A Comparison of Achievement and Attendance of Fifth Grade African American Male and Female Students Attending Same-Gender Classes and Coeducational Classes in Two Inner City Schools

by

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Dissertation submitted to the Faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

in

Educational Administration

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November, 1993

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(ABSTRACT)

This quantitative study compared achievement and attendance of fifth grade African American males and females attending same- gender classes and coeducational classes in two inner-city schools in Virginia. The population of the study was ninety African American students. Fifty-two students were in same-gender classes and thirty-eight students were in coeducational classes. The students were from very similar socio-economic neighborhoods. The Iowa Test of Basic Skills (ITBS) and the students' final grades in grades four and five were used to obtain quantitative data. Achievement and attendance information was reported in mean scores and percentages. Charts and tables were used where appropriate for purposes of comparison and clarification. Descriptive statistics were used for means, standard deviations, and percentages. A separate

analysis of covariance (ANCOVA) test was performed for achievement grades in math, science, reading, and social studies and standardized test scores. An ANCOVA also was done on attendance. The fourth grade ITBS's test scores in reading, math, science, and social studies served as covariates. A separate analysis of variance (ANOVA) test was run on each ANCOVA for the purpose of comparison. Significant main effects and interactions were analyzed. Number Cruncher Statistical System software was used for all computations. A probability level of .05 was selected as the level of significance.

The analysis of the data for both groups revealed that students in the same-gender group showed higher achievement and improved attendance than the coeducational group. Grades for males and females were better in all subjects in same-gender classes. However, improved standardized test score results were divided.

The results of this study can provide data to school districts interested in comparing same-gender schooling and coeducational schooling. It contributes to the growing body of research in same-gender schooling as an educational alternative.

DEDICATION

This dissertation is lovingly dedicated to my husband, Thomas R. Mitchell, Sr. and to our son, Thomas R. Mitchell, Jr. I share this study with them as they have shared the chores with me for the past four years. It also is dedicated to the most loving and giving parents a person could have - my Mom, Ethel Clark Whitfield and my Dad, Edward L. Whitfield.

Their love, support, inspiration, encouragement, and belief in me helped me to complete one of my most challenging goals. Thank you. I love all of you very much.

ACKNOWLEDGEMENTS

To my Lord and Savior Jesus Christ, I thank you.

There are many persons who have contributed to the completion of this dissertation. I could not have done it alone. I will mention a few of these persons whom I always will remember for very special reasons.

I am forever grateful to my committee chair, Dr. Claire G. Cole and to my committee co-chair, Dr. Kusum Singh, for their support, confidence, encouragement, kindness, hospitality, and innovative ways to help me. I am most appreciative of the phone calls to me when I was moving slowly. Most of all, I thank them for their belief in this study and their faith in me.

To each of my committee members, I thank you for your immediate willingness to be a part of this study and your constant support and encouragement.

To the principals, teachers, and students of the two schools studied in this dissertation, I thank you for your time and your willingness to share with me your school and your pursuit of excellence in education.

To my dear Aunt Helen (Clark), thank you for the trophy...in November! To my uncle and pastor, Dr. Herman Clark, I thank you for your prayers and your unwavering faith in the Word.

A heartfelt "thank you" to my family and to my friends who gave me an abundance of love, encouragement, and confidence. I appreciate and love all

of you. Finally, I could not have completed this study without the love and support of my husband and our son. I love you both very much.

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CHAPTER 1

INTRODUCTION

Background of the Problem

Researchers and educators of public education have chronicled a plethora of social, educational, economical, and political problems that impair the effectiveness of the urban public school (Riordan, 1990; Morrow, 1987; Hale-Benson, 1982). Many professional journals detail discussions of various aspects of K-12 education (Cummins, 1986; Lee, 1986; Bryk, 1981). There has never been a more passionate controversy of what schools should do to improve themselves (Gross & Gross, 1985). Politicians, parents, educators, college students, and others are involved in the discussion of improving the educational system for all students.

This is not the first time in recent memory that schools have been beset with such controversy. In 1957, the Russians' success in launching Sputnik shocked a nation that had prided itself on its scientific dominance (Gross & Gross, 1985). The educational impact was astounding. Schools moved from child-centered reforms to academic curricula that were based primarily on the sciences and math (Gross & Gross, 1985). Teacher education was criticized and universities and colleges were urged to improve their programs. The National Defense Education Act funded teacher training, in-service workshops,

and equipment to improve science, math, and other instructional programs (Gross & Gross, 1985).

In the late 1960s, our educational system was again going through a metamorphosis. Students opposed the stringent demands of academia. Schools were accused of failing the individual. The message is similar today. A Nation at Risk: The Imperative for Education Reform: A report to the Nation and the Secretary of Education by the National Commission of Excellence in Education (1983), the Holmes Report (1986), and the Carnegie Task Force on Teaching as a Profession (1986) have accused public education of failing its students and society (Gross & Gross, 1985). Virginia's response to this accusation is the World Class Educational Plan adopted by the Virginia Board of Education in 1992. The national government's response is Educating Americans for the 21st Century: A Report to the American People and the National Science Board (1983).

In A Nation at Risk, the National Commission of Excellence in Education reported several problems associated with public education. According to the report, secondary curricula have no central purpose, fewer students take difficult subjects, and twenty-five percent of the credits of general track students are in physical education, remedial, and personal service courses, such as homemaking, child care, cosmetology, and keyboard. The study also reported that a typical school day in the United States is six hours long and a school year, one hundred eighty days. In other countries, a school year might consist of eight

hour days and a two hundred twenty-two day school year. The average United States' school provides twenty-two hours of academic instruction per week. Time spent on elective courses, such as child care, keyboard, and homemaking counts as much toward earning a diploma as time spent on basic courses, such as math, science, language arts, and social studies. In fact, some elementary school students receive only one fifth of the instruction other students receive in reading comprehension because of poor instructional management. As a result of such problems, grades have fallen and homework and achievement have declined. The report also noted that many states require little math, science, and no foreign language. In thirteen states, fifty percent or more units may be in electives. It appears that in many school systems minimum standards in competency examination have become the maximum requirement.

The conclusions of the Carnegie Report and the Holmes Report are similar. The Carnegie Report called for overhauling teacher education programs. Other objectives included establishing a national board to create higher standards in teaching and to increase the number of educators of minority ethnic groups (AACTE, 1986). The Holmes Report was an impetus for gaining professional status for teachers. Among its goals were (1) to make the education of students intellectually challenging and (2) to create standards of entry into the profession that were professionally relevant and intellectually more practical (Case, Lanier, & Miskel, 1986). The Holmes Report also stated that teachers need to understand the differences in student backgrounds to become

more multiculturally aware to be able to adjust their curricula according to their students' needs and abilities. Yet, they must help all children attain levels of achievement that transcend initial disadvantages.

Both studies reported decreased standards for entry into teaching during times of teacher shortage. The studies also reported teachers' low salaries and poor working conditions. Such problems, according to the Carnegie Report, caused teachers to give mediocre performances. Educating Americans for the 21st Century: A Report to the American People and the National Science Board (1983) reported that the nation that has dramatically led the world in the age of technology is failing to provide its own children with the intellectual tools needed for the 21st century. It also reported that many teachers in math and science need retraining and many elementary teachers are not qualified to teach math and science thirty minutes a day. Many secondary teachers must work in subjects for which they are not trained. As reported in the Holmes Report and the Carnegie Report, a decline in qualifications of teachers and poor pay have affected teachers' attitudes and commitment to the teaching profession.

Many students have been affected by problems defined in these reports. However, a combination of political, economic, and sociological circumstances have contributed to the demise of educational success of many African American students, especially male students (Murrell, 1992). It is widely accepted many African American males are failing in school at every level from kindergarten through twelfth grade. In every large metropolitan school system, African

Americans are disproportionately expelled, suspended, and rel programs for the learning disabled, emotional disturbed, and mentally retarded (Murrell, 1992).

Educational researchers and educators are seeking solutions to these problems. One theory that has garnered moderate attention is the inferred positive relationship between same-gender schooling and academic achievement in the elementary schools (Riordan, 1990). The elementary school years are the most critical in the development of all students (Smith, 1980). The interaction between these students and the educational system can determine their destinies (Jones, 1986). There are two rationales that dominate the controversy concerning same-gender schooling and coeducational schooling. One controversy focuses on the social benefits and the other controversy concerns the academic outcomes that students derive from same gender or mixed gender schooling (Riordan, 1990). Girls do better academically than boys in elementary school (Boocock, 1980). Boocock (1980) stated that the apparent disadvantage of boys in elementary school has led to serious consequences. He proposed that males and females be separated in elementary school to help males become more academically motivated. He also proposed systematic attempts to recruit more male teachers at the elementary level. Although there has been little research done on intergender contact or social contact between males and females at the elementary grade level (Riordan, 1990), Lockheed & Klein's (1985) research on unstructured cross-gender interaction indicates social contact

between males and females in the elementary school is characterized by a lack of cooperation and male dominance. Numerous studies show that males are more likely to assume leadership positions, to be more verbally active, and to be more influential than females (Lockheed, 1976; Lockheed & Klein, 1985; Meeker & Weitzel-O'Neill, 1977).

Professionals in many academic areas have studied the academic achievement and positive social interaction of African American students, including Janice Hale-Benson (1982), James P. Comer (1985), and Thomas A. Parham (Berry & Asamen, 1989). These renowned professionals view the academic achievement and the positive social interaction of African American males as a moral challenge to the public schools and to the social conscience of our American society. A challenge it is. Leake and Leake (1992), Solomon (1988), and Staples (1975) have reported depressing educational statistics about the young African American male. Note the following:

- Young African American males are underachieving at an alarming rate. They constitute 8.5% of public school population, but they represent 36% of special education students (Kunjuku, 1991).
- African American males represent 37% of school suspensions (Kunjuku, 1991).
- Nationally, one fifth of all African American boys drop out of high school. In many cities the dropout rate is 50% (Governor's Commission on Socially Disadvantaged Black Males, 1989).

- One out of five African American youths in the United States in the 18- to 21-year old age group currently does not have a basic high school diploma necessary for most entry-level jobs (Gibbs, 1989).
- In Milwaukee, 90% of young African American males have a grade point average of less than 2.0 (Kunjuku, 1991).
- The academic failure of young African American males begins early and eventually leads to disinterested and uninvited youth dropping out of school before high school (Garibaldi, 1991; Midgett, 1992).

Cummins (1986) and others (Garibaldi, 1988; Berry & Asamen, 1989; Natriello, McDill, & Pallas, 1990) have proposed that improving the academic achievement and performance of African American males will have positive benefits for society. It is not difficult to support this supposition. One need only study the arrest, conviction, and incarceration data of urban-based African American males between the ages of thirteen and twenty-one years old. African American youths are incarcerated three to four times more frequently than white youths (Duster, et. al., 1987). In 1987, thirty-nine percent of the youths held in custody were African Americans, mostly male (Duster, et. al., 1987). However, African American males constitute only six percent of the population in the United States (Foster, 1990).

Criminologists also have cited relationships between low academic achievement and undesirable social behavior (Natriello, 1987). The data do not suggest that every African American male living in the inner city is prone to get

into trouble with the criminal justice system. However, research does document a connection supported by longitudinal data (Foster, 1990). The data suggest an increasing positive correlation between crime and the lifestyles of young African American males who live in single parent, low socio-economic households located in the inner city. The educational leadership is searching for practical strategies that will show young impressionable African American males a broader range of functional alternatives to criminal behavior. Educational administrators seek strategies to promote self-esteem and improve school attendance, self-discipline, and academic achievement.

The Milwaukee Public School System is embarking on a controversial experiment in which a middle school and an elementary school will offer a comprehensive educational program designed exclusively for African American children. It focuses on promoting the academic achievement and personal growth and development of African American males. There are plans to open similar schools or expand on similar proposals in Washington, D.C., Baltimore, Detroit, Minneapolis, St. Louis, Miami, New York, and Philadelphia (Murrell, 1992). The proposed program has its supporters and its critics. Supporters of the program believe it will have a powerful effect toward building self-esteem, self-confidence, and love of learning of African American students (Murrell, 1992). However, criticisms have been leveled on both ideological and pedagogical bases. Dr. Kenneth B. Clark, whose research on self-image in African American children was instrumental in the Brown v. Board of Education

(1954) ruling, sees a danger of setting legal precedent for resegregating public education. He also warns of the potential harm from stigmatizing and separating children in special schools.

A review of the professional literature does not indicate that prevailing educational programming is sufficient to successfully counteract the socio-educational problems presented by low achieving African American males. Garibaldi (1988) reports that the African American students dominate the listings of students who are suspended, expelled, and retained for at least one grade level. Statistically, many of these students, especially those who drop out of school, enter the criminal justice system. Inherent to same-gender classrooms for African American males is the supposition that students who have positive, healthy, and nurturing ego-building experiences will have healthy self-concepts. Healthy self-concepts and self-esteem will help the students conquer the pressures associated with socially unacceptable behaviors.

The educational profession is in need of more evaluative data. These data must speak to the relative value of educational programs that can motivate students to perform while concurrently developing the discipline to withstand the community's negative attractions. This study addressed the comparable value of same-gender class organization and coeducational class organization as it relates to achievement and school attendance.

Purpose of the Study

Public education must organize and implement educational programs to stimulate academic achievement and decrease the high dropout rate affiliated with African American males and females, especially males. This purpose of this study was to compare same-gender classes and coeducational classes to determine if students in same-gender classes scored higher than students in coeducational classes on measures of achievement and attended school more often. This study helped to resolve whether or not placement in same-gender classrooms was a more germane placement for African American fifth grade males and females than coeducational placement. Students' performance on standardized tests, grades, and school attendance was used to determine the effectiveness of each placement. Students who participated in the study were fifth grade African American students from two selected inner-city schools.

