would perform better academically. The California Department of Education provided specific evidence (California Department of Education, 2002) of academic achievement. The National Association for Sport and Physical Education urged further research to examine relationships between physical activity and academic performance (AAHPERD, 2002).

With the amount of inactive pastimes for children, exercise is integral to a child's physical development. Type II diabetes has reached epic proportions (Summerford, 2001). Aside from all of the physical health problems associated with a lack of exercise, there are concerns regarding the impression exercise has on the brain. With exercise, more oxygen-rich blood nourishes the brain, more neurotransmitters are released, more endorphins are released, and more neural networks are affected (Summerford, 2001). Movement is a fundamental part of the thought process, from the minuscule movement that fires the molecular movement that orchestrates the cellular movement, to the thought made visible by the action (Hannaford, 1995).

Evidence was available that suggested increased physical activity lead to higher academic achievement. Recent studies have shown this in many ways. First, academic achievement improved even when physical education reduced the time for academics. A reduction of 240 minutes per week in the class time for academics to enable increased physical activity led to consistently higher mathematics scores (NASPE, 2001; Shephard, Bolle, Lavalee, LaBarre, Jequier & Rajic, 1984). Second, intense physical activity programs have had positive effects on academic achievement, including increased concentration, improved mathematics, reading, and written test scores, and reduced disruptive behaviors (Shephard, 1997). Lastly, aerobic conditioning may have helped to improve memory. Exercise may have strengthened particular areas of the brain, and oxygen intake during exercise may have enhanced greater connection between neurons (Symons, Cinelli, James & Groff, 1997).

A research study by the California Department of Education matched scores from the spring 2001 administration of the Stanford Achievement Test, ninth edition, given as part of California's Standardized Testing and Reporting program, with results of the state mandated physical fitness test given in 2001 to students in grades

five, seven and nine. The results of the study show that higher achievement was linked with higher levels of fitness at each of the three grade levels. The results also show that the relationship between academic achievement and fitness was greater in mathematics than in reading, predominantly at higher fitness levels. Results show that students who met minimum fitness levels in three or more physical fitness areas showed the greatest gains in academic achievement at all three grade levels. Females demonstrated higher achievement than males, particularly at higher fitness levels (California Department of Education, 2001).

Studies that have shown neurological proof that activity was beneficial to learning (Blakemore, 2003). With exercise, the number of capillaries increased around the neurons of the brain, thus facilitating an increase in blood and oxygen (Blakemore, 2003). The blood flow improved the speed of recall. Also, gross motor repetitive movements stimulated the production of dopamine, a mood-enhancing neurotransmitter (Blakemore, 2003). Moreover, studies have shown that when some exercises are performed, endorphins are released and alertness increases (Blakemore, 2003). Other studies demonstrated that serotonin and dopamine reduce depression by as much as 50% (Howard, 2000; Jensen,

2000a; Jensen & Dabney, 2000). Furthermore, improved fitness levels created faster reaction times. The production of the hormone Nerve Growth Factor (NGF), which enhanced brain function by stimulating the growth of nerve cells, may be spurred (Howard, 2000; Jensen, 2000; Jensen & Dabney, 2000).

Jensen and Dabney (2000) found that running and other taxing exercise augment brain activity the most. Cognitive reading skills are the most affected. Moderate amounts of exercise, such as three times a week for 20 minutes a day may also have had beneficial effects. Dienstbier (1989) reported that physical exercise alone seemed to train a quick adrenalin-noradrenaline response and rapid recovery so that the body became proficient at responding to mental challenges. Hannaford (1995) stated that in 13 studies relating exercise to brainpower, exercise was found to stimulate the growth of developing brains and prevent the descent of older ones.

A couple of optional theories which purport to explain a boost in academic performance were that the participation in the physical activity program may have forced an immediate arousal and relief of boredom among experimental students, with the result that they paid more attention to instruction during the latter part of the school day

(Shephard, 1997). Additionally, another theory to help boost academic performance alleges that exercise can help reduce asthma symptoms, a major cause of absenteeism, especially in low income areas. Another theory advocates having a regular exercise program to alleviate stress, anxiety, and depression problems that can affect school performance, and even boost self-esteem (Vail, 2006). In 1982, Williams, Haertel, Haertel, & Walberg promulgated the idea that partaking in intracurricular or extracurricular sports may provided more mental challenge that the common inactive alternative of watching television.

