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Effects of Jamestown-Yorktown's Educational Program on Fourth Grade Students' Standards of Learning Score in Virginia Studies

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**Effects of Jamestown-Yorktown's Educational Program on
Fourth Grade Students' Standards of Learning
Scores in Virginia Studies**

A Research Paper Presented to the Graduate
Faculty of the Department of STEM Education and Professional Studies
at Old Dominion University

In Partial Fulfillment of the Requirements for
The Degree
Master of Science in Occupational and Technical Studies

By
Roger Hohensee
August 2010

APPROVAL PAGE

This research paper was prepared by Roger Hohensee under the direction of Dr. John M. Ritz in OTED 636, Problems in Occupational and Technical Education. It was submitted to the Graduate Program Director as partial fulfillment of the requirements for the Degree of Master of Science in Occupational and Technical Studies.

APPROVED BY: _____ DATE: _____

Dr. John M. Ritz

Advisor and Graduate Program Director

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Roger Hohensee

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Chapter I

Introduction

Museums are educational institutions that use a wide variety of programs to educate the public. The types of programs used include on-site programming centered on a particular topic at the museum, outreach programs away from the museum, conferences, symposiums, and telecommunications.

The Jamestown-Yorktown Foundation is a state agency which operates two museums: Yorktown Victory Center and Jamestown Settlement. The Jamestown-Yorktown Foundation has a number of educational programs that fall into two categories: guided tours and outreach programming. The guided tours range from one to two and a half hours and cover Virginia Standards of Learning appropriate for the particular museum the group visits. Yorktown Victory Center focuses on the American Revolution and Jamestown Settlement focuses on the early English settlement of Virginia.

Outreach programming involves representatives from the Jamestown-Yorktown Foundation to go to the schools and do lessons focusing on seventeenth century Virginia, eighteenth century Virginia, or both centuries. The representatives use travel kits that have artifacts to use in describing the history and usually are meant to be hands-on in nature. Again, appropriate Standards of Learning are covered.

The programs success has been measured by post-program evaluations. These evaluations are completed by the class teacher. These evaluations do not measure what the students know after they leave the museum or how long they retain the information. As a consequence, museum administrators do not have statistical data indicating what kind of influence a Jamestown-Yorktown program has on the school group's education

beyond the program itself (D. Hall, personal communication, January 27, 2010).

Statistical data will allow museum administrators to see how effective Jamestown-Yorktown programming is. This information could be used to monitor programs, convince school board members and school principals that the museum program is a valued experience for their students, and convince donors to support the foundation (W. White, personal communication, January 26, 2010).

In a struggling economy where school systems have less money, justifying the services offered by museums becomes all the more important. School administrators and teachers are less willing to spend their budget on programs that do not relate to the Virginia Standards of Learning.

Statement of the Problem

The problem of this study was to determine if Jamestown-Yorktown's educational program had an effect in fourth grade students' Standards of Learning scores in Virginia Studies.

Research Goals

To guide this study the following hypothesizes were established:

- H₁: Schools with fourth grade students who attend a Jamestown-Yorktown outreach program will have a higher pass rate on the Virginia Studies Standards of Learning examination than schools whose students who did not attend a Jamestown-Yorktown program.
- H₂: Schools with fourth grade students who attend a Jamestown-Yorktown on-site program will have a higher pass rate on the Virginia Studies Standards

of Learning examination than schools whose students who did not attend a Jamestown-Yorktown program.

H₃: Schools with fourth grade students who attend both a Jamestown-Yorktown on-site and outreach program will have a higher pass rate on the Virginia Studies Standards of Learning examination than schools whose students who did not attend a Jamestown-Yorktown program.

Background and Significance

The Jamestown-Yorktown Foundation, like museums everywhere, is putting more effort to meet the needs of school systems and the public in general. They accomplish this by offering programs that meet the needs of the customers. Programs are offered in two forms: a guided tour and outreach programs. Programs are evaluated by the class teacher, teacher's aide, or chaperone at the end of the program. These evaluations are based on the program experience and do not give any information on what the students know leaving the museum or how long the students retain the information.

As a result, there is no statistical information on the effectiveness of the Jamestown Guided Tour (D. Hall, personal communication, January 27, 2010). This lack of information on the Jamestown Guided Tour needs to be filled. Museum administrators would find the information helpful in evaluating the effectiveness of the program, help generate donor support, and convince school board members and school principals that their students would benefit from a trip to Jamestown (D. Hall, personal communication, January 27, 2010; W. White, personnel communication, January 26, 2010).