Research Questions

This study was guided by the following research questions:

(1) Does class organization (coeducational classes versus same-gender classes) affect the outcome variables? For instance, do students in same-gender classes perform significantly better or are less absent than students in coeducational classes?

(2) Without considering class organization, is gender related to outcome variables? Do females perform significantly better and are less absent than males?

(3) Do the factors of class organization and gender interact? Are males or females differentially affected in their performance under one condition or the other?

The four null hypotheses related to question number three were investigated:

(3a) There is no significant difference between males in coeducational classes and males in same-gender classes in any of the outcome variables.

(3b) There is no significant differences between females in same-gender classes and females in coeducational classes in any of the outcome variables.

(3c) There is no significant differences between males and females in coeducational class organization in the outcome variables.

(3d) There is no significant difference between males and females in same-gender class organization in the outcome variables.

Significance of the Study

Increasingly, the data raise the fundamental question of whether or not coeducational classrooms can reliably provide an ethnic- or gender- equitable

classroom (Riordan, 1990). Shaw (1984) said that coeducation in principle offers equality of opportunity, but it actually reduces the opportunity of equality. That is, coeducational classrooms give children the opportunity to be exposed to the same curricula at the same time by the same teacher. However, in such cases all children do not have equal opportunity to participate in classroom discussions or receive equal attention from the teacher. He contended that same-gender classrooms might offer genuine equality of opportunity. Same-gender classrooms, however, is a very controversial educational issue.

This study explored whether or not same-gender classrooms benefitted students in achievement and attendance, and if so, to what extent. The results of this study will help determine whether or not to design and implement same-gender classes in similar conditions as discussed in this study. This study provided data to generate dialogue to determine whether a same-gender classroom influences students to develop a better attitude toward learning to give students the opportunity to achieve higher academic goals.

The study is pertinent to inner-city schools that share similar characteristics of the two schools studied. Both schools were in low socio-economic neighborhoods. The neighborhoods were at least 99% African American. All the students presented in this study were African Americans. In each school, at least 95% of the students received free or reduced-priced lunch. The principal in each school was an African American.

Definitions

Achievement was measured by grades earned in math, science, reading, and social studies and by standardized tests' results in math, science, reading, and social studies.

Attendance was measured by the number days students attended school during the 1992-93 school year.

Same-Gender Classrooms consisted of all male students or all female students.

Coeducational Classrooms consisted of males students and females students.

Inner City School was defined as a school within a school system in an urban setting with a population of approximately 200,000 to 250,000 residents. Approximately 70% of the population received some type of public assistance, including food stamps, with a high projection of non-high school graduates.

School A represented the school that housed coeducational classes.

School B represented the school that housed the same-gender classes.

Iowa Test of Basic Skills (ITBS) is a standardized test that is used to assist the users in diagnosing the strengths and weaknesses within the classroom. The test battery provides comprehensive and continuous measurement of growth in vocabulary, reading, writing, and mathematics (Airasian, 1985). The ITBS contains content that is extensively

representative of school curricula in grades three through nine (Airasian, 1985).

Achievement Grades were assigned values earned in specified subjects: A = 4 points; B = 3 points; C = 2 points, D = 1 point; and E = no points.

Limitations

The following limitations apply to this study:

(1) Only two independent variables were used in this study. They were achievement and attendance. The researcher was unable to use other possible dependent variables, such as self-esteem and discipline because the information was not available. In School B, the principal has a "no suspension policy." This policy was adopted during the 1992-93 school year. Therefore, a comparison could not be made between the two schools. Information regarding self-esteem was not available because one of the schools in this study was unable to administer the Piers-Harris Children's Self-Concept Scale at the end of the fifth grade school year as planned.

(2) Students were not randomly selected because of the school setting. Therefore, intact classes were used.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

This chapter focused on the literature related to the historical development of education as it relates to African Americans. The study of past educational practices is necessary to understand the current educational system. The history of education in America is a developing area of study that is interdisciplinary. The disciplines include economics, sociology, anthropology, and psychology (Pulliam, 1982). Therefore, the history of education might be called the earliest systematic treatment of cultural and intellectual factors affecting American life (Pulliam, 1982). This chapter also focused on the educational literature that examines same-gender schooling and coeducational schooling as they both relate to the African American students.

Education is an integral element of society and culture. The school is a major social institution that is constantly bombarded with new demands and challenges to solve many of society's problems as well as to meet the diverse educational needs of society. The school is called upon to provide its students with the skills, values, information, and attitudes needed to survive in an uncertain world. The social, economic, and political adversities of society are constantly addressed through the public schools. The solutions offered by

educators and others are sometimes very controversial, such as same-gender education.

Many teachers today might be overwhelmed with the diverse demands placed upon them by their clients and ultimately by society. They are faced with many conflicting choices of how to meet or solve the demands. Although the study of the history of education does not tell the teachers and administrators how to solve the problems, it does recall numerous innovative techniques that educators used in the past. Some techniques were successful; others were not. Past innovations included individualized instruction, team teaching, open classrooms, schools without walls, alternative schools, work study programs, nongraded schools, and competency based programs. Although some of these techniques date back to the 1930s (Pulliam, 1982), most of them are in use today. Same-gender schooling is not a new idea. It has always been a part of the educational process in the United States.

Studying history also gives educators the opportunity to re-assess educational and cultural traditions. To understand the needs of the students, educators must have an appreciation for the culture from which the students come. Educators must be sensitive to the social, political, and economic forces that literally control the students and their parents (Pulliam, 1982). Such knowledge can help teachers become aware of the significant forces, movements, ideas, and conflicts that shape the American school system. This awareness is vital to understand the present educational system in America, for

when history is perceptively grasped, it can assist needed innovation (Tyack, 1967).

Historical Developments

New attitudes toward educating children emerged early in the nineteenth century. In 1868, Horace Mann, the leading figure in the Common School Movement, wrote that the establishing of a republican government without well-appointed and efficient means for the universal education of the people is the most rash and fool-hardy experiment ever tried by man. Yet, in the South, public education received relatively little attention. Schooling was still perceived as a luxury. Rigid southern social class allowed few opportunities for the indentured servants, the slaves, and the poor freedmen to attend school. This type of attitude toward education was fought by such persons as James G. Carter (1826) who maintained that the poor and ignorant members represented a threat to the republic. Carter stated that the government had the obligation to eradicate ignorance for its own political good.

Many educational opportunities were made available to the people. Some of them were plantation schools, old field schools, dame schools, church schools, and of course, the common schools. Plantation schools existed throughout the South. These schools were maintained by very wealthy planters who hired tutors to train their sons and their daughters. The sons of these wealthy planters were prepared for college. Their daughters received instruction

in French, music, dancing, and polite manners, but they were not prepared for college nor were they given the opportunity to attend college. The old field school was the local elementary school. It was built by the community on one of the dormant old fields. Often the teachers had little education. Dame schools were not legitimate schools. They consisted of rudimentary instruction given by a woman in her home, usually while she did housework. The lessons were limited to the alphabet, counting, prayers, and Bible reading (Pulliam, 1982).

Secondary education consisted of the Latin grammar schools, the academies, and the high school. Latin grammar schools were schools for the social and intellectual elite (Pulliam, 1982) which prepared boys for college. The students were taught by college graduates who were males and often ministers (Pulliam, 1982). The boys entered the schools at eight years old after they learned to read. They spent from six to eight years in the schools and later, hoped to be admitted to college.

To understand the history of American education, one must be knowledgeable and appreciative of the significance of the Common School Movement in the 1800s. The Common School Movement was an effort to provide mass popular education for all white males and females (Button & Provenzo, 1983). It served the common people with a common curriculum. This curriculum had little individual variation. It consisted of reading, writing, arithmetic, and religion. Although both boys and girls attended these schools, they were not coeducational. The boys and girls were separated in the one-

room school house, and they were segregated during recess and play periods. In fact, heterosexual socialization was not only discouraged but prohibited (Kolesnik, 1969). Yet, the common schools were viewed as an important vehicle of social reform. They provided opportunities for newly arrived immigrants and the poor to improve their living conditions (Button & Provenzo, 1983). The roles now defined for teachers and administrators, and there relationship of the school to the family and the minority groups, such as African Americans, Native-Americans, and women clearly have their roots in the Common School Movement (Button & Provenzo, 1983). The Common School Movement expanded during the second half of the nineteenth century, and developed into what David Tyack (1967) has called "the one best system." Although the movement did not include African Americans in its zeal to educate the children, no group in the United States had a greater faith in the equalizing power of schooling than a group of African Americans from Boston. In 1846, this group petitioned the court for desegregated schools (Tyack, 1974). Strategies and tactics used to fight segregation differed from community to community based on the density of the African American population and leadership and the degree of white prejudice. In other cities, African Americans insisted on separate but equal schools. They maintained that such systems offered opportunities for good jobs. They also argued that in desegregated schools, African Americans suffered from insults of white children and the cruelty and bias of white teachers (Tyack, 1974).

Before the Common School Movement, schools were in a disarray. They were either established for profit or charity; propagating the faith or persuading people to settle in a new village on the frontier; or advancing learning or keeping children off the streets (Tyack, 1967). Despite these efforts, many of the children were not served, because they were poor, females, or African Americans. Females were often assigned to different and inferior secondary schools and were not admitted to college (Button & Provenzo, 1983). The basic reason for excluding females from the earliest schools was that these schools were designed to train for the professions related to the church, law, medicine, and teaching. These professions were dominated by men. Women's work was in the home and it was accepted that the best preparation for this was the home (Cubberley, 1948).

A modified form of schooling was available to African Americans before and after the Civil War. Education in the South for African Americans was almost nonexistent. It was very limited in the North. In the colonial period, a few African Americans in the South did learn to read. This phenomenon occurred as religious groups such as the Society for the Propagation of the Gospel in Foreign Parts (SPG) sought to convert slaves to Christianity. In 1743, the SPG opened the Charleston Negro School. It employed two slaves who were purchased to serve as instructors (Higginbotham, 1978). The school persevered after the 1740 act prohibited teaching a slave to write, though there was great opposition. The school continued for twenty-two years and was closed only

when the last African American teacher died and no one was found to fill the vacancy (Klingberg, 1941).

Shortly after the Civil War, ex-slaves, young and old, men and women, flocked to study the alphabet and the Bible in old planation sheds or on town corners (Tyack, 1967). Many Northern school teachers and missionaries were the first teachers of these ex-slaves. They came to the South to teach their students the meaning of freedom. Yet, the northern philanthropists accepted the southern view that public education had to be segregated and usually unequal. This meant that teachers of African Americans were paid less money than white teachers. The African American schools were literally starved of materials, other resources, and school improvements. For example, one county in Mississippi spent eighteen cents on each African American student and twenty-five dollars on each white student. The South spent fourteen dollars ninety-five cents on each African American student; forty-five dollars sixty-three cents on each white student. The average class size for African Americans was sixty-seven students (Tyack, 1967).

As the common schools grew and expanded during the middle 1800s, so did the academies, often called high schools. In 1778, Phillips Academy was founded in Andover, Massachusetts. This marked the beginning of the academy movement (Riordan, 1990). These academies offered a variety of courses and provided an alternative to traditional studies but only for the wealthy students. Most of the academies were very selective, private, and strictly same-

gender schools, but not always male. A booming economy and the religious revival known as the Second Great Awakening contributed to the development of the academies (Pulliam, 1982). It stressed practical subjects rather than the classics (Pulliam,1982). Some of these subjects were bookkeeping, navigation, trades, mechanics, and merchandising. There were military academies, manual labor academies, and preparatory academies. There were same-gender academies and coeducational academies. Coeducational academies, however, were rare.

The free public high school emerged as a result of the public demanding a free tax supported secondary education program. The first American high school was established in Boston, Massachusetts in 1821 to meet the needs of boys who did not plan to attend college (Pulliam, 1982). English, mathematics, history, science, geography, philosophy, bookkeeping, and surveying were taught. These schools differed from the academies in that many of the academies were established to prepare students for college. Draper (1901) perceived the academy as providing a classical education with some practical courses. The first high school for females was opened in Boston. It closed shortly after it opened because of lack of funds. Later, in 1855, Boston opened another high school for females (Pulliam, 1982). Although many schools were made available for majority students, minority students had very little opportunity to attend school. Missionaries did establish a few schools for the American Indians. Occasionally, an Indian did learn to read English but formal schooling

was almost nonexistent for the American Indian. These schools were unsuccessful because the missionaries did not understand the Native Americans' culture and attitudes.

The Case for Coeducational Schooling

In 1776, Thomas Jefferson proposed a free and compulsory tax supported educational system that lead to a more viable educational system. It also lead to a coeducational system for the United States by the nineteenth century (Kolesnik, 1969). The decision to allow education to become coeducational was largely economic. Individual localities could not continue to support separate schools for boys and girls. Society also began to feel that the separation of boys and girls was socially inappropriate. Nevertheless, many of the church related schools that continued to experience growth, especially Catholic and Jewish schools, maintained their same-gender structure. Most of the Protestant related schools were coeducational (Riordan, 1990).

The question of whether same gender or coeducational schooling is better is yet to be answered. There are two rationales that dominate the controversy surrounding same gender and coeducational schooling. The first controversy involves the social benefits; the second, the academic achievements. Coeducation was instituted in America on economic grounds. In thinly populated districts, it was clearly too expensive to provide separate schools for boys and girls when the number of students was small (Hawtrey, 1896). Separate schools

for boys and girls required doubling the cost of expensive facilities, equipment, and personnel. This practice would have jeopardized the existence of some local communities. By 1900, ninety-eight percent (98%) of public high schools in America were coeducational (U.S. Commissioner of Education, 1901).