Wilson Central School District, in Wilson, New York, used an exercise lab for at-risk students at-risk for failure. Instead of giving a student with attention-deficit-hyperactivity disorder, for example, a "time-out", the student participated in the exercise lab. This was written in the participant's Individualized Education Plan (IEP) (Putnam, 2004). The University of Buffalo conducted a six-week study on students participating in the exercise lab. The superintendent of the district claimed there was a dramatic change in the behavior of the participants (Vail, 2006). The district applied for and received a grant from the Physical Education Program (PEP) for \$250,000 to build fitness centers at its schools (Vail, 2006). The

superintendent stated the key to success was getting the heart rate up to 135-175 beats per minute for 20 minutes a day, five days a week. He said that if endorphins are released at this point, then the kids will settle down (Vail, 2006). Exercise labs provided a possible intercession that made student behavior and academic achievement improve.

An increase in standardized testing changed many educators' perspectives on the division of time spent during the school day. Administrators had to make decisions on allocations of time for core subjects: reading, math, science, and social studies. Physical education classes were being sacrificed in an attempt to increase classroom learning time.

A recent study, funded by a grant from the Department of Teaching and Learning, Virginia Polytechnic Institute and State University, found that in Kindergarten through fifth grade, the statistical trend was generally positive when comparing classroom minutes spent in art, music and physical education with the standardized test scores. The study demonstrated that a cut in the programs did not increase the standardized scores in the tested core subjects (Wilkins, Graham, Parker, Westfall, Fraser, and Tembo, 2003).

Exercise has been linked with dramatic improvements in behavioral conformity (e.g., Dwyer, Coonan, Leitch, Hetzel, & Baghurst, 1983; Wendt, 2000), as well as modest improvements in academic performance (California Department of Education, 2002; Dwyer, Sallis, Blizzard, Lazarus, Dean, 2001).

The physiological origins of the mind-body connection have been documented in many ways (Blakemore, 2001; Putnam, 2001; Ratey, 2001). Intense exercise not only improved behavior, it promoted the growth of the body's neuronal infrastructure (Blakemore, 2001; Ratey, 2001). Additionally, the body-mass index had an inverse correlation with academic achievement (Dwyer et al., 2001). Hence, intense exercise may have long term positive effects that affect future academic success as well as present behavior (Putnam, 2001).

The American Sports Institute (ASI) believed sports can enhance academic performance. Promoting Achievement in School through Sport (PASS) featured an integrated curriculum and an interdisciplinary approach combining language arts, philosophy, social studies, psychology and physical education (PASS, 1996). The primary measuring tool for progress was the grade point average of the participants. Participants were grouped based on grade

level, gender, and ethnicity. Results showed that participants of the program outperformed students in the control group on all applicable measures (PASS, 1996).

The impact of daily physical education upon the academic performance of primary school students was reviewed with particular reference to studies conducted in Vanves (France), Australia, and Trois Riveries (Quebec) (Shephard, 1997). When a sizable amount of curricular time (14%-26%) is set aside for physical activity, learning seemed to continue more rapidly per unit of classroom time, so that educational performance matched, and may even have surpassed that of the control students. Children receiving additional physical education showed an increase in the rate of psychomotor development, and this could provide a mechanism for accelerated learning of academic skills (Shephard, 1997).

Classroom teachers can also benefit from daily physical education class. During the time their students are participating in physical education classes, they would receive extra time to plan effective classroom activities for the students. Also, the time away from the students could give the classroom teacher time to relax (Shephard, 1997).

In conclusion, physical education benefits students both neurologically and behaviorally. These combined efforts make academic achievement possible. The increase of time allocated to physical education does not cause a decline in the standardized test scores, yet there is no dramatic rise in scores of students who have had an increase physical education amount or frequency.

CHAPTER III

METHODOLOGY

Overview

In Tennessee, TCAP testing is mandatory in grades three through eight. School districts can elect to administer the TCAP during the first and second grades, also. According to various research studies (Putnam, 2004; Sallis, 1998), the more students engage in physical education, the higher their achievement scores.

Research Design

The research design was quasi-experimental. The research design compared three groups that had received 90 minutes, 100 minutes, and 150 minutes of weekly physical education instruction time to Composite TCAP scores. The TCAP scores were obtained from three rural elementary schools for first and second grade.