Limitations

The limitations for this study were:

1. School districts where some schools highest grade was the fourth grade and whose students were distributed among several schools that had fifth grade were excluded.
2. Only the Standards of Learning percentile of passing of schools were considered.
3. Only data from the school year 2008-2009 were considered.
4. The schools must be teaching fourth grade for the school years 2007-2008 and 2008-2009 to be in the study.

Assumptions

The following assumptions were made:

1. Jamestown-Yorktown programs are based upon and developed using the fourth grade Virginia Studies Standards of Learning.
2. Museum education provides long term effect on student learning.
3. Standards of Learning examinations are a good benchmark to determine student mastery of school standards.

Procedures

The procedures for this study will be to gather the Standards of Learning scores for all Virginia public fourth grade schools for the school year 2008-2009. The scores will be separated into groups of schools that have or have not attended a Jamestown-Yorktown program. The schools that have had attended a Jamestown-Yorktown program were further separated into schools that had an on-site program only, outreach program

only, and had an on-site and outreach program. The groups' scores will be compared using the chi-square method to determine significance.

Definition of Terms

The following terms were defined to assist the reader.

Jamestown-Yorktown Program- any educational program offered by the Jamestown Yorktown Foundation. This can be a guided tour or outreach programming.

Museum Program- an educational program from the Jamestown-Yorktown Foundation, which was designed using the Virginia Standards of Learning for Virginia Studies as the basis of the program.

Outreach Programs- museum programs done away from the museum. This is usually done at the customer's school.

On-site Programs- programs done at the museum.

SOL- The Virginia Standards of Learning, emphasizing fourth grade Virginia Studies.

Overview of Chapters

Chapter I described the problem of determining how effective the Jamestown Yorktown Foundation's programming is teaching the Virginia Studies portion of the Virginia Standards of Learning. The background to the problem was established and a hypothesis was put forth with the belief that fourth grade students who attend a Jamestown-Yorktown program will have improved Standards of Learning scores. The significance of measuring the effect of these programs allows the Jamestown-Yorktown Foundation to adjust programming and give tangible evidence to financial donors that their money was well spent and continued support will not be a waste of time or money

and school systems would benefit by using the resources of the museum. The limitations and assumption were established to direct the study. Procedures for collecting the data and how it would be analyzed were explained. Definition of terms were included to clarify terms used in the study.

Chapter II will cover the Review of Literature concerning what has already been written concerning the effectiveness of museums in education and the Virginia Standards of Learning. Topics of review will include the Virginia Standards of Learning and museums in educating history.

Chapter III will deal with the methods and procedures used to conduct the study. The chapter includes selection of the population, collection of data, and how the data will be analyzed. Chapter IV reports the findings of the study. Chapter V will report the summary, conclusion, and recommendations of the study.

Chapter II

Review of Literature

This chapter is the review of literature. For museums to remain relevant as education institutions, they must adjust their programming to meet the needs of citizens and educational institutions. Virginia teachers are planning their courses using the Virginia Standards of Learning and museums need to cover the Standards of Learning. The review is in two parts: Virginia's Standards of Learning and museums in educating history.

Virginia's Standards of Learning

The Virginia Standards of Learning have their roots in educational reform and reports such as *A Nation At Risk* (National Commission on Excellence in Education, 1983). This report discussed the decline of academic ability of American students. Where the United States was once a leader in education, the educational performance for American students has fallen to the point where the United States was in real danger of losing its competitive edge in the global market due to a workforce unable to do basic educational skills. The report did include recommendations. Among the recommendations made was that "Standardize test of achievement ... should be administered at transition points from one level of schooling to another..." (National Commission on Excellence in Education, 1983).

In 1995 Virginia adopted Standards of Learning, testing, a revision of accreditation, and a reporting system to measure how well Virginia students were doing (Sgro, 1997). In 2001 President Bush signed the No Child Left Behind Act of 2001 which included "increased accountability for States, school districts, and schools..."

(U.S. Department of Education, 2004). The Virginia Department of Education administers these programs for the Commonwealth (Virginia Department of Education, n.d. a).

The results of the Standards of Learning testing have shown a marked improvement in scores since its inception (Christie, 2004). Acceptable passing scores vary with the subject of the test. For example, the 5th grade Virginia Studies test has a multiple choice test of 40 questions and requires 25 correct answers to pass (Virginia Department of Education, n.d. b). Schools to be accredited must have 70% of their students pass the Standards of Learning (Virginia Department of Education, n.d. c).