Some people argue that coeducation is the natural setting in which to teach children. Many parents and teachers do not think that it is natural to separate boys and girls in school. They argue that boys and girls must learn to live and work together. Same-gender schooling might obstruct the development of positive relationships with members of the opposite gender (Riordan, 1990). Hale (1929) proposed that coeducation is conducive to happier marriages and heterosexual relationships. Atherton (1972) supported this contention. The passage of Title IX of the Educational Amendments in 1972 virtually mandated that American public education be coeducational. This mandate institutionalized coeducation in American society.

Based on his research in Great Britain, Dale (1971, 1974) concluded that coeducational schools were more successful than same-gender schools in every respect. Atherton (1972) and Campbell (1969) noted that most of the data that supported this contention were attitudinal and social, not academic. For example, students perceived coeducational schools as providing a more pleasant atmosphere than same-gender schools (Dale, 1974). Students preferred coeducational schools because it appeared that less emphasis was placed on scholarship and achievement and greater emphasis was placed on affiliation and

nonacademic activities. Those who favored coeducation viewed such activities as opportunities for developing the ability to relate positively with members of the opposite gender. Dale also noted boys' academic performance was higher in coeducational schools and girls' academic performance was higher in same-gender schools.

There are those (Amir, 1979; Miller & Brewer, 1984; Rossell & Hawley, 1983) who believe that coeducation reduces gender stereotypes. Unfortunately, there is little research to study the effects of intergender contact (Riordan, 1990). Some inferences, however, can be made from research on the conditions and effects of interracial contact. Using this research, Jones (1972) concluded that the goals of contact are to reduce negative and ill-founded attitudes toward groups by fostering realistic attitudes through face-to-face contact. According to Jones' "contact hypothesis," intergroup animosities exist partly because of stereotyped expectations and misperceptions of other people's beliefs, attitudes, and intentions. The contact hypothesis assumes that superficial prejudice might be reduced by equal-status contact between majority and minority groups and between males and females as they pursue common goals. Currently, however, coeducational interaction is rare in elementary and middle schools. Classroom observations of student interaction consistently show that same-gender interchanges account for most peer group interaction in preschool, elementary school, and junior high school (Lockheed & Klein, 1985). Coeducation is also perceived as preparing people for less discriminate gender roles (Riordan, 1990).

Coeducation allows students the opportunity to observe opposite gender role behavior. It also exposes students to curricula that portray nonstereotyped roles for males and females. However, males are continually rewarded for dominant behavior and counseled into scientific careers while females are often encouraged to be less aggressive and are counseled into nonscientific careers.

The Case for Same-Gender Schooling

Most private schools began as same-gender schools. Higher education in America began and remained all-male well into the nineteenth century. In response to this lack of equal opportunity, women's colleges opened in the 1830s and 1840s. Women's colleges continued to grow and to prosper until the middle of the twentieth century (Riordan, 1990). Although Title IX makes it difficult to conduct same-gender classes, several same-gender projects operating within the law have shown promising results for female students. In 1971, the John Hopkins University Study of Mathematically Precocious Youth began identifying mathematically talented children. Results indicated that the coeducational program was more successful with boys than with girls. In an attempt to remediate this inequity, an experimental program for girls only was started. The project has been remarkably successful in bringing the progress of the girls toward parity with that of the boys (Brody & Fox, 1980). At the University of Missouri-Kansas City, one section of a mathematics course was for women only. Women attending that section got higher grades and had a better

completion rate than women in the mixed-gender classes of the same math course. Significantly, fifty-six percent (56%) of the women in the same-gender class enrolled in another mathematics course. Only seventeen percent (17%) of the women in the mixed-gender course enrolled in another mathematics course (MacDonald, 1980).

In 1980 at a midwestern university, an all-female section of an introductory math course was offered in addition to five mixed gender sections. Women who selected the all-female section had lower math ability scores (Scholastic Aptitude Test) than those who selected the mixed-gender section. However, at the end of the school year, the women in the all-female class had attained higher achievement scores than women in the mixed-gender classes. Women in both groups had significant decreased levels of math anxiety (Brunson, 1983).

Recent findings about the experiences of female students at coeducational colleges support the opinion that mixed-gender schools fail to provide equal educational opportunities for both men and women (Riordan, 1990). Hall and Sandler (1982) contend that American coeducational colleges provide a "chilly classroom climate" that puts women at a significant disadvantage. By contrast, studies show that students at women's colleges have higher confidence, greater involvement in classroom and extracurricular activities, and higher occupational aspirations (Astin, 1977; Ingall, 1985).

In England, substantial empirical evidence showed that British girls were at a disadvantage if they attended mixed-gender schools (Shaw, 1984). Finn

(1980) found that girls in mixed-gender schools scored lowest of all students in both England and America. Ekstrom, Goertz, and Rock (1986) reported that among American high school students in an academic track, standardized test scores for women declined more than test scores for males during the period 1972 to 1980. Additional research by the Department of Education and Science (1979) suggested that girls' choices of subjects, such as chemistry and physics were less stereotypical in same-gender schools than in coeducational schools. Such studies have led Lockheed and Klein (1985) to suggest with reservations that same-gender education offers a possible alternative to eliminating or dramatically reducing the effects of social stereotypes in the classroom.

Hyde (1971) stated that the essential principle of same-gender education has been the belief that boys and girls should define themselves as men and women by undergoing education or training appropriate to their different needs, obligations, and expectations. Since schools offer lessons on role behaviors, Hyde believed that coeducational schools were more likely to promote traditional gender roles than same gender schools. Kolesnik (1969) speculated that coeducation might contribute to the fusion of gender roles in modern society and the consequent confusion among men as well as women in defining masculinity and femininity. Although coeducational schooling provides access to the full range of educational curricula for all students, historically, schools have provided different curricula for males and females (Riordan, 1990). Boys are often channeled into mathematics and science. Girls are often directed toward

courses in languages and the humanities. Same-gender schools are in a better position to overcome this bias (Deble, 1980).

Many studies indicate that teacher-student interaction in the classroom differs by gender. Seewald, Leinhart, and Engel (1977) observed that second-grade teachers made more academic contacts with girls in reading and with boys in mathematics. Lockheed (1976) obtained similar results when he studied ninety second- and fifth-grade teachers. He found that after the effects of student achievement, socio-economic status, race, and school mobility had been partialled out, teachers still held significantly higher expectations for the reading achievement of girls over boys. He also found that teacher expectations were significantly related to actual student learning increase. Numerous studies have supported the theory that students behave according to their teachers' expectations (Rosenthal & Jacobson, 1968). Blackstone (1976) suggested that the differences in boys' and girls' performance in primary schools derives, at least partly, from differences in teachers' expectations and behavior. Studies also have shown that boys might do better in same-gender elementary schools, and girls might do better in same-gender secondary schools and colleges (Lockheed, 1976).

The International Association for the Evaluation of Educational Achievement (1966-73) conducted the most extensive study regarding the academic effects of same gender and coeducational schooling. A total of 133,000 students, 13,500 teachers, and 5,450 schools from twenty-one countries

were involved in this study. Finn (1980) analyzed the project's data from the participating schools in the United States and England. Finn found that boys and girls in same-gender schools out performed students in coeducational schools in reading comprehension, word knowledge, biology, chemistry, and physics. Other findings supported the value of same-gender schools in the development of role models and in curtaining disciplinary actions. Lee & Bryk (1986) studied the influence of same-gender and coeducational Catholic schools using a set of cognitive measures. They found that minority students, including African Americans and Hispanics, did significantly better in these same-gender classes. Lee and Bryk (1986) also found that minority males and females gained in affective outcomes from being in same gender rather than coeducational schools. Females in same-gender schools held more egalitarian attitudes toward the role of women in society than the females in coeducational schools. African American and Hispanic males developed a greater sense of environmental control than their counterparts in coeducational schools. Although there might be significant differences between the overall quality of boys' and girls' schools, empirical evidence favors same-gender schools in both academic and affective outcomes.

Legislative Challenges to Same-Gender Education

Many women regard coeducation as a means of securing their natural and civil rights. For centuries, females were excluded from receiving an education

and then excluded from male schools. Thus, to many women, coeducation is necessary to receive complete equity between the genders. Same-gender education violates, in spirit, the Educational Amendments of 1972. Title IX of these amendments states that no person in the United States shall, on the basis of gender, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal Funds (Educational Amendments of 1972, Sec. 901,a). Although Title IX does not mandate how educational equity is to be achieved, it does indicate that educational programs in coeducational schools cannot be segregated by gender. Thus, Title IX provides legal support for coeducation as the appropriate mode of schooling (Riordan, 1990).

Title IX is the broadest and most comprehensive of the sex discrimination laws applicable to schools. It prohibits gender discrimination in admissions and student treatment within schools. With regards to admissions, however, Title IX is limited to vocational, professional, and graduate schools, and to public undergraduate schools, except those that have been traditionally and continuously open to only one gender. Thus, the admissions regulations of Title IX do not apply to preschools, elementary and secondary schools, or public undergraduate schools that have historically been same-gender institutions. Title IX requires all schools that receive federal financial assistance to treat all students, once admitted, without discrimination on the basis of gender. Boys and girls must be provided equal treatment with regard to participation in all

courses offered, all extracurricular activities, benefits, services, and financial aid, and the use of school facilities (Riordan, 1990).

Initially, Title IX legislation was based on data specifically demonstrating inequities and/or discrimination in access to facilities and resources within the setting of coeducation. The legislation was intended to eliminate sex discrimination in coeducational schools and classrooms. The issue of what to do about same-gender schools was an afterthought (Congressional Quarterly Almanac, 1971; Fishel & Pottker, 177a, Chapter 5). Data to support such legislation as Title IX came from instances of sex discrimination in coeducational institutions. Such instances included gender inequities in facilities, athletic budgets, course and curriculum selection, pedagogical and counseling practices, teachers' expectations for students, and textbook content (Fishel & Pottker, 1977b).

Consequently, as a result of gender discrimination in coeducational schooling, the question arose: Is it legal or not legal to teach boys and girls in separate classes or in separate schools within America's public school systems? Vorchheimer v. School District of Philadelphia (1977) 430 U.S. 703; 97 S. Ct. 1671 and U. S. v. Hinds County School Board (1977) 560 F. 2d 619, 5th Cir. attempted to answer the question in court.

The Philadelphia School District offered four types of senior high schools. They were academic, comprehensive, technological, and magnet. Vorchheimer was focused on the policies controlling admission to the academic high school.

There were two academic schools, one for males (Central High School) and one for females (Girls High School). Susan L. Vorchheimer qualified for admission to an academic school and chose Central. She was denied admission because she was a female. She brought suit claiming that the policies supporting sex-segregated schooling violated federal statutory law as well as the Fourteenth Amendment's Equal Protection Clause. The U.S. District agreed with her and ordered Central to admit her and other qualified females. The Court of Appeals reversed the lower court, and the U. S. Supreme Court affirmed this reversal by an equally divided vote without opinion.

Upon analysis of congressional debates, the Court of Appeals concluded that Congress did not clearly express its intention to outlaw sex-separate schooling, or conversely, to require co-educational schooling in public secondary schools. In considering whether the policy violated the Constitution's Equal Protection Clause, the court asked whether the governmental agency was using a reasonable means to pursue a legitimate objective. Classification based on race, ethnicity, or religion have been suspect classification that call for a strict standard or "strict scrutiny." The government must show a compelling reason to use the given classification to achieve a very important purpose. It also must show "fair and substantial relationship" between the classification and the objectives being sought. The Court of Appeals emphasized that the Supreme Court has never applied strict scrutiny to a classification based on gender. Gender based classification has never been suspect. Since various expert

educators testified at the trial that sex-separated schooling during the adolescent years can be a highly effective educational arrangement, the court refused to substitute its judgment for that of educators. The Court held that "separate but equal" educational opportunities do not violate either statutory or constitutional law, where the segregation is based on gender in the pursuit of legitimate educational objectives, and where the schooling provided for males and females is of the same quality (Fischer, 1991).

The case U. S. v. Hinds County School Board (1977) involved a school district in Mississippi undergoing racial desegregation pursuant to a plan submitted by the Office of Education of the United States Department of Health, Education and Welfare. As part of its plan, the County requested that it be allowed to sex-segregate students assigned to four schools. The District allowed the plan, but the Court of Appeals struck it down as a violation of the Equal Educational Act of 1974. The Hinds court referred to Vorchheimer but distinguished the two situations, noting that Vorchheimer involved voluntary sex-segregation in high schools in an otherwise coeducational system and the schools had existed for over one hundred years (Fischer, 1991). In Hinds, all students, at every grade level of schooling, were assigned to sexually segregated schools. Thus, Vorchheimer could not be used as precedent for Hinds.

It appears that sex-segregated schooling at the high school level will be upheld if it is voluntary and if the quality of education available to males and

females is substantially equal. However, if sex-segregated schooling is proposed in a school system undergoing racial desegregation, it is likely to be struck down under the Fourteenth Amendment or federal statutes.

Attendance

Education is very important to the American society. Early homesteading laws allowed the settlers free land on which to build schools. Schooling was perceived as the key to success of individuals and to the excellence of society. Thus, states started passing laws in the mid-1800s to require school attendance for youths until the minimum age of sixteen years old (Larwen & Shertzer, 1987). Americans expect schools to prepare students to be productive citizens. Schools cannot prepare students if they are not in school. The number of students who drop out of school each year has been estimated at one million youths (U. S. Department of Health, Education, and Welfare, National Center for Education Statistics, 1979). That estimate shows the seriousness of this problem.