Participants

Thirty-seven students were randomly selected from two of the three rural elementary schools. First grade participants numbered 111 and second grade participants numbered 111. All students that had attended the school for

two consecutive years were eligible to participate in the study. From the original tally of available students, there were 40 eligible students from the school having 90 minutes of physical education instruction; from the school having 100 minutes of weekly instruction, 53 students were eligible; and from the school having 150 minutes of weekly instruction, only 37 students were eligible to participate because they were the only ones who had attended the school for two consecutive years. In order to create more equivalent variances, three students were randomly selected for exclusion by drawing numbers out of a hat. The same procedure was followed for excluding 16 students from the school with 100 minutes of weekly physical education instruction. Thus, there were 111 participants for first grade and 111 participants for second grade.

Since the data involved in this study was archival, no parent permission was required, and there were no risks to the students. Permission was received from the superintendent of the school district, the principals from each of the three elementary schools, and from the Institutional Review Board of the supervising school.

Instrument

The instrument used to obtain the academic scores in

the study was the TCAP. Scores for the first grade were from school year 2004 and scores for second grade were from school year 2005.

Procedure

Scores were obtained from the principals of the three respective elementary schools for qualified participants. The data given to this researcher had no identifying marks thereby ensuring confidentiality for both students and schools. After numbering each participant's score, equal variances was obtained by randomly pulling numbers out of a hat.

Data Analysis Plan

Using Statistical Package for the Social Sciences 14.0 (SPSS 14.0) to analyze the means among the times spent on physical education instruction, a one-way Analysis of Variance (ANOVA) was performed with the TCAP composite scores being the dependent variable and the three categories of weekly minutes spent in physical education instruction being the independent variable, namely 90 minutes, 100 minutes and 150 minutes.

When significance was found at $p=.05<$, a post-hoc analysis was performed using Tukey's Honestly Significant Difference test (HSD). By using a single-step post hoc

procedure like Tukey's HSD, one can control the type I error rate.

SPSS 14.0 was also used to obtain the mean and standard deviation for first grade and second grade TCAP composite scores for each of the three groups, namely 90 minutes, 100 minutes, and 150 minutes of weekly physical education instruction.

CHAPTER IV

DATA AND RESULTS

Demographics

The demographics of the three rural schools selected for this study had approximately similar percentages of economically disadvantaged students and ethnicity. All of the students included in the sample were between the ages of six and eight. Gender was not available because it had been blackened out on the TCAP composite scores that were sent to the researcher. Table 4.1 illustrates the ethnicity and economically disadvantaged distributions among the three schools.

This sample had a total of 111 participants, 37 from each of the three elementary schools in a western Tennessee rural school district for first grade and equal number for second grade. Equal variances were obtained by randomly excluding students from two schools having more eligible participants. Random selection was accomplished by assigning numbers to each of the eligible participants in the two schools, placing the numbers in a hat, and drawing out the numbers to be excluded. After randomization, each school had a total of 37 participants.

Table 4.1

Ethnicity and Economically Disadvantaged Distributions

Ethnicity	School A	School B	School C
Percentage	90 minutes	100 minutes	150 minutes
White	98.00	94.80	98.50
African	1.60	4.00	.50
Hispanic	.02	.09	1.00
Asian	.00	.02	.00
Native American	.02	.00	.00
Pacific Islander	.00	.00	.00
Economically Disadvantaged	56.00	72.00	40.00

Note: Taken from State School Report Card, 2005.

Analyses of Research Questions

The data used in testing the research questions of the study have been presented in the following sections. An interpretation of the data follows both research questions. The 0.05 alpha level was used in all tests of research.

Research Question 1

Is there a statistically significant difference among schools spending 90 minutes, 100 minutes and 150 minutes per week on physical education instruction on first grade TCAP composite scores?

Null Hypothesis 1

There is no statistically significant difference among schools spending 90 minutes, 100 minutes and 150 minutes per week on physical education instruction on first grade TCAP composite scores.

An Analysis of Variance was performed using SPSS 14.0 to determine if the 90 minute group, 100 minute group, or 150 minute group for first grade had a statistically significant mean difference on the TCAP composite scores. Statistical significance was not found, $F(2, 108) = 0.754$, $p = .47$), with the 100 minute group's mean score ($M = 75.16$, $SD = 19.95$) being slightly higher than the 90 minute group's mean score ($M = 74.11$, $SD = 17.63$) and the 150 minute group's mean score ($M = 69.70$, $SD = 22.95$). The null hypothesis was retained. Tables 4.2 and 4.3 illustrate these results.