The Standards of Learning does have some issues. Teachers complain that the Standards of Learning is limiting them to “teach the test”. This is usually due to the quantity of material that needs to be covered. The argument is the need to cover all the material gives little time to go into in-depth discussions on subject matter. The test being multiple choice is only using lower levels of learning and not developing the analytical thinking process (Berube, 2004). Berube goes even one step further by developing a test using a Standards of Learning test students took the week before but added a question to explain the multiple choice answer they gave. The teachers who taught the students evaluated themselves on a Likert scale. Berube then observed the teachers to insure the evaluations of the teachers where accurate. Berube then gave the test. She discovered that 71% of the students who passed the Standards of Learning did not pass her test. Her conclusion was the students could pass the Standards of Learning test but did not understand the material (Berube, 2004).

Museums In Educating History

Standards of Learning testing is now the litmus test to Virginia's education system. As such, Virginia educators do not wish to use their time or resources that do not accomplish students passing the tests. Museums have taken their role as an educational institution very seriously and as a result added and expanded educational programs in order carry out its mission (Ellenbogen & Guthrie, 2003).

Museums offer opportunities to give students a chance to do higher level thinking and still meet the goals of standards tests. Pre-trip materials and/or outreach programs can prepare classes for the trip to the museum and help the school to maximize the value of the trip (Flannery, 2010).

Museums are focused with a theme which allows the visitor to get as much as they wish. A visitor to Colonial Williamsburg would experience aspects of the period of time in American and Virginia history just before and during the American Revolution. The visitor should be able to get as much information as they want. The sensory aspect of the experience can be motivating to the visitor, add to the interest, and encourage questions.

Museums will gear their programming to match the customer as best they can. Standards of Learning are a major part of education in Virginia today and with large segments of museums being school groups, museums try to adjust. Outreach programs often go to schools to teach students and encourage the school to invest in a trip to the museum.

Summary

In the Review of Literature the Virginia Standards for Learning and Museums in Education were examined. The Virginia Standards of Learning have been received with mixed reviews over the past fifteen years. Proponents have pointed out that the Standards of Learning scores have gone up over the years and have been effective. Others argue that “teaching the test” has not developed better education; the Standards of Learning have taught students but at a lower level of learning. Either way, the Standards of Learning were the guide for primary and secondary education and popular or not, they were going to be used in Virginia for a while. Their effects go beyond schools.

Given that many museums have large school visitations, the Standards of Learning are going to be a major component of any program that will involve school groups. Schools need the field trips their students take to relate to the Standards of Learning, otherwise the trip is not relevant. Chapter III will describe the methods and procedures used for this study.

Chapter III

Methods and Procedures

Chapter III describes the methods and procedures used to collect and analyze the data for this study. The research was quasi-experimental and examined the influence museums had on fourth grade students Standards of Learning scores. Included in this chapter are a description of the population, research variables, instrument design, field procedures, methods of data collection, statistical analysis, and summary.

Population

The population of this study was all the fourth grade schools in Virginia. The schools would be grouped based on the type of programs they received from the Jamestown-Yorktown Foundation. The groupings were no Jamestown-Yorktown programs (146 schools), Outreach Programs only (340 schools), Tour Jamestown-Yorktown program only (144 schools), and both, Outreach and Tour Jamestown-Yorktown programs (455 schools). The total number of schools in the population was 1085.

Research Variables

This study examines the effect the programming at the Jamestown-Yorktown Foundation has on fourth grade students' Standards of Learning scores in Virginia Studies. The independent variables are the Outreach programs, the tours offered at the Jamestown-Yorktown Foundation, and which, both, or none of the programs the schools participated. The dependent variable would be the Standards of Learning scores in Virginia Studies.

Instrument Design

The instrument used was the Virginia Standards of Learning for Virginia Studies test for the school year 2007-2008. The data were collected from the Report Card section of the Virginia Department of Education's website. The schools were categorized by the amount and type of Jamestown-Yorktown programs they attended.

Classroom Procedures

Schools would attend a Jamestown-Yorktown program in four options: not at all, Outreach alone, Tour alone, or Outreach and Tour. Outreach brought Jamestown-Yorktown personnel to the school using "artifact trunks" and have either 17th Century, 18th Century, or 17th and 18th Century history lessons.