Poor school attendance has always been a problem in the United states (Pallister, 1969) and continues to be in certain areas, especially in inner-city schools. In fact, in most parts of the country the problem of illegal absence dates from 1876 (Galloway, 1985). In the 1850s urban schools suffered from an extremely high turn-over of students. Many students stayed in school less than four months (Galloway, 1985). Many students were needed at home to do many

of the chores, especially if they lived on a farm. Other students worked outside of the home to help support the family.

Today, there are differing reasons for poor attendance. Psychiatrists and psychologists view poor attendance as a symptom of disturbance in the child or in the family. Sociologists view poor attendance as the student's reaction to pressures in society or at school (Gutfreund, 1975). Many educators view poor attendance as an indication of neglect on the part of the parents or an anti-social behavior on the part of the student. Others believe that the competitive nature of schools alienates some students and contributes to their truancy (Gutfreund, 1975).

Students who are often absent from school usually do not do well in school. On the other hand, studies show that many students are often absent from school because they do not do well in school (Tyerman, 1958; May, 1975; Carroll, 1977). May's study (1975) provided slight evidence that truants perform poorly before they start being absent from school continuously. Carroll (1977) supported May's view. He found that students who have poor school attendance are significantly more likely to be lower achievers than students who attend school regularly. Douglas and Ross (1965) compared composite scores on intelligence, reading, vocabulary, and math tests with the attendance of the students during a four-year period. They found a positive relationship between average scores and attendance in a low socio-economic group of students. Students who were absent most had lower average scores than students who

attended school regularly. However, this relationship was not evident in middle and upper middle class students. Students in these groups who were absent an average of forty days per year did not have lower test scores than those scores obtained by the students with the best attendance. As a part of the National Child Development Study, Fogelman and Richardson (1974) recorded the attendance of eleven-year-old children born in one week of March 1958. They, too, found a significant relationship between attendance and achievement. However, when they took social class into account, the relationship only reached significance for children whose fathers were in manual or physical occupations. The result of both studies suggest that children in more affluent homes have experiences at home that assist their progress at school. The home life of working-class children does not appear to be as effective in compensating for poor school attendance. Another possibility is that in middle class families, children are under more pressure from home to catch-up when they return to school.

Fogelman extended the study of the National Child Development Study to students who were sixteen years old. He found that students who had poor school attendance at seven years old were not educationally retarded at sixteen years old if they had regularly attended school at fifteen years old. On the other hand, continued poor attendance at fifteen years old was related to poor educational achievement. This study suggested that children who miss a considerable amount of schooling at an early age can catch up later by regular

attendance. The study also suggested that poor achievement of students who continue to attend school infrequently is related to their absence.

Studies also have been done to examine absenteeism by gender. In a study in England of more than six thousand Buckinghamshire children, Shepherd et al. (1971) reported that parents and teachers agree that older boys were absent more often than younger boys and girls. However, the differences are evident only in adolescence. Galloway (1982) reported that the surveys of persistent absence carried out in Sheffield in 1975, 1976, and 1977 identified eight categories of absence. The categories chosen were from the students who were absent at least fifty percent (50) of the time. Table 1 lists and describes the eight categories.

Table 2 shows the percentage of boys and girls in elementary schools. Table 3 illustrates the percentage of boys and girls in secondary schools whose absences were attributed to each category. Although persistent absentee rates increased sharply in the secondary schools, the absences of secondary students were less often attributed to illness than elementary students. Most primary school absentees were caused by illness. Illness accounted for thirty-four percent (34%) to forty-four percent (44%) of elementary students' absences (Galloway, 1985). Absence with parents' knowledge category accounted for the largest proportion of absence for both groups. Truancy accounted for a small number of the elementary school students, but accounted for sixteen percent (16%) of secondary students. The most notable gender difference was that

Table 1

EIGHT PREVALENT CATEGORIES OF ABSENCE
Galloway (1982)

CATEGORIES	DESCRIPTIONS
Mainly illness	Student missed more than half of school due to illness, might have received medical attention.
Some illness, but other factors also present	Students missed more than two weeks of school, but less than six weeks in a twelve week term.
Absent with parents' knowledge, consent, and approval	Students were absent for legitimate reasons other than illness.
Parents unable to or unwilling to insist on children's return to school	Parents knew children were absent but could not force them to go to school.
Truancy: Absence without parents' knowledge or consent	Student lied to their parents and/or skipped school.
Socio-medical reasons (e.g. infestation, scabies, etc.)	Reasons were documented by medical person.
School phobia or psychosomatic illness	Student refused to leave home; not necessarily diagnosed by a medical person.
Other/could not be rated	

Table 2

CATEGORIES OF ABSENCE FOR PERSISTENT ABSENTEES AGED 5-11 IN THREE ANNUAL SURVEYS, ASSESSED BY EDUCATIONAL WELFARE OFFICERS:

BOYS_____; GIRLS----------. Galloway (1982)

CATEGORIES	Percentage of total absences for each gender 5 10 15 20 25 30 35
Mainly illness	_____ ----------
Some illness but other factors also present	_____ ----------
Absent with parents' knowledge, consent, and approval	_____ ---------
Parents unable or unwilling to insist on return	_____ ----------
Truancy: Absence without parents' knowledge or consent	__
Socio-medical reasons (e.g. infestation, scabies, etc.)	____ ------
School phobia or psychosomatic illness	_____ ----
Other/could not be rated	__ -

Table 3

CATEGORIES OF ABSENCE FOR PERSISTENT ABSENTEES AGED 12-16 IN THREE ANNUAL SURVEYS, ASSESSED BY EDUCATIONAL WELFARE OFFICERS:

BOYS_____; GIRLS----------. Galloway (1982)

CATEGORIES	Percentage of total absences for each gender 5 10 15 20 25 30 35
Mainly illness	_____ ----------
Some illness but other factors also present	_____ ----------
Absent with parents' knowledge, consent, and approval	_____ ----------
Parents unable or unwilling to insist on return	_____ ----------
Truancy: Absence without parents' knowledge or consent	_____ -----
Socio-medical reasons (e.g. infestation, scabies, etc.)	____ --
School phobia or psychosomatic illness	_____ -----
Other/could not be rated	___ ----

truancy was significantly more often considered the principal explanation for the absences of boys than girls.

Several studies have reported an association between attendance and family background and low socio-economic conditions. Mitchell (1972) found that students who attended school infrequently tend to come from families where the father was unskilled or semi-skilled. May (1975) reported the same evidence. Tyerman (1958) found that these students frequently lived in socially disadvantaged families. Galloway (1976, 1982) noted a very strong relationship between the number of persistent absentees from school and the number of students who received free school meals based on their parents' income. Based on the research of Tyerman (1958), Caven and Harbison (1978), and Galloway et. al (1984), free school meal rates are closely associated with absenteeism in larger cities and may reflect social problems associated with the depressed areas of larger cities (Galloway, 1985).

School attendance is compulsory in the United States. Usually children are enrolled in school involuntarily, especially in the elementary schools. Students must spend several hours in school daily. Some students like school; many do not. Many inner city minority children in the American educational system find it difficult to attend school every day for several reasons. In addition to the low socio-economic conditions that many of these students face in their homes, they might face insults and ridicule in the classroom (Brady, 1989). These insults and ridicule come from students and teachers who do not

appreciate or understand the different cultures of these minority students (Brady, 1989). The rejection becomes unbearable and the minority students seek to escape. Often this escape comes in the form of being absent from school as much as possible. These students find it impossible to keep up with their studies in school, and they become low achievers.

In 1987, the Dade County (Florida) Public Schools instituted a program called "At Risk All Male Classes" in one inner city elementary school. The major objectives of the program were academic, using instructional strategies that were believed to be more relevant to the learning styles of African American boys. During the school year, not one child was referred to the principal's office for inappropriate conduct. The attendance of the boys in the classes improved more than twenty-three percent (23%) above boys in inner city coeducational classes at the same grade levels. Only one fight developed in the pilot classes as opposed to several fights in the coeducation classes at the same grade levels. The academic grades of the boys in the pilot classes showed improvement over boys in coeducational classes at the same grade levels (Holland, 1991).

Discipline

Student misconduct is a serious concern of educators and the public. National studies indicate that up to a quarter of the students in the secondary schools in America fear for their safety (Gallup, 1985). School administrators,

teachers, and other staff members are also wary. In a national survey of public school teachers conducted by the Center for Education Statistics in 1987 and reported in 1989, many teachers said they feared retaliation by some of their students (Table 4).

In another survey conducted by the Center for Education Statistics (1986), secondary school principals reported an average of ten suspensions per one hundred students in one school year. Smaller schools and those with fewer low-income students had fewer suspensions. Note Table 5.

The public also views discipline as the biggest problem facing their community schools. Gallup polls have annually cited discipline as the major problem in the schools cited by the public since the early 1970s (Moles, 1990). In 1986-88, discipline was second to the use of drugs which is itself a discipline-related problem (Gallup & Elam, 1988).

Student misbehavior also affects student achievement. Minor disruptive behavior, such as talking in class, passing notes, and being tardy to class disrupts the learning environment. Edmonds' (1979) research that produced the effective school movement cited that a safe and orderly school is necessary before learning can take place. A national study of high school students (Myers, 1987) indicated that misbehavior predicts lower grades and achievement test scores and that lower grades lead to greater misbehavior. Removing students from class contributes to their lower achievement, lower motivation, and greater misconduct. Very few researchers who have studied student misconduct

Table 4

PERCENTAGE OF TEACHERS WHO FEAR REPRISAL FROM STUDENTS (CENTER FOR EDUCATION STATISTICS, 1987)

School Setting	Percentage of Teachers
Public school teachers in urban school	11%
Public school teachers in rural schools	5%
Public school teachers in suburban schools	3%
Public school teachers who have considered leaving the teaching profession because of these reprisals	29%

Table 5

SUSPENSIONS BY SCHOOL SETTINGS
(CENTER FOR EDUCATION STATISTICS, 1987)

TYPE OF SCHOOL SETTING	PERCENT OF SUSPENSIONS
Urban	18.8%
Rural	10.9%
Suburban	6.6%

recommend suspension or expulsion as a general strategy for dealing with disciplinary problems (Moles, 1990). In many situations, it simply gives students the freedom they want.

African American male students are suspended and expelled more than any other group of students (Williams, 1989; Garibaldi, 1988). Foster (1990) reported that African American students, especially males, are suspended at a disproportionately higher rate than white students. There are several factors that might contribute to African American students' conduct, particularly students who come from low socio-economic homes. These students are often regarded as unruly, aggressive, and difficult to manage (Hale-Benson, 1982). This behavior, when accurate, might be the result of lack of rest, nutritious food, or lack of a positive male role model in the home. When inaccurate, it might be the result of the lack of sensitivity or knowledge of the students' learning styles (Hale-Benson, 1992).

In 1972-73, the Office of Civil Rights conducted a national survey of school suspensions. Data were collected from fifty percent (50%) of the total enrollment in American public schools and ninety percent (90%) of all minority students. The survey estimated that eight percent (8%) of all secondary students and one percent (1%) of all elementary students were suspended that year. Minority students on the secondary level were found to be suspended in rates disproportionate to the number of minority students enrolled in schools across the country. For example, one in every eight African American children

was suspended, compared to one in every sixteen white children. These findings were corroborated by a Children's Defense Fund study (1973) and a Southern Regional Conference study (1974).

More recent data indicate that the discriminatory nature of suspension persists and rates of suspension remain high. Table 6 shows the 1980 Office of Civil Rights survey data released in 1982.

In an urban school system where eighty-seven percent (87%) of the 86,000 students were African Americans, forty-three percent (43%) of the students were African American males. Yet, African American males accounted for sixty-five percent (65%) of the suspensions and eighty percent (80%) of the expulsions. Since 1972, disparities in school suspensions continue to have the greatest impact on African American students. If minority students are suspended less often, they will receive more instructional time and greater access to services that can assist in improving their behavior.

There are proponents of suspensions and expulsions as standard disciplinary procedures for certain infractions. They feel that such disciplinary measures reinforce the authority of school personnel, get the attention and the cooperation of the parents, and help students reflect on their own behavior. Opponents state that such punishment alienates the student and his family. Furthermore, they state that the needs of the student are not being met and it teaches him an inappropriate lesson.

Table 6

SUSPENSIONS
OFFICE OF CIVIL SERVICE, 1982, 1986

ETHNIC GROUP	PERCENTAGE OF SUSPENSIONS '82	PERCENTAGE OF SUSPENSIONS '86
African Americans	9.9%	9.1%
Hispanics	4.9%	4.5%
White	4.5%	4.1%
Native Americans	na	4.1%
Asians	na	2.3%

The evidence for gender and social class discrimination is not as clear. In 1980, the Office of Civil Rights reported that eight percent (8%) of all elementary and secondary school males were suspended; approximately four percent (4%) of the female students were suspended. In reference to social class, in 1973 a Children's Defense Fund study reported that children were more likely to be suspended if their families were poor.

Achievement

For the past several decades, educators, researchers, and the public have sought ways to explain low student performance by either the characteristics of an individual or family background. Historically, socio-economic status has been one of the most constant predictors of academic achievement (Brookover et al., 1982). All children can learn if they are provided the appropriate teaching and learning environment in the school. Yet, socio-economic status and the minority composition of the school are statistically associated with the levels of student achievement (Brookover et al., 1982).

The level of achievement in basic skills and other areas of student behavior has been less than satisfactory in many American schools (Brookover, et al., 1982). This is especially true in schools serving low-income and/or minority students. This phenomenon has become so pervasive that many people, including educators, have unofficially concluded that high levels of achievement are inconceivable in schools with a high percentage of minority

students from low income neighborhoods. Although low socio-economic status and minority composition are statistically associated, many exceptions exist which suggest that the relationship is not a causal one. Research is available to show that educationally impeded students also can be high achievers (Brookover et al., 1982).