Table 4.2

Analysis of Variance for First Grade TCAP Composite Scores

Source	SS	df	Mean Square	F	p
Between Groups	620.667	2	310.333	.754	.473
Within Groups	44478.324	108	411.836		
Total	450098.991	110			

Table 4.3

Means and Standard Deviations for First Grade Times

Times	Mean	Standard Deviation
90 minutes	74.11	17.63
100 minutes	75.16	19.95
150 minutes	69.71	22.95

Research Question 2

Is there a statistically significant difference among schools spending 90 minutes, 100 minutes and 150 minutes per week on physical education instruction on second grade TCAP composite scores?

Null Hypothesis 2

There is no statistically significant difference among schools spending 90 minutes, 100 minutes and 150 minutes per week on physical education instruction on second grade TCAP composite scores.

An Analysis of Variance was performed using SPSS 14.0 to determine if the weekly physical education instruction for the 90 minute group, 100 minute group, or 150 minute group for second grade had a statistically significant mean difference on the TCAP composite scores. Statistical significance was found, $F(2, 108) = 4.65, p = .01$, with the 100 minute group's mean score ($M = 79.14, SD = 19.74$)

being higher than the 90 minute group's mean score ($M = 73.62$, $SD = 20.91$) and the 150 minute group's mean score ($M = 63.84$, $SD = 24.61$). The null hypothesis was rejected.

A post-hoc analysis was performed using Tukey's HSD and significance was found ($p = .01$) between the 100 minute group and the 150 minute group. Interestingly, this finding revealed that the 100 minute group mean of 79.14 was significantly higher than the 150 minute group mean of 63.84. Tables 4.4 and 4.5 illustrate these results.

Table 4.4

Analysis of Variance for Second Grade TCAP Composite Scores

Source	SS	df	Mean Square	F	p
Between Groups	4441.586	2	2220.793	4.65	.012*
Within Groups	51576.054	108			
Total	56017.640	110			

*Significant at $p < .05$

Table 4.5

Means and Standard Deviations for Second Grade Times

Times	Mean	Standard Deviation
90 minutes	73.62	20.91
100 minutes	79.14	19.74
150 minutes	63.84	24.61

Summary

The analysis of TCAP composite scores for the 90 minute group, the 100 minute group, and the 150 minute group was investigated to determine if there was a statistically significant difference in academic achievement for first and second grade. The two null hypotheses were addressed, and no significance was found for null hypothesis one, and it was retained. However, statistical significance was found for null hypothesis two, and it was rejected. A post hoc analysis was performed and significance was found for second grade between the 100 minute group and the 150 minute group. Noteworthy is the fact that the TCAP composite scores' mean was significantly higher for the students spending 100 weekly minutes in physical education instruction than for students spending 150 weekly minutes.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The amount of physical education instruction measured in minutes per week was hypothesized to have no effect on TCAP composite scores of students in three rural western Tennessee elementary schools. Consequently, an investigation was conducted to see if there was any statistical significance among the 90 minute group, the 100 minute group, and the 150 minute group receiving weekly physical education instruction against TCAP composite scores for first and second grades.

Discussion

There were a total of 111 participants, 37 from the 90 minute group, 37 from the 100 minute group, and 37 from the 150 minute group for first grade and the same number for second grade. TCAP tests were administered in the years 2004 and 2005 at approximately the same time each year (April). First grade scores for the year 2004 were used along with second grade scores for the year 2005. The three schools were relatively equal in the percentages of economically disadvantaged students and ethnicity.

Moreover, students were similar in ages, ranging from six to eight. TCAP composite scores were provided to the researcher from the principals of each of the three elementary schools. No identifying marks relating to these students' identity was furnished to the researcher thus ensuring confidentiality.

TCAP composite scores were entered into SPSS 14.0 for each of the 111 first grade and second grade participants along with the total number of minutes spent each week in physical education instruction. A one-way ANOVA was performed for Hypothesis One (first grade), and no significance was found. Therefore, Hypothesis One was retained.