Tours would bring the class to the Jamestown-Yorktown Foundation either at the Jamestown Settlement or the Yorktown Victory center. They would be met by a guide who would escort the group and give the same lesson using the artifacts of the museum. Schools can have Outreach and Tours if the school allows it.

Methods of Data Collection

The schools chosen for this study had to be active in teaching fourth grade for both the 2007-2008 and 2008-2009 school years. The reasoning was some schools closed and all the students from that school were not predictably going to the same new school. Schools who met those criteria were identified by Mr. Dale Hall of the Jamestown-Yorktown Foundation. Mr. Hall also had the Jamestown-Yorktown Foundation's data base for the programs that Virginia Fourth grade schools attended. The Standards of Learning scores were collected from the Virginia Department of Education Report Card section for schools. The data had only the pass percentage for a school, proficient score

percentage, and advance proficiency score percentage. The data base identified 1085 schools who were used for this study.

Statistical Analysis

The Chi-Square analysis was used to analyze the data to determine the relationship of the percentage of pass, proficient, and advance proficiency in a school and attendance of Jamestown-Yorktown programs. Proficiency scores were compared based on the number of Jamestown-Yorktown programs the fourth graders in a school attended.

Summary

In Chapter III, methods and procedures for this study were examined. The population for the study was identified as schools that taught fourth and fifth grade during the school years 2007-2008 and 2008-2009. According to the study's criteria 1098 schools met the criteria with 13 rejected for no SOL data available in Virginia Studies. Variables for the study were of the type and number of Jamestown-Yorktown programs schools attended, Outreach, Tour, or both for the independent variables. The Standards of Learning Scores for schools would be the dependent variable and collected from the Virginia Department of Education's Web site www.doe.virginia.gov. A Chi-square analysis will be used to compare the effectiveness of the Jamestown-Yorktown Foundation's educational programming to schools receiving passing scores (70% or more) with schools receiving passing scores limited programming or no programming at all. In Chapter IV the researcher will report the findings.

Chapter IV

Findings

This chapter will discuss the findings of the study. The problem was to determine if Jamestown-Yorktown's educational program had an effect in fourth grade students' Standards of Learning scores in Virginia Studies. Individual school pass rates for Standards of Learning in Virginia Studies were collected and compared with the amount of museum programming at the Jamestown-Yorktown Foundation using the chi-square method. The information used was the percentile of students who passed the Virginia Studies SOLs. These data were collected from 1085 schools. Appendices A and B are a list of schools excluded.

The scores were separated into groups of schools that have or have not attended a Jamestown-Yorktown program. The schools that have attended a Jamestown-Yorktown program were further separated into schools that had an on-site program only, outreach program only, and had an on-site and outreach program. The Jamestown-Yorktown Foundation provided the information of school that attended an on-site program and outreach program, both outreach and on-site programs, or none.

Data Analysis

The variables were schools with no program, an on-site program only, outreach program only, and both outreach and on-site programs. The SPSS program, a statistical processing program, was used to determine the Chi-square separately comparing no program with the other three variables. The no program population that failed were 11 and no program population that passed were 135.

Outreach program only compared with no program were done with the outreach population that failed of 16 and the outreach population that passed of 324. Using Chi-square, the results were a value of 1.56 with a degree of freedom of one, the level of significance at $p > .05$ was 3.84.

On-site program only compared with no program were done with the on-site population that failed of five and the on-site population that passed of 139. Using Chi-square, the results were a value of 2.30 with a degree of freedom of one, the $p > .05$ level of significance was 3.84.

Both outreach and on-site programs compared with no program were done with both outreach and on-site program populations that failed of 13 and both outreach and on-site program populations that passed of 442. Using Chi-square, the results were a value of 6.31 with a degree of freedom of one, the $p > .05$ level of significance was 3.84. Table 1 outlines the results.

Table 1

Chi-square Results of the Data Comparing No Program with various levels of programs

	# of schools whose score was 0-69% Fail	# of schools whose score was 70-100% Pass	X^2 Value	df	$P > .05 = 3.84$
No program	11	135			
Outreach only	16	324	1.56	1	3.84
On-site only	5	139	2.30	1	3.84
On-site and outreach	13	442	6.31	1	3.84

Summary

Chapter IV reported the results of research of the effects of attending a Jamestown-Yorktown program upon schools' Virginia Studies SOL pass rates. The data from 1085 schools were collected and categorized into four groupings: schools that attended a Jamestown-Yorktown Foundation on-site program only, a Jamestown-Yorktown Foundation outreach program only, both an on-site program and outreach program, and no Jamestown-Yorktown Foundation program. Separate Chi-square analyses were performed comparing schools with a Jamestown-Yorktown Foundation on-site program only, schools with a Jamestown-Yorktown Foundation outreach program only, and schools with both an on-site and outreach program with schools with no Jamestown-Yorktown Foundation program. The results were reported. Chapter V will discuss the summary, conclusions, and recommendations.