There is an extensive body of research to support the conclusion that student achievement is related to the amount of time devoted to learning (Brookover et al., 1982). Although teachers and other educators cannot control external factors, such as socio-economic status, family or neighborhood situations, or previous learning history, they can control their classrooms. As the decision makers in their classrooms, teachers control the learning environment. All the learning principles and methodologies that are responsible for student achievement are subject to teachers' judgement. Often, the teacher controls what the student learns by his attitudes, teaching styles and skills, and his classroom management skills.

Theoretically speaking, educators believe that all children, regardless of ethnicity, gender, age, or creed have an equal right to a quality education. Yet, many educators do not realize the extent to which gender, ethnicity, and cultural differences influence learning and achievement. Although sensitivity to gender equity in education has improved in the last decade, national experts agree that school districts are not doing enough appraisal of girls' assessment in the classroom (Holmes, 1991). Myra Sadker (1982), one of the nation's authorities

on gender bias in the classroom (Holmes, 1991), reported achievement gaps by gender might not begin appearing until the middle school grades. However, they are the result of curriculum and instruction began at the earliest grades.

Researchers report several possible reasons achievement in the classroom is affected by gender differences. An influential body of classroom interaction research and literature indicate that regardless of the teacher's gender, boys consistently receive a greater proportion of a teacher's time and attention in coeducational classrooms (Powell, 1988). Spender (1982) estimated that boys receive at least two thirds of a teacher's attention in coeducational classrooms. This is due to the boys' demanding behaviors, the teacher-student interaction, and the biases of some teachers. The quantity and quality of teacher-student interactions which are related to informal assessment practices were affected by gender composition of classes. Students were very aware of the male dominance in the classroom and how teachers were influenced by this dominance. Title IX of the Education Amendment of 1972 was intended to prevent education discrimination on the basis of gender. Marlaine Lockheed, a research sociologist, has challenged the implication that sex desegregation will cause educational equity for males and females through integration of classrooms. Integrating classrooms does not guarantee equity of educational benefits. In fact, coeducational classrooms might do more harm that good (Lockheed, 1976). In his study of mixed-gender groups, Lockheed (1975) found in mixed-gender groups men were more active than women. He also found that

males were more task oriented than females. In mixed-gender groups, leadership is typically conceded to males because they are expected to be more competent than females. Hall and Sandler (1982) agreed. They found that women students in coeducational college classes might not experience the same educational benefits as men. Standard educational programs continue to perpetuate the stereotypical differences between men and women in achievement. In 1973, the Carnegie Commission on Higher Education (CCHE) recommended that until women are better prepared psychologically to compete with men in the classroom, there is a case for experimentation of same-gender classes.

Observations of classroom interaction in coeducational classes supported the findings of related research (Brophy & Good, 1974; Croll, 1985; Delamont, 1984) which indicated that boys consistently demanded more attention from their teachers than girls in coeducational classes. Teachers who taught all-female classes reported improved working conditions and students identified more closely with their group. Also, there was notable reduction in the frequency and regard for discipline and classroom management problems. Rowe (1988) reported that same gender classes caused a perceived increased in student achievement, impacted positively on teacher expectations of students, and encouraged teachers to match both curriculum content and teaching styles to specific gender and group related student interests.

Gender differences in achievement for both males and females have decreased markedly over the last ten years (Feingold, 1988, 1991; Hyde & Linn, 1988). On the average, males score higher than females on tests of general knowledge, mechanical reasoning, and mental rotation. Females score higher than males on tests of language usage and perceptual speed. There have been no significant differences noted in general verbal ability, arithmetic, abstract reasoning, spatial visualization, and memory span (Jacklin, 1989; Kimball, 1989; Linn & Hyde, 1988; Wilder & Powell, 1989; Feingold, 1988, 1991).

Researchers have recommended same gender classes to increase the participation and achievement of girls in math and science classes (Dunn, Hammond & Watson, 1984). In coeducational classes, girls are less likely to participate in math and science in upper elementary school and high school (Fennema & Carpenter, 1981; Sherman, 1978). One reason reported by researchers was that there were marked gender differences with respect to concerning in learning mathematics. Boys appeared to be more confident in dealing with math (Sherman, 1979). They also interacted more frequently than girls in both language and mathematical lessons. They consistently sought and received more attention from teachers than girls received.

Confidence is a significant predictor of achievement, especially for students in same-gender classes. Gender differences in confidence might be mediated by parents, teachers, and societal gender-role attributions. Rowe's study (1988) of this phenomenon found that students in same-gender classes

indicated significantly higher gains in confidence than students in coeducat. classes. Further evidence of higher level of confidence among students in same-gender classes found that girls and boys usually seek help from classmates of the same gender.

Among others, Comer (1980), Hare (1985), and Kunjufu (1991) have documented that African American boys go to school and display loss of confidence and thus, loss of achievement earlier and more severely than African American girls. Girls enter school more prepared than boys for the activities that characterize early schooling (Holland, 1991). Many inner city African American girls are exposed to academic careers, to positive, consistent, literate African American females who offer alternative role models to those encountered in the students' non-school environment. Greeley (1983) found that urban Catholic schools developed measurable differences in skills between their African American students and African American students attending public schools. Many urban Catholic schools are gender segregated. This factor might be as relevant as any other difference between the public and Catholic schools. One of the major factors hindering the education and general social development of African American males is the hostility in their peer relations. Outside of school, aggression toward others contributes to violent street crime, and an inordinate dependence on anti-social behavior to develop self-esteem. One of the possible advantages of same-gender schools and/or classrooms for African American males is that the setting or environment would provide an opportunity for positive

expression of aggression and the development of supportive peer networks (Moore & Smith, 1992).

The high rate of low achievement among African American students led Hale-Benson (1982) to advocate that teachers teach to the learning styles of African American children. Hale-Benson reported that ethnic and cultural differences greatly influence learning and achievement. Jacobs (1987) compared the learning styles of African Americans and European Americans among high, average, and low achievers from three middle schools in the south. He found that:

- African American high achievers were highly teacher motivated, and average achievers preferred learning by listening to tapes, records, or to their peers' explanations rather than by directly listening to their teacher. Low achievers who often are chastised because of their short attention span, were significantly more persistent than were the high and average achievers. Low achievement occurred among these students because of a lack of time on task. They could not do the work without their teachers' help.
- African American male high achievers required less structure than did both female achievers and low achievers.

- African American low-achieving males required an authoritative teacher who provided frequent direct feedback on their performance more than African American female low achievers.
- White male high and average achievers preferred sound while learning. They concentrated better with music than in a quiet place. Male low achievers were less persistent than were their female counterparts. The female high achievers, like the African American male high achievers, were more teacher motivated than were the white male high achievers.
- More white students than African American students preferred bright light while learning. Bright light correlates with a successive-analytic-left processing style, but preferring low light while concentrating correlates with a simultaneous-global right processing style (Dunn, Cavanaught, Eberle, & Zenhausern, 1982). Thus, white students might be more analytic than African American students. If that hypothesis is correct, it would account for the high at-risk and dropout population among African American students (Paulu, 1987) in schools that provide essentially analytic instruction and tests for all students.
- African American students were more teacher motivated than were white students. Also, African American students and some white

students who were low achievers were more dependent on social approval and reinforcement from teachers than others.

Sims (1988) conducted a study of African American, Mexican American, and White American underachieving third and fourth grade students from predominantly poor urban, suburban, and rural public elementary schools in California and Oregon. He reported the most extreme variable occurred between African American students and white students. Underachieving African Americans, significantly more than white students, preferred sound, bright light, warmth, an informal seating design, less structure, routines and patterns, frequent feedback from their teachers, auditory, visual and kinesthetic teaching, less intake, and less mobility than did their white counterparts. Sims' African American students were also more motivated but less persistent.

Children from different areas of the American subculture have different patterns of preferred learning strategies (Jacobs, 1987; Sims, 1988; Dunn, Gemake, Jalali, & Zenhausen, 1982). Therefore, classrooms should be varied, providing both extremely quiet areas and sections for student interaction, well- and softly-illuminated work areas, and a conventional seating arrangement. Differences in students' perceptual strengths, such as auditory, visual, tactual, and kinesthetic require that teachers develop an approach to introducing difficult material through each student's strongest modality and reinforcing the material through the student's secondary or tertiary modality (Dunn, 1989).

Summary

This literature review represents an abbreviated study of early American education and its effects on its clients and society. It also reviewed the quality, advantages, and disadvantages of education as it was and is represented in both same gender schooling and coeducational schools. Although same-gender schooling is not a new pedagogic principle in American education, it is an alternative form of educational reform that deserves reconsideration. The question of same gender education versus coeducational education is complex. There are benefits and barriers of both forms. Yet, it appears that there is sufficient research to reexamine the potential of same gender schooling, at least on an experimental and limited basis. As presented in this study, same-gender schooling is housed within an existing coeducational school and limited to the same-gender classroom only.

It appears that same gender schooling does offer an environment that is more conducive to learning (Goodlad, 1984), especially for women and African American males (Holland, 1991). These schools produce favorable academic outcomes in cognitive ability and educational and occupational attainment (Riordan, 1990).

The educational system of the United States is embedded in a historical and cultural past. Researchers and educators must continue to intensify their efforts to understand the positive and negative aspects of the American educational system. This study has explored the experimental program of same-

gender schooling in comparison to coeducational schooling. Such exploration has been done to continue to give students an opportunity to study in an environment that most adequately meets their educational needs, learning styles, and social and emotional growth.

CHAPTER 3

METHODOLOGY

This chapter describes the procedures and methodology of the study. The population is defined. The research design, data collection, and analysis procedures are outlined.

This study was conducted in two inner city school settings. The subjects were not randomly selected. Intact classes were used. However, classes were selected that were composed of students within the same socio-economic groups, were of the same ethnic group, and were within the same level of achievement.

Population/Sample

The subjects were ninety fifth grade African American male and female students who attended two inner city schools during the 1992-93 school year. Approximately ninety-eight percent (98%) of the students qualified for free or reduced lunch at School B (same-gender group); approximately ninety-five percent (95%) qualified for free or reduced lunch at School A (coeducational group). There were no identified special education students in any of the classes. The students were identified as average learners by the principal and by their teachers. Only students who completed the school year at the specified schools were included. The students were age appropriate for class placement.

The composition of the two groups is illustrated in Table 7. The fifth grade coeducational class at School A consisted of two classes. There was a total of thirty-eight students in both classes. In coeducational class number 1, there were twenty students; in coeducational class number two, nineteen students. The same-gender male class at School B was composed of twenty-five students; the same-gender female class, twenty-seven students.

Schools A and B are located in an inner city in Virginia. They house grades kindergarten through five. Both schools have been identified as community schools, formerly called target schools, because of the base income of the individual families who live in the communities. Their base salary is between $6000.00 and $8000.00 annually. The schools are comprised of students from very similar socio-economic public housing apartments. As stated earlier, a large percentage of students in each school received free or reduced lunch. Both schools received students who were from public housing developments that were owned and operated by the Norfolk Redevelopment Housing Authority. According to a local Redevelopment Housing Authority representative, more than ninety-nine percent (99%) of the residents of the communities are African Americans.

School B (same-gender group) is located approximately three miles from School A (coeducational group). School B has always served a large number of African Americans. Presently, its school population is ninety-nine point nine percent (99.9%) African American. Its enrollment during the 1992-93 school

Table 7

5TH GRADE POPULATION

Group 1/School A	N	Group 11/School B	N
Coeducational Group	**38**	**Same-Gender Classes**	**52**
Males	20	Male Class	25
Females	18	Female Class	27

year was four hundred sixty-eight students. According to the principal, a large number of the students have attended several schools. This can be attributed to the high mobility rate in the neighborhoods served by the school. A large number of the families are one-parent families. Based on the free and reduced lunch applications, the principal estimated that at least ninety percent (90%) of the families receive some type of public assistance, such as Welfare and Aid to Dependent Children (ADC).

Many of the characteristics that comprise the student body of School B are prevalent in School A. School A also has been identified as a target or community school because the average income of the parents is between $6000.00 and $8000.00 annually. Many of the residents also receive public assistance. A large number of the students are from one-parent families. The school's enrollment during the 1992-93 school year was approximately 415 students.

Both buildings appear to be clean and adequately furnished. The classrooms were spacious, well lighted, and properly ventilated. However, School B (same-gender group) was not air conditioned. The classrooms are very uncomfortable in the summer. School A (coeducational group) was air conditioned.

The teachers of the two groups were identified as "master teachers" or very competent teachers by their principals. One of the coeducational classes was taught by an African American female, the other coeducational class was

taught by a white female teacher. The same-gender male class was taught by an African American male teacher. The same-gender female class was taught by a white female teacher. The grading scale and instructional materials, such as books and workbooks, were standard as adopted by the school board.

Procedure

The purpose of the study was to compare same gender classrooms and coeducational classrooms to determine if students in the same gender classrooms scored higher on multiple measures of achievement and attended school more often than students in coeducational classes. The purpose of the study also was to determine if a particular gender within a particular class organization scored higher on measures of achievement and attended school more often than the other gender. To ascertain this information, two groups were studied. They were coeducational group (Group 1) and same-gender-group (Group 11).