An analysis of variance found significance for Hypothesis Two (second grade). Accordingly, a Tukey's post-hoc analysis was performed. Significance was found for second grade students between the 100 minute group and the 150 minute group receiving physical education instruction each week. Consequently, null Hypothesis Two was rejected. Interestingly, the mean for the 100 minute group was statistically higher than the mean for the 150 minute group receiving weekly physical education instruction.

Conclusions

This study was done to investigate whether academic performance was influenced by the amount of physical education instruction. Principals at the three rural elementary schools provided the unmarked scores of all eligible students in their respective schools. The findings in this research study reinforce the study done by The California Department of Education (2004), Vanves, France (Shephard, 2004), and Promoting Achievement in School through Sport (P.A.S.S.) (American Sports Institute, 1996). Based on the results, the following conclusions might be made:

1. Physical education instruction was not found to have any significance on academic achievement for first grade students among schools offering 90, 100, and 150 weekly minutes of physical education instruction, respectively.
2. Physical education instruction was found to have significance on academic achievement for second grade students among schools offering 90, 100, and 150 weekly minutes of physical education instruction, respectively.
3. There was a statistically significant difference in the mean TCAP composite scores of second grade

students between schools offering 100 minutes and 150 minutes of weekly physical education instruction, with the mean for 100 minutes being significantly higher than the mean for 150 minutes of weekly physical education instruction.

Recommendations

This section presents a series of recommendations that other researchers in the future may want to investigate relative to the theme of physical education instruction's impact on academic achievement. These recommendations are:

1. This research needs to be on-going in comparing physical education instructions' impact on academic achievement.
2. This study should be conducted with a more diverse set of students, perhaps in an urban setting.
3. A follow-up longitudinal type study should be conducted on second grade students at schools offering 100 weekly minutes and 150 weekly minutes of physical education instruction.

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Appendix A

Austin Peay State University
Institutional Review Board Approval



September 29, 2006

Ashlee Bullington
95 Birdsong Road
Camden, TN 38320

RE: Your application regarding study number 06-035: Amount of Elementary Physical Education and Academic Achievement

Dear Ashlee Bullington,

Thank you for your recent submission. We appreciate your cooperation with the human research review process. I have reviewed your request for expedited approval of the new study listed above. This type of study qualifies for expedited review under FDA and NIH (Office for Protection from Research Risks) regulations.

Congratulations! This is to confirm that I have approved your application through one calendar year. This approval is subject to APSU Policies and Procedures governing human subject research.

You are granted permission to conduct your study as described in your application effective immediately. The study is subject to continuing review on or before September 29, 2007, unless closed before that date. Enclosed please find the forms to report when your study has been completed and the form to request an annual review of a continuing study. Please submit the appropriate form prior to September 29, 2007.

Please note that any changes to the study as approved must be promptly reported and approved. If you have any questions or require further information, contact me at (221-7415; fax 221-7641; email pinder@apsu.edu). Again, thank you for your cooperation with the APSU IRB and the human research review process. Best wishes for a successful study!

Austin Peay State University

Sincerely,

Charles A. Pinder, Ph.D.

Chair, Austin Peay Institutional Review Board

cc: Dr. Bettie Barrett

www.apsu.edu

P.O. Box 4458 • Clarksville, TN 37044 • P: (931) 221-7414 • F: (931) 221-7641

Appendix B

Approval Letter from

Humphreys County Board of Education

01/12/2006 15:09 9315353593

PAGE 01/01

Mr. James Long, Director of Schools, Humphreys County,

Mr. Larry Geraldi, Supervisor of Instruction, Humphreys County,

Ashlee Bullington
95 Birdsong Road
Camden, TN 38320
(731) 584-3933 (931) 535-2513
home
731-584-3393
931 535-2513

My name is Ashlee Bullington and I am currently perusing my Education Specialist degree from Austin Peay State University. One of the requirements is to conduct a research project. The topic I have chosen is "The Amount of Elementary Physical Education Correlated with Academic Achievement".

With your permission, I would like to use your student data as part of my project. I am requesting TCAP scores of the students that are currently in the 3rd grade. I will need their scores from 1st and 2nd grades. This data will remain totally anonymous to protect the privacy of the students. I will need 40 students' information with their names and identifying characteristics deleted. Upon completion of the project, I will send you a copy of the results. Please sign and date this letter and return it to me as soon as possible, indicating that I have your permission to use Humphreys County Schools students' information for my study.