Chapter V

Summary, Conclusions, and Recommendations

This chapter will conclude this study. The chapter has a summary to give a brief description of the study. Conclusions based on the data from this study will be made. And the researcher will make recommendations based on the conclusions.

Summary

The problem of this study was to determine if Jamestown-Yorktown's educational program had an effect in fourth grade students' Standards of Learning scores in Virginia Studies. The hypothesizes established for the study were:

- H₁: Schools with fourth grade students who attend a Jamestown-Yorktown outreach program will score higher pass rate on the Virginia studies Standards of Learning examination than students who did not attend a Jamestown-Yorktown program.
- H₂: Schools with fourth grade students who attend a Jamestown-Yorktown on-site program will have a higher pass rate on the Virginia Studies Standards of Learning examination than schools whose students who did not attend a Jamestown-Yorktown program.
- H₃: Schools with fourth grade students who attend both a Jamestown-Yorktown on-site and outreach program will have a higher pass rate on the Virginia Studies Standards of Learning examination than schools whose students who did not attend a Jamestown-Yorktown program.

Museums are educational institutions who try to educate the public. Part of their customer base was schools who sent there students to learn more about subjects they teach in class. With Standards of Learning being used to assess the success of schools'

curriculum and with school budgets being cut, administrators were becoming reluctant to spend money for trips if they did not see the value that the students receive. This study was to help museum administrations do that.

This study had the following limitations:

1. School districts where some schools highest grade was the fourth grade and whose students were distributed among several schools that had fifth grade were not used.
2. Only the Standards of Learning percentile of passing/failing of schools were considered.
3. Only data from the school year 2008-2009 were considered.
4. The schools must be teaching fourth grade for the school years 2007-2008 and 2008-2009 to be in the study.

The following assumptions were made:

1. Jamestown-Yorktown programs were based upon and developed base upon the Virginia fourth grade Virginia Studies Standards of Learning.
2. Museum education provides long term effect on student learning.
3. Standards of Learning examinations are a good benchmark to determine student mastery of school standards.

The population for this study was 1085 schools in Virginia who teach fourth grade students Virginia Studies. Data were collected from the Virginia Department of Education's website. The data collected were the percentage of students who passed their SOLs' in Virginia Studies. The data collected were from the test year 2008-2009. The Chi-square method was used to analyze the data.

Conclusions

Three hypotheses were tested for this study. The first hypothesis was:

H₁: Schools with fourth grade students who attend an on-site Jamestown-Yorktown outreach program will score higher pass rate on the Virginia studies Standards of Learning examination than students who did not attend a Jamestown-Yorktown program.

A Chi-square analysis was performed using 340 schools that had an outreach program only and 146 schools with no program for a total of 486 schools. The X^2 value of 1.56 was not significant. Therefore the researcher rejects the first hypothesis. Schools with fourth grades students who only attended an on-site Jamestown-Yorktown program will not have a higher pass rate than schools that did not attend a Jamestown-Yorktown program.

The second hypothesis was:

H₂: Schools with fourth grade students who attend a Jamestown-Yorktown on-site program will have a higher pass rate on the Virginia Studies Standards of Learning examination than schools whose students who did not attend a Jamestown-Yorktown program.

A Chi-square analysis was performed using 144 schools that had an on-site program only and 146 schools with no program for a total of 290 schools. The X^2 value of 2.30 was not significant. Therefore the researcher rejects the second hypothesis. Schools with fourth grades students who only attended an outreach Jamestown-Yorktown program will not have a higher pass rate than schools that did not attend a Jamestown-Yorktown program.

The third hypothesis was:

H₃: Schools with fourth grade students who attend both a Jamestown-Yorktown on-site and outreach program will have a higher pass rate on the Virginia Studies Standards of Learning examination than schools whose students who did not attend a Jamestown-Yorktown program.