Research Design

This was a quantitative study to identify the causal effects of the two independent variables upon the selected dependent variables. The two independent variables were class organization and gender. The dependent variables were achievement and attendance. The subjects in this study were from intact classes. Random assignment was not possible because the students

were from classes that had already been formed. Although this was a nonexperimental study, there were several similarities among the groups. They were homogenous or very much alike in their socio-economic status, the communities in which they lived, and their level of achievement. The subjects came from low socio-economic communities. Both schools attended by the students were identified as target or community schools because the average income of the students' parents was between $6000.00 and $8000.00 annually. In each school's attendance zone, there was a public housing development and several private residences. In each school, approximately ninety-three percent (93%) of the students came from the public housing developments. The public housing developments are located in established communities. Many of the residents are older people who have retired and do not have younger children. However, in the public housing developments, the residents are younger, more mobile, and tend to move more frequently. The achievement level of the students is based on the principals' and teachers' assessment of the students. No identified special education students were in either of the groups studied.

To study the effects of class organization and gender on achievement and school attendance, the statistical technique analysis of covariance (ANCOVA) was selected because it can be very helpful in nonrandomized studies in drawing more accurate conclusions (McMillian & Schumacher, 1989). The best way of dealing with systematic bias is through random assignment, however, if random sampling is not possible, as in intact classes, covariance can be helpful in

reducing bias (McMillian & Schumacher). In Riddick's study (1990), A Comparison of Student Performance in Partial Immersion and FLES Program, ANCOVA was the selected design although random assignment was not possible. Howell (1987) stated that the use of the ANCOVA adjusts the means of the dependent variables and reduces error term. If random assignment is not possible, ANCOVA can be helpful in reducing bias. Within group variability, which is primarily due to individual differences among the subjects, can be dealt with in ANCOVA. ANCOVA assumes that the groups' scores are normally distributed, the groups are homogenous, and that there is a linear relationship between the dependent variables and the covariates (Howell, 1987).

Several covariates were used in this study. The covariates acted as equalizers or balances among the subjects of the study. The use of several covariates resulted in greater error reduction than would have been obtained with just one covariate. That is, several covariates make a better adjustment for initial differences among the intact classes or groups (Howell, 1987).

The covariate can be measured by the same instrument (Huck, Cormier, & Bounds 1974). In this study, the instrument served as the pretests or covariates and the posttests or dependent variables. For this study, nine covariates were used to control for initial differences in achievement and school attendance. The nine variables were strongly correlated to achievement. They were the subjects' fourth grade national percentiles in the Iowa Tests of Basic Skills (ITBS) in reading, math, science, and social studies. They also were the

subjects' final fourth grade grades in reading, math, science, and social studies and school attendance.

Data Collection

Dependent Variables

The fifth grade ITBS achievement tests in reading, math, science, and social studies were machine scored by an independent company. Students took the battery in March 1993. Scores were reported on printouts for school system. The students' outcomes were measured in standard scores, grade equivalency, national percentiles, national composite scores, and national stanines. The subjects' fifth grade national percentiles were used as posttests in this study. The subjects' fifth grade final grades in reading, math, science, and social studies were assigned by their teachers using the school system's standard grading scale illustrated in Table 8.

The subjects' school attendance was kept daily by the teachers and the final report was reported on a standard achievement form along with the final grades at the end of the school year.

Covariates

The subjects' ITBS achievement tests in reading, math, science, and social studies were taken in March 1992. The battery was scored outside the school system. The results were printed in on a printout and sent to the

Table 8

The School System's Grading System

Letter Grade	Numerical Grade	Value Point
A	93-100	4
B	92-86	3
C	85-77	2
D	76-70	1
E	69- 0	0

individual schools and to the central office. The subjects' final fourth grade grades in reading, math, science, and social studies were determined by the students' teachers using the school system' standard grading scale (Table 8). The subjects' school attendance was kept daily by the teachers and the final report was reported on a standard achievement form along with the final grades at the end of the school year.

Analysis

Achievement and attendance have been reported in mean scores and percentages. Tables have been used where appropriate for purposes for comparison. Descriptive statistics were used for means, standard deviations, and percentages.

Separate ANCOVA tests were performed for math, science, reading, and social studies achievement test response variables. An ANCOVA was also done on attendance. The fourth grade ITBS's tests scores in reading, math, science, and social studies were used as covariates in all of the analyses. The subjects' final grades in reading, math, science, and social studies also served as covariates. Separate analysis of variance (ANOVA) tests were run as a preliminary analysis of ANCOVA. Number Cruncher Statistical System software was used for all computations. A probability level of .05 was selected as the level of significance.

CHAPTER 4

RESULTS

Introduction

The data collected in this study are reported and analyzed in this chapter. Tables are included. The chapter is organized into four sections:

1. Research questions
2. Description of the Population
3. Results of ANCOVA on absence, achievement tests, and standardized tests
4. Summary

Research Questions

The two variables considered in this study are attendance and achievement as measured by days absent and ITBS test scores and grade level achievement as measured by class grades earned during the academic school year. The subjects studied were reading, math, science, and social studies. With regard to each outcome variable addressed, three questions were examined:

1. Does class organization (coeducation classes versus same-gender classes) affect the outcome variables? For instance, do students

in same-gender classes perform significantly better or are less absent than students in coeducational classes?

2. Without considering class organization, is gender related to outcome variables: Do females perform significantly better and are less absent than males?

3. Do the factors of class organization and gender interact? Are males or females differentially affected in their performance under one condition or the other?

The four null hypotheses related to question number three were investigated:

3a. There is no significant difference between males in coeducational class and males in same-gender classes in any of the outcome variables.

3b. There is no significant difference between females in same-gender classes and females in coeducational classes in any of the outcome variables.

3c. There is no significant difference between males and females in coeducational class organization in the outcome variables.

3d. There is no significant difference between males and females in same-gender class organization in the outcome variables.

Description of the Population

The ninety students who participated in this study were all African American students. There were two groups used in this study. The coeducational classes which were designated as Group One consisted of thirty-eight students. The same-gender classes, designated as Group Two, consisted of fifty-two students. In Group One, 52.6% were males (twenty students); and 47.4% were females (18 students). Group 2 consisted of twenty-five students in the same-gender male class and twenty-seven students in the same-gender female class.

All of the students in this study were from low socio-economic neighborhoods. The schools themselves were identified as community or target schools, because the residents in the areas of these schools earned between $6000.00 and $8000.00 dollars annually. Approximately 98% of the students who attended the school which housed the same-gender classes received free or reduced lunch. Approximately 95% of the students in the totally coeducational school received free or reduced lunch.

As shown in Table 9, not all subjects in the study had ITBS scores and achievement grades. In the same-gender classes, three students did not have ITBS (Iowa Test of Basic Skills) achievement test scores in the fourth and in the fifth grades. Therefore, their achievement based on standardized test results could not be considered. However, their achievement based on their final grades in math, reading, science and social studies was available for

Table 9

Coeducational Classes and Same-Gender Classes Variables Missing

Groups	No. of students with missing grades in 4th grade	No. of students with missing grades in 5th grade	No. of students with missing grades in 4th & 5th grades	No. of students with missing ITBS results in 4th grade	No. of students with missing ITBS results in 5th grade	No. of students with missing ITBS results in 4th & 5th grades
Coed Classes	0	1	0	0	0	0
Same-Gender Classes	2	0	1	6	2	3

consideration. Also, in the same-gender classes, six students' fourth grade standardized achievement scores were not available for consideration. One student's fifth grade achievement grades were not available. Therefore, analyses are based on different numbers for different outcome variables.

Results of ANCOVA Tests on Attendance and Achievement

The ANCOVA was used to control statistically for previous achievement in the subjects which might confound differences among the two groups and to increase the likelihood of finding a significant difference between group means (McMillan & Schumacher, 1989). Although this study was not an experimental study, the groups were considered equivalent on the basis of several similarities. The groups were homogenous in their socio-economic status, the communities in which they lived, and their level of achievement. Also, both schools attended by the students were identified as community or target schools because of the low socio-economic status of the students' parents. In each school zone there was a public housing development and several private residences. However, in each school approximately ninety percent (93%) of the students came from the public housing developments.

Hence, the use of ANCOVA in this quasi-experimental study was considered appropriate. Such use of ANCOVA is quite prevalent, because ANCOVA assumes that the groups' scores are normally distributed, the groups are

homogenous, and there is a linear relationship between the dependent variables and the covariates (Howell, 1987).

Attendance

The students' attendance means and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 10a and 10b respectively. On an average, the students in coeducational classes missed 9.24 days from school; students in same-gender classes, 5.73 days. After adjusting for initial differences, the students in the coeducational classes averaged 9.26 days absent; the students in the same-gender classes, 5.67 days absent.

The results of the ANCOVA are contained in Table 10c. Looking at Table 10c, it is clear that all three effects were significant at the .05 level. Students in coeducational classes and students in same-gender classes differed significantly in school attendance (p=.015). Students in the same-gender classes were significantly less absent compared to students in coeducational classes. There also was a significant difference in attendance between males and females (p=.0044). Females in either class organization were significantly less absent than males in either class organization. There was a significant interaction between class organization and gender in attendance (p=.0066). Males in coeducational classes were absent most (13.39 days) while males in same-gender classes were absent only 5.77 days during the year. Females in

Table 10a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes for Absences When 4th Grade Absences Are Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	9.24	1.23	38	9.26	1.09
Same-Gender Classes	52	5.73	1.05	51	5.67	0.94

Table 10b

Unadjusted Means and Adjusted Means of Males and Females for Absences When 4th Grade Absences Are Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	45	9.11	1.13	44	9.58	1.02
Females	45	5.31	1.13	45	5.35	1.01

Table 10c

Summary of ANCOVA for Coeducational Classes and Same-Gender Classes for Absences, Using 4th Grade Absences as the Covariate

Source	df	SS	MS	F ratio	Prof F
Class org	1	279.42	279.42	6.15	.015
Gender	1	388.48	388.48	8.55	.0044
AB	1	352.165	352.165	7.75	.0066
Error	84	3818.12	45.45		
Total	88	5822.40			

Table 10d

Interaction Results/Attendance in the Full Group

Class Organization/Gender	Means	SD
Coeducational Classes/Males	13.29	1.51
Coeducational Classes/Females	5.13	1.59
Same-Gender Classes/Males	5.77	1.38
Same-Gender Classes/Females	5.57	1.30

coeducational classes and same-gender classes were absent least, 5.13 days and 5.57 days respectively. Note Table 10d. Males in coeducational classes are absent most.

Standardized Reading Test

The ITBS reading mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 11a and 11b respectively. The coeducational classes' average score was 30.95, and the same-gender classes' average score was 38.55. The males in both class organizations averaged 33.70 and the females averaged 36.64. After adjusting for previous achievement, the coeducational classes averaged 35.59 and the same-gender classes averaged 36.82. The males averaged 35.05 and the females averaged 37.36.

The results of the ANCOVA are shown in Table 11c. There were no significant differences between the two class organizations coeducational classes and same-gender classes (p=.84). There were no significant differences between males and females (p=.60). Although there was no significant interaction between class organization and gender (p=.77), Interaction Table 11d shows the average score of each gender within each class organization.

Table 11a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes for ITBS Reading Test When 4th Grade ITBS Reading Test Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	30.95	3.14	38	35.59	3.05
Same-Gender Classes	47	38.55	2.83	37	36.82	3.09

Table 11b

Unadjusted Means and Adjusted Means of Males and Females for ITBS Reading Test When 4th Grade ITBS Reading Test Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	43	33.70	2.95	39	35.05	3.01
Females	42	36.64	2.99	36	37.36	3.13

Table 11c

Summary of ANCOVA Coeducational Classes and Same-Gender Classes for ITBS Reading Test Using 4th Grade ITBS Reading Test as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	15.30	15.30	.04	.84
Gender	1	99.95	99.95	.28	.60
AB	1	29.31	29.31	.08	.77
Error	70	24739.54	353.42		
Total	74	28860.08			

Table 11d

Interaction Results/ITBS Reading

Class Organization/Gender	M	SD
Coeducational Classes/Males	35.07	4.20
Coeducational Classes/Females	36.12	4.43
Same-Gender Classes/Males	35.03	4.31
Same-Gender Classes/Females	38.60	4.43

Reading Achievement Grade

The reading grade's mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 12a and 12b respectively. The coeducational classes' unadjusted grade average was 1.71 and the same-gender classes' grade average was 2.29. The males' average grade in both class organizations combined was 2.0 and the females was 2.09. After adjusting for previous achievement, the coeducational classes averaged 1.95 and the same-gender classes averaged 2.15. The males averaged 2.07 and the females, 2.03.

The results of the ANCOVA are contained in Table 12c. There were no significant differences between the two class organizations, coeducational classes and same-gender classes (p=.24). There were no significant differences between males and females (p=.84). Although there was no significant interaction between class organization and gender (p=.28), Interaction Table 12d shows the average grade of each gender within each class organization. It seems that males in same-gender classes (2.25) did slightly better than students in other classes. However, males in coeducational classes (1.88) appear to have had the lowest average in fifth grade reading achievement.

Standardized Math Test

The ITBS math mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables

Table 12a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes Reading Test When 4th Grade Reading Grade Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	1.71	0.14	38	1.95	0.11
Same-Gender Classes	51	2.29	0.12	49	2.15	0.10

Table 12b

Unadjusted Means and Adjusted Means of Males and Females in Reading When 4th Grade Reading Grade Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	45	2.00	0.13	43	2.07	0.11
Females	44	2.09	0.13	44	2.03	0.11

Table 12c

Summary of ANCOVA Coeducational Classes and Same-Gender Classes in Reading Using 4th Grade Reading Grade as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	.693834	.693834	1.40	.24
Gender	1	2.155E-02	2.155E-02	.04	.84
AB	1	.0544381	.0544381	1.17	.28
Error	82	40.63338	.495529		
Total	86	66.71265			

Table 12d

Interaction Results/Reading Class

Class Organization/Gender	M	SD
Coeducational Classes/Males	1.88	.16
Coeducational Classes/Females	2.02	.17
Same-Gender Classes/Males	2.25	.15
Same-Gender Classes/Females	2.05	.14

13a and 13b respectively. The coeducational classes averaged 37.24 and the same-gender classes averaged 49.70. The males in both class organizations averaged 36.86 and the females averaged 51.26. After adjusting for previous achievement, the coeducational classes averaged 45.90 and the same-gender classes averaged 41.66. The males averaged 37.77 and the females, 50.79.