Thank you, in advance, for your cooperation and support.

Ashlee B. Bullington,

B.S. Physical Education, 1997, MTSU; M.A. Educational Leadership, 2003, APSU

approved 1/17/06

James Long

Larry Geraldi

(Come by office if you want to pick-up the scores (or use the fax))

Appendix C
Approval Letter from
McEwen Elementary School

01/12/2006 15:10 9315353533

PAGE 01/01

Ashlee Bullington
95 Birdsong Road
Camden, TN 38320
(731) 584-3933 (931) 535-2513

Mrs. Vicky Spann, Principal, McEwen Elementary School,

Mrs. Sherry McClurkan, Assistant Principal, McEwen Elementary School,

My name is Ashlee Bullington and I am currently perusing my Education Specialist degree from Austin Peay State University. One of the requirements is to conduct a research project. The topic I have chosen is "The Amount of Elementary Physical Education Correlated with Academic Achievement".

With your permission, I would like to use your student data as part of my project. I am requesting TCAP scores of the students that are currently in the 3rd grade. I will need their scores from 1st and 2nd grades. This data will remain totally anonymous to protect the privacy of the students. I will need 40 students' information with their names and identifying characteristics deleted. Upon completion of the project, I will send you a copy of the results. Please sign and date this letter and return it to me as soon as possible, indicating that I have your permission to use McEwen Elementary School students' information for my study.

Thank you, in advance, for your cooperation and support.

Ashlee B. Bullington,
B.S. Physical Education, 1997, MTSU; M.A. Educational Leadership, 2003, APSU

Vicky Spann, Principal
1-13-06

Appendix D

Approval Letter from
Waverly Elementary School

01/12/2006 15:07 9315353593

PAGE 01/

Ashlee Bullington
95 Birdsong Road
Camden, TN 38320
1731/584-3933 1931/535-2513
home

Mrs. Shirley Link, Principal, Waverly Elementary School,

Mrs. Kelly Rowlett, Assistant Principal, Waverly Elementary School,

My name is Ashlee Bullington and I am currently perusing my Education Specialist degree from Austin Peay State University. One of the requirements is to conduct a research project. The topic I have chosen is "The Amount of Elementary Physical Education Correlated with Academic Achievement".

With your permission, I would like to use your student data as part of my project. I am requesting TCAP scores of the students that are currently in the 3rd grade. I will need their scores from 1st and 2nd grades. This data will remain totally anonymous to protect the privacy of the students. I will need 40 students' information with their names and identifying characteristics deleted. Upon completion of the project, I will send you a copy of the results. Please sign and date this letter and return it to me as soon as possible, indicating that I have your permission to use Waverly Elementary School students' information for my study.

Thank you, in advance, for your cooperation and support,

Ashlee B. Bullington,
B.S. Physical Education, 1997, MTSU; M.A. Educational Leadership, 2003, APSU

Shirley B. Link, Principal 1-17-06
Kelly Rowlett, Asst. Principal 1/17/06

Appendix E
Approval Letter from
Lakeview School

Ashlee Bullington
95 Birdsong Road
Camden, TN 38320
(731) 584-3933 (931) 535-2513

Mrs. Danon Hooper, Principal, Lakeview Elementary School,

Mr. Shawn Stookey, Assistant Principal, Lakeview Elementary School,

Mr. John Tidwell, Assistant Principal, Lakeview Elementary School,

My name is Ashlee Bullington and I am currently perusing my Education Specialist degree from Austin Peay State University. One of the requirements is to conduct a research project. The topic I have chosen is "The Amount of Elementary Physical Education Correlated with Academic Achievement".

With your permission, I would like to use your student data as part of my project. I am requesting TCAP scores of the students that are currently in the 3rd grade. I will need their scores from 1st and 2nd grades. This data will remain totally anonymous to protect the privacy of the students. I will need 40 students' information with their names and identifying characteristics deleted. Upon completion of the project, I will send you a copy of the results. Please sign and date this letter and return it to me as soon as possible, indicating that I have your permission to use Lakeview Elementary School students' information for my study.

Thank you, in advance, for your cooperation and support,

Ashlee B. Bullington,
B.S. Physical Education, 1997, MTSU; M.A. Educational Leadership, 2003, APSU

Danon Hooper
John Tidwell *Shawn Stookey*