A Chi-square analysis was performed using 455 schools that had an on-site program and outreach and 146 schools with no program for a total of 601 schools. The X^2 value of 6.31 was significant at the 0.05 level with $p > 3.84$. Therefore the researcher accepts the third hypothesis. Schools with fourth grades students who attended an outreach Jamestown-Yorktown program and an outreach program will have a higher pass rate than schools did not attend a Jamestown-Yorktown program.

Recommendations

Based on the conclusions the following recommendations are made:

1. Encourage schools to use both Onsite programming and Outreach programming to maximize the value of the education.
2. Conduct a study to determine why Onsite and Outreach combined make a significant difference yet separately have less effect.
3. Conduct a study to determine if other museums such as science museums have an effect on their SOL's.
4. Further analyze the data from these data-bases to determine which sections of the standardized test showed the greatest benefit from the Jamestown-Yorktown programming.

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Appendix A

Schools Excluded

Grade 4 and Grade 5 Virginia Elementary and Middle Schools Excluded:

<u>School District</u>	<u>School Name</u>	<u>Grades Served</u>
Essex County	Tappahannock Elementary	PK-4
Essex County	Essex Intermediate	5-8
Falls Church City	Thomas Jefferson Elementary	2-4
Falls Church City	Mary Ellen Henderson Middle	5-7
Galax City	Galax Elementary	KG-4
Galax City	Galax Middle	5-7
Greensville County	Greensville Elementary	PK-4
Greensville County	Belfield Elementary	5
Harrisonburg City	Keister Elementary	KG-4
Harrisonburg City	Smithland Elementary	KG-4
Harrisonburg City	Spotswood Elementary	KG-4
Harrisonburg City	Stone Spring Elementary	KG-4
Harrisonburg City	Waterman Elementary	KG-4
Harrisonburg City	Skyline Middle	5-8
Harrisonburg City	Thomas Harrison Elementary	5-8
Manassas City	Baldwin Elementary	KG-4
Manassas City	George Carr Round Elementary	PK-4
Manassas City	Jennie Dean Elementary	PK-4
Manassas City	Richard C. Haydon Elementary	KG-4
Manassas City	Weems Elementary	PK-4
Manassas City	Mayfield Intermediate	5-6
Mathews County	Lee-Jackson Elementary	KG-4
Mathews County	Thomas Hunter Middle	5-8
Nottoway County	Blackstone Primary	PK-4
Nottoway County	Burkeville Elementary	PK-4
Nottoway County	Crewe Primary	PK-4
Nottoway County	Nottoway Intermediate	5-6
Orange County	Locust Grove Elementary	KG-4
Orange County	Locust Grove Middle	5-8

Powhatan County	Flat Rock Elementary	PK-4
Powhatan County	Pocahontas Elementary	PK-4
Powhatan County	Powhatan Elementary	KG-4
Powhatan County	Pocahontas Middle	5-6
Prince Edward County	Prince Edward Elementary	PK-4
Prince Edward County	Prince Edward Middle	5-8
Scott County	Duffield-Pattonsville Primary	KG-4
Scott County	Rye Cove Intermediate	5-7
Surry County	Surry Elementary	PK-4
Surry County	Luther P. Jackson Middle	5-8
Winchester City	Frederick Douglass Elementary	KG-4
Winchester City	Garland R. Quarles Elementary	KG-4
Winchester City	John Kerr Elementary	KG-4
Winchester City	Virginia Avenue	
	Charlotte DeHart Elementary	KG-4
Winchester City	Daniel Morgan Middle	5-8
Wise County	Coeburn Elementary	PK-4
Wise County	Powell Valley Primary	PK-4
Wise County	Wise Primary	PK-4
Wise County	Coeburn Middle	5-8
Wise County	L. F. Addington Middle	5-8
Wise County	Powell Valley Middle	5-8

Appendix B

Schools Excluded Due to No Data

Schools excluded due to lack of data from Virginia Department of Education:

<u>School district</u>	<u>School name</u>
Caroline County	Madison Elementary
Fairfax County	Coates Elementary
Fairfax County	Laura Hill Elementary
Grayson County	Mount Rogers Combined
Franklin County	Windy Gap
Hampton City	Mary Peake Center Alternative
Hanover County	Henry Clay Elementary
Lee County	Elydale Elementary
Lee County	Keokee Elementary
Loudoun County	Kenneth W. Culbert Elementary
Roanoke County	Bent Mountain Elementary
Rockingham County	River Bend Elementary
Staunton City	Virginia School for the Deaf and Blind