The results of ANCOVA are contained in Table 13c. There were no significant differences between coeducational classes and same-gender classes (p=.36). There were significant differences between males and females (p=.0005). There was a significant interaction between class organization and gender (p=.0042). Females in the same-gender classes scored highest on the ITBS math test (54.33). Male students in the same-gender classes scored lowest (28.99). Students in coeducational classes, males and females, scored 44.55 and 47.25 respectively. See Chart 13d.

Math Achievement Grade

The math grade's mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 14a and 14b respectively. The coeducational classes averaged 1.87 and the same-gender classes averaged 2.33. The males in both class organizations combined averaged 2.0 and the females, 2.27. After adjusting for previous achievement, the coeducation classes averaged 2.05 and the same-

Table 13a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes for ITBS Math Test When 4th Grade ITBS Math Test Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	37.24	3.27	38	45.90	2.68
Same-Gender Classes	46	49.70	2.98	37	41.66	2.72

Table 13b

Unadjusted Means and Adjusted Means of Males and Females for ITBS Math Test When 4th Grade ITBS Math Test Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	42	36.86	3.11	39	36.77	2.65
Females	42	51.26	3.11	36	50.79	2.75

Table 13c

Summary of ANCOVA Coeducational Classes and Same-Gender Classes for ITBS Math Test Using 4th Grade ITBS Math Test as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	231.37	231.37	.85	.36
Gender	1	3667.77	3667.77	13.43	.0005
AB	1	2391.07	2391.07	8.76	.0042
Error	70	19111.54	273.02		
Total	74	39504			

Table 13d

Interaction Results/ITBS Math

Class Organization/Gender	M	SD
Coeducational Classes/Males	44.55	3.70
Coeducational Classes/Females	47.25	3.90
Same-Gender Classes/Males	28.99	3.79
Same-Gender Classes/Females	54.33	3.90

Table 14a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes in Math When 4th Grade Math Grade Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	1.87	0.14	38	2.05	0.11
Same-Gender Classes	51	2.33	0.12	49	2.23	9.576 E-02

Table 14b

Unadjusted Means and Adjusted Means of Males and Females in Math When 4th Grade Math Grade Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	45	2.0	0.13	43	1.98	0.10
Females	44	2.27	0.13	44	2.30	0.10

Table 14c

Summary of ANCOVA for Coeducational Classes and Same-Gender Classes in Math When 4th Grade Math Grade Is Used as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	.6314665	.6314665	1.41	.24
Gender	1	2.111383	2.111383	4.70	.03
AB	1	1.021E-03	1.021E-03	0.00	1.00
Error	82	36.84687	.4493521		
Total	86	65.05747			

Table 14d

Interaction Results/Math Class

Class Organization/Gender	M	SD
Coeducational Classes/Males	1.89	.15
Coeducational Classes/Females	2.20	.16
Same-Gender Classes/Males	2.07	.14
Same-Gender Classes/Females	2.39	.13

gender classes averaged 2.23. The males averaged 1.98 and the females' average grade was 2.30.

The results of ANCOVA are shown in Table 14c. There were no significant differences between the two class organizations - coeducational classes and same-gender classes (p=.24). There were significant differences between males and females (p=.03). Females had significant higher grade in math. There was no significant interaction between class organization and gender (p=.96) in fifth grade math. Table 14d shows the average grade of each gender within each class organization.

Standardized Science Test

The ITBS science mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 15a and 15b respectively. The coeducational classes' average score was 50.55 and the same-gender classes' average score was 40.09. The males in both class organizations combined averaged 45.50 and the females averaged 44.14. After adjusting for previous achievement, the coeducation classes' average was 53.36 and the same-gender classes, 38.29. The males averaged 45.10 and the females averaged 46.56.

The results of the ANCOVA are shown in Table 15c. There were significant differences between the two class organizations coeducational classes and same-gender classes (p=.0010). Both males and females in coeducational

Table 15a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes for ITBS Science Test When 4th Grade ITBS Science Test Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	50.55	3.09	38	53.36	2.91
Same-Gender Classes	46	40.09	2.81	37	38.29	2.95

Table 15b

Unadjusted Means and Adjusted Means of Males and Females for ITBS Science Test When 4th Grade ITBS Science Test Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	42	45.40	2.94	39	45.10	2.87
Females	42	44.14	2.94	36	46.56	2.99

Table 15c

Summary of ANCOVA for Coeducational Classes and Same-Gender Classes for ITBS Science Test Using 4th Grade ITBS Science Test as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	3754.94	3754.95	11.70	.0010
Gender	1	39.45866	39.45866	.12	.7269
AB	1	30.49356	30.49356	.10	.76
Error	70	22467.97	320.9711		
Total	74	28924.35			

Table 15d

Interaction Results/ITBS Science

Class Organization/Gender	M	SD
Coeducational Classes/Males	53.27	4.01
Coeducational Classes/Females	53.46	4.22
Same-Gender Classes/Males	36.92	4.10
Same-Gender Classes/Females	39.66	4.22

classes performed significantly better than males and females in same-gender classes. There were no significant differences between male and females (p=.73). Although there was no significant interaction between class organization and gender on ITBS science test (p=.76), males and females in coeducational classes seemed to do better than males and females in same-gender classes. See Table 15d.

Science Achievement Grade

The science grade's mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 16a and 16b respectively. The coeducational classes average grade was 1.74 and the same-gender classes average grade was 2.26. The males in both class organizations averaged 1.93 and the females averaged 2.14. After adjusting for previous achievement, the coeducational classes averaged 1.85 and the same-gender classes averaged 2.20. The males averaged 2.02 and the females averaged 2.02.

The results of the ANCOVA are contained in Table 16c. There were significant differences between the two class organizations coeducational classes and same-gender classes (p=.03). There were no significant differences between males and females (p=.97). There was no significant interaction between class organization and gender (p=.31). However, males and females

Table 16a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes in Science When 4th Grade Science Grade Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	1.74	0.13	38	1.85	0.11
Same-Gender Classes	51	2.26	0.12	49	2.20	0.10

Table 16b

Unadjusted Means and Adjusted Means of Males and Females in Science When 4th Grade Science Grade Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	45	1.93	0.12	43	2.02	0.11
Females	44	2.14	0.13	44	2.02	0.10

Table 16c

Summary of ANCOVA for Coeducational Classes and Same-Gender Classes in Science Using 4th Grade Science Grade as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	2.435629	2.435629	5.08	.03
Gender	1	7.258E-04	7.258E-04	0.00	.97
AB	1	.50879	.50879	1.06	.31
Error	82	39.30757	.4793606		
Total	86	63.81609			

Table 16d

Interaction Results/Science Class

Class Organization/Gender	M	SD
Coeducational Classes/Males	1.92	.16
Coeducational Classes/Females	1.77	.16
Same-Gender Classes/Males	2.11	.14
Same-Gender Classes/Females	2.27	.14

in same-gender classes seemed to do better than males and females in coeducational classes. See Table 16d.

Standardized Social Studies Test

The ITBS social studies' mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 17a and 17b respectively. The coeducational classes averaged 41.58 and the same-gender classes averaged 41.30. The males in both class organizations combined averaged 38.24 and the females averaged 44.62. After adjusting for previous achievement, the coeducational classes averaged 48.68 and the same-gender classes averaged 36.86. The males averaged 38.41 and the females averaged 47.13.

The results of ANCOVA are contained in Table 17c. There were significant differences between the two class organizations coeducational classes and same-gender classes (p=.0474). Coeducational classes had a higher mean than same-gender classes. There were no significant differences between males and females (p=.07). However, if the sample size had been larger, it appears that the males and females would have been significantly different at the .05 level. There was no interaction between class organization and gender in fourth grade social studies (p=.28). However, it seems that males and females did better in coeducational classes than males and females in same-gender classes. Results are shown in Table 17d.

Table 17a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes for ITBS Social Studies Test When 4th Grade ITBS Social Studies Test Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	41.38	3.62	38	48.68	3.32
Same-Gender Classes	46	41.30	3.29	37	36.86	3.36

Table 17b

Unadjusted Means and Adjusted Means of Males and Females for ITBS Social Studies Test When 4th Grade ITBS Social Studies Test Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	42	38.24	3.44	39	38.41	3.27
Females	42	44.62	3.44	36	47.13	3.41

Table 17c

Summary of ANCOVA Coeducational Classes and Same-Gender Classes ITBS Social Studies Test Using 4th Grade ITBS Social Studies Test as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	1703.129	1703.129	4.07	.0474
Gender	1	1408.135	1408.129	3.37	.0707
AB	1	487.33	487.33	1.17	.28
Error	70	29269.46	418.1352		
Total	74	38055.55			

Table 17d

Interaction Results/ITBS Social Studies

Class Organization/Gender	M	SD
Coeducational Classes/Males	46.88	4.57
Coeducational Classes/Females	50.48	4.82
Same-Gender Classes/Males	29.95	4.69
Same-Gender Classes/Females	43.77	8.82

Social Studies Achievement Grade

The social studies grade's mean and standard deviation for unadjusted and adjusted scores of both class organizations and males and females are reported in Tables 18a and 18b respectively. The coeducational classes averaged 1.87 and the same-gender classes averaged 2.14. The males in both class organizations combined averaged 1.91 and the females averaged 2.14. After adjusting for previous achievement, the coeducational classes averaged 1.94 and the same-gender classes 2.11. The males averaged 1.96 and the females averaged 2.06.

The results of the ANCOVA are contained in Table 18c. There were no significant differences between the two class organizations (p=.27). There were no significant interaction between males and females (p=.40). There was no significant difference between class organization and gender (p=1.00). Results are shown in Table 18d.

Summary

The students selected for this study were African Americans from two inner city schools. There were ninety students selected for this study. These students were not randomly selected because of the intact classes. In School A, there were two coeducational classes on the fifth grade level. In School B, there were two same-gender classes on the fifth grade level, one all-male class and one all-female class. The two class organizations studied were

Table 18a

Unadjusted Means and Adjusted Means of Coeducational Classes and Same-Gender Classes in Social Studies When 4th Grade Social Studies Grade Is Used as the Covariate

Class Organization	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Coed Classes	38	1.87	0.12	38	1.94	0.11
Same-Gender Classes	51	2.14	0.11	49	2.11	9.976 E-02

Table 18b

Unadjusted Means and Adjusted Means of Males and Females in Social Studies When 4th Grade Social Studies Grade Is Used as the Covariate

Gender	N	Unadjusted		N	Adjusted	
		M	SD		M	SD
Males	45	1.91	0.11	43	1.96	0.11
Females	44	2.14	0.12	44	2.09	0.11

Table 18c

Summary of ANCOVA for Coeducational Classes and Same-Gender Classes in Social Studies Using 4th Grade Social Studies Grade as the Covariate

Source	df	SS	MS	F	Prob F
Class Organization	1	.606747	.606747	1.24	.27
Gender	1	.3458431	.3458431	.71	.40
AB	1	6.204E-08	6.204-08	.00	1.00
Error	82	39.9906	.4876903		
Total	86	50.89655			

Table 18d

Interaction Results/Social Studies Class

Class Organization/Gender	M	SD
Coeducational Classes/Males	1.87	.16
Coeducational Classes/Females	2.00	.17
Same-Gender Classes/Males	2.04	.15
Same-Gender Classes/Females	2.17	.14

coeducational class organization and same-gender class organization. Gender differences without considering classroom organizations also were studied. The independent variables were class organization and gender. The dependent variables were attendance and achievement. Achievement consisted of fifth grade ITBS scores in reading, math, science, and social studies and final grades earned in reading, math, science, and social studies.

ANCOVA was used to control for previous attendance and achievement and to increase the likelihood of finding a significant difference between group means (McMillian & Schumacher, 1989). The covariates used were fourth grade ITBS results and final achievement grades in reading, math, science, and social studies. Fourth grade attendance was used to control for previous attendance differences.

As the Summary Table 19 ($p<.05$) shows on page 98, school attendance between the coeducational classes and the same-gender classes differed significantly. Students in same-gender classes attended school more regularly than students in coeducational classes. Without considering class organization, males and females differed significantly in school attendance. Females attended school more frequently than males. After controlling for previous differences in attendance, it was proven that, on an average, students in the same-gender classes attended school 3.59 days more than students in coeducational classes. Comparing the attendance of the male and female students, the female students were present 4.23 days more than the male students were present during the

Table 19

***Summary Table**

Variables	Coeducational Classes		Same-Gender Classes	
	Males	**Females**	**Males**	**Females**
Absences	13.29	5.13	5.77	5.57
ITBS Reading	35.07	36.12	35.03	38.60
ITBS Math	44.55	47.25	28.99	54.33
ITBS Science	53.27	53.46	36.92	39.66
ITBS Social Stud	46.88	50.48	29.95	43.77
Reading Class	1.88	2.02	2.25	2.05
Math Class	1.89	2.20	2.07	2.39
Science Class	1.92	1.77	2.11	2.27
Soc Stud Class	1.87	2.00	2.04	2.17

*$p<.05$

1992-93 school year. Males in coeducational classes were absent 13.29 days; females, 5.13 days. Males in same-gender classes were absent 5.77 days; females, 5.57 days.

Controlling for previous achievement among the students, there were significant differences in achievement within the two classroom organizations. The significant differences occurred in the standardized science test scores and social studies' test scores. The students in the coeducational classes achieved significantly higher scores than the students in the same-gender classes in ITBS science and ITBS social studies. If the sample size had been larger, it appears that females would have had significantly improved achievement in ITBS social studies (p=.07). According to Howell (1987), if one is to run experiments with a reasonable chance of rejecting the null when it is in fact false and the effect small, large sample sizes are necessary. There were no significant differences between coeducational classes and same-gender classes in standardized math and reading tests.

Controlling for previous achievement, without considering class organization, there were significant differences between males and females in the standardized math test score(p=.005) and the final math achievement grade (p=.03). The female students achieved significantly higher scores than males on the standardized math test and had higher grades in the math classes.

In studying the interaction of classroom organizations to determine if males and females responded notably to one particular kind of classroom

composition, ANCOVA results showed that there was a significant interaction between class organization and gender in ITBS math (p=.0042) and school attendance (p=.0066). Female subjects in same-gender classes scored highest on the ITBS math test (54.33). They also had the highest grade point in the math classes (2.39). Male students in same-gender classes had the lowest score on the ITBS math test (28.99). The difference was 25.34 points. However, they did not have the lowest grade point average in the math classes. Males in the coeducational classes had the lowest grade point average (1.89) in the math classes. In this study, female students in same-gender class organization did better in math than female students in coeducational classes and males in either class organization. Female students in coeducational classes attended school most. Male students in coeducational classes attended classes the least during the academic school year. On an average, males were absent 13.39 days while males in same-gender classes were absent, on an average, 5.77 days. It appears that same-gender class organization promotes school attendance. Among males, coeducational class organization does not appear to promote frequent school attendance.

Female students in coeducational class organization and same-gender class organization had higher scores on all of the standardized tests and had higher grade point averages in all of the classes except science. Specifically, female students in coeducational classes had the highest averaged scores in ITBS science and ITBS social studies. Female students in the same-gender

classes had the highest ITBS scores in reading and math and the highest grade average in math, science, and social studies. Male students in coeducational classes had the lowest achievement in reading and social studies. Males in same-gender classes had the lowest scores in ITBS reading, math, science, and social studies. They had the highest grade average in reading.

Overall, students in same-gender class organization had better standardized test scores, grades, and attendance than students in coeducational class organization. Without considering class organization, females students had higher test scores and grade point averages, except in reading class, than males students.

Chapter 5

Summary, Conclusions, and Recommendations

This chapter contains a summary, conclusions, and recommendations resulting from a comparative study of coeducation classes and same-gender classes. The chapter is outlined as follows:

1. Summary of the Study
2. Conclusions Drawn from the Study
3. Recommendations Resulting from the Study, and
4. Implications for Further Research

Summary of the Study

This study compared coeducational classes and same-gender classes to determine which classroom organization fostered better attendance and achievement for African American students in inner-city schools. Achievement and attendance were used as outcome variables to determine if a particular classroom organization resulted in higher achievement and improved school attendance. The subjects were ninety fifth grade African American students from two inner-city schools in Virginia. The coeducational classes contained thirty-eight students from School A. The same-gender classes contained fifty-two students from School B. Both schools were identified as community schools or target schools by the school system. Community or target schools were defined

as small schools with less than six hundred students. The base income of the students' parents is between $6000.00 and $8000.00 annually. The schools contained students from similar socio-economic public housing apartments and privately owned residences. A large percentage of students received free or reduced lunch.

To measure student achievement, the Iowa Test of Basic Skills (ITBS) scores in reading, math, science, and social studies were used. Also used were the students' fifth grade final achievement grades in reading, math, science, and social studies. A separate Analysis of Covariance (ANCOVA) test was performed for each of the dependent variables. To control for previous achievement, the covariates used were the students' fourth grade ITBS scores in reading, math, science, and social studies and the students' fourth grade final achievement grades in reading, math, science, and social studies. Number Cruncher Statistical System software was used for all computations. A probability level of .05 level was selected as the level of significance.

Conclusions

Conclusions resulting from this study were based on the analysis of covariance carried out on the data. Based on the results, the following inferences were reached regarding the three research questions.

Question One: Does class organization (coeducational classes versus same-gender classes) affect the outcome variables? For instance, do students

in same-gender classes perform significantly better or are less absent than students in coeducational classes?

Class organization significantly affected attendance, grades in science, ITBS science scores and ITBS social studies scores.

Students in same-gender class organization had:

- significantly better attendance,
- significantly higher grade in science class,
- though not significantly, better grades in reading class, math class, and social studies class, and
- slightly higher score in ITBS reading.

Students in coeducational class organization had:

- significantly higher scores in ITBS science and ITBS social studies and
- slightly higher score in ITBS math.

Overall, it appears that same-gender class organization promoted better attendance and improved achievement than the coeducational class organization. According to the results of this study, there appears to be a direct relationship between attendance and achievement as represented by grades. Students in same-gender classes attended school more often and had better grades in the specified classes. However, better attendance did not positively correlate with standardized test scores. Students in the coeducational class

organization attended school less than students in the same-gender class organization, but had higher scores in three out of the four standardized tests.

Fogelman and Richardson (1974) found a significant relationship between attendance and achievement. Carroll (1977) found that students who have poor school attendance are significantly more likely to be lower achievers than students who attend school regularly. Students in same-gender classes had both the better attendance and the higher overall classroom achievement grade than the students in the coeducational classes.

The students' higher grades in same-gender classes concurred with Finn's (1980) finding that boys and girls in same-gender schools out performed students in coeducational schools in reading comprehension, and word knowledge, but did not concur with Finn's finding in higher achievement in the ITBS science test score. Lee & Bryk (1986) found that academic achievement was substantially higher in same-gender schools than in coeducational schools. However, once preexisting differences, such as intelligence and social class differences were controlled, the differences were marginal or insignificant. Lee and Byrk (1986) also found that minority males including African Americans and Hispanics did significantly better in same-gender classes.

Further research is needed to study the relationship between coeducational class organization and same-gender organization to answer related questions. Why are test scores higher than achievement grades in the same subject areas in coeducational classes? Does teacher gender make a

difference? Holland (1991) found that teacher gender does make a difference. The academic grades of African American males in same-gender classes showed improvement over boys in coeducational classes on the same grade level. According to Holland, the attendance of males in the classes improved more than twenty-three percent (23%) above males in coeducational classes at the same grade levels. Should subject matter, such as math, dictate class organization? In a study conducted by MacDonald (1980), he found that females in a college math course for females only got higher grades and a higher completion rate than women in coeducation classes of the same math course. In this study, the females in the same-gender class organization obtained the highest math grade and had the highest score on the ITBS math test.

Relatively little research exists on academic achievement differences between same-gender and coeducational classes (Lee & Byrk, 1986). Since students in same-gender classes had attended school more regularly and had improved academic grades than females in coeducational classes, same-gender class organization might be worthy of consideration or reconsideration in the educational system. Based on this study and related literature, females and males have improved attendance and achievement as reflected in the students' grades in same-gender classes. Table 20 summaries the findings discussed in research question one.

Table 20

Outcome Variables Results for Coeducational Group and Same-Gender Group

Outcome Variable	Coeducational Group	Same-Gender Group
ITBS Reading	35.59	36.82
ITBS Math	49.50	41.66
ITBS Science	53.36	38.29
ITBS Social Studies	48.68	36.86
Reading	1.95	2.15
Math	2.05	2.23
Science	1.85	2.20
Social Studies	1.94	2.11
Absences	9.26	5.67

Question Two: Without considering class organization, is gender rela to the outcome variables attendance and achievement? Do females perform significantly higher and are they less absent than males? Gender differences significantly affected attendance, the grades in math class and the ITBS math test score.

The female students had:

- significantly better attendance.
- significantly higher score on ITBS math test.
- significantly higher grade in math class.
- though not significant, higher test scores in ITBS reading, ITBS science, and ITBS social studies.
- slightly higher grade in social studies class.
- slightly lower grade in reading class.
- the same grade in science class as the male students had in science class.

The male students had:

- slightly higher grade in reading class.
- the same grade in science as the female students had in science class.

In a study conducted by Lee and Bryk (1986), the effects of same-gender secondary school schooling and coeducational secondary schooling were studied. They used a random sample of 1,807 students from seventy-five

Catholic high schools. Forty-five of the schools were same-gender schools. Lee and Bryk found that females in females' schools expressed a more positive attitude toward academics in specific subjects, such as English and mathematics. The female students also spent more time on homework and were less likely to be absent. Regardless of school organization, males scored higher than girls in math and science. In the same study, the females' grades were significantly better in math class and the females received the same averaged grade as the males in science class.

Questions concerning gender differences in intellectual abilities have been of interest to educators, psychologists, and other social scientists for many years (Feingold, 1992). Gender differences in achievement for both males and females have decreased markedly over the last ten years (Feingold, 1988, 1991; Hyde & Linn, 1988). On the average, males score higher than females on tests of general knowledge, mechanical reasoning, and mental rotation. Females scores higher than males on tests of language usage and perceptual speed. There have been no significant differences notes in general verbal ability, arithmetic, abstract reasoning, spatial visualization, and memory span (Jacklin, 1989; Kimball, 1989; Linn & Hyde, 1989; Wilder & Powell, 1989; Feingold, 1988, 1991). However, boys are believed to have slightly higher mean scores than girls on tests of mathematical reasoning (Feingold, 1988; Hyde et al., 1990).

Table 21 summaries the findings of research question two.

Table 21

Outcome Variables Results for Males and Females

Outcome Variable	Males	Females
ITBS Reading	35.05	37.36
ITBS Math	36.77	50.79
ITBS Science	45.10	46.56
ITBS Social Studies	38.41	47.13
Reading Class	2.07	2.03
Math Class	1.98	2.30
Science Class	2.02	2.02
Social Studies	1.96	2.09
Absences	9.58	5.35

$p<.05$

Question 3: Do factors of class organization and gender interact? Are males and females differentially affected in their performance under one condition or other? Controlling for previous attendance and achievement, class organization and gender significantly interacted with the dependent variables attendance and ITBS mathematics.

(3a) Males in coeducational classes were absent more than males in same-gender class. On an average, males in the same-gender class attend school almost eight days more than males in the coeducational classes during the academic school year. Yet, males in the coeducational classes averaged almost sixteen points higher in ITBS math than males in same-gender class. Although not statistically significant, males in coeducational classes improved over males in the same-gender class in ITBS reading, science, and social studies. Achievement grades, however, were improved in the same-gender male class. There are several possible reasons for differences in achievement among students. Teacher differences in teaching styles, classroom management skills, and knowledge of subject matter influence the achievement of students. Also, students' attitudes, behavior, and ability influence achievement in both class organizations. Studies (Bone, 1983; Finn, 1980; Riordan, 1985) found that males in same-gender classes had higher math scores and educational accomplishment than males in coeducational classes. Table 21 summaries the findings in 3a.

(3b) Females in coeducational classes attended school sligh frequently than females in the same-gender class. Females in coeducational classes also did better in ITBS science and social studies. Females in same-gender class did better in ITBS reading and math than females in coeducational classes. Females in the same-gender class had higher grades in all selected courses. Overall, females in the same-gender class did better than the females in the coeducational classes.

The National Longitudinal Studies of the High School Classes of 1972 (NLS) and 1982 (HSB) was undertaken to determine the effects of single- and mixed-gender schooling among both high school and college students in the United States. Controlling both for home background and initial ability, these and other studies found that the structure of schooling has different effects on the educational outcomes of males and females. The data suggest that the gender conditions of schooling is a consequential factor affecting what males and females obtain from their schooling. These studies indicate that females especially do better, academically, in same-gender classes, regardless of cultural background. Table 22 summaries findings.

(3c) On an average, females in coeducational classes attended school 8.16 days more than males in coeducational classes. Although not statistically significant, females in coeducational classes scored slightly higher than males in coeducational classes in ITBS math, science, and ITBS social studies and in achievement grades. The exception was science. However, recent findings

Table 22

Outcome Variables Results for Males

Outcome Variables	Males Coeducational Group	Males Same-Gender Group
ITBS Reading	35.07	35.03
ITBS Math	44.55	28.99
ITBS Science	53.27	36.92
ITBS Social Studies	46.88	29.95
Reading Class	1.88	2.25
Math Class	1.89	2.07
Science Class	1.92	2.11
Absences	13.29	5.77

$p<.05$

support the theory that coeducational schooling fails to provide equal educational opportunities for males and females (Riordan, 1990). Hall and Sandler (1982) contend that American coeducational schooling, especially colleges, provides a cool reception for females. This cool reception dampens the females' spirit, career aspirations, and undermines their self-confidence. Although this reception might not be as prevalent in the elementary and secondary schools, it appears that the structure of schooling, especially its gender setting, helps to create, maintain, and aggravate gender differences in educational outcomes. This is another valid reason to examine same-gender schooling for all students, especially females.

(3d) Females in the same-gender class scored significantly higher in ITBS math than males in ITBS math. Females attended school slightly more than males. Although not statistically significant, females scored higher than males on all standardized tests. Females also had the slightly higher grade point average. Again, this study as well as other studies presented show that females in same-gender classes have higher achievement results in selected outcome variables. Please see Table 23 for summary of findings of 3c and 3d.

The findings of study firmly support same-gender schooling for both males and females. Overall, females in both class organizations did better than males both in attendance and in achievement. Yet, the male students in same-gender school had improved attendance and classroom achievement when compared with the males in coeducational classes. The time has come to closely examine

Table 23

Outcome Variables Results for Females

Outcome Variables	Females Coeducational Group	Females Same-Gender Group
ITBS Reading	36.12	38.60
ITBS Math	47.25	54.33
ITBS Science	53.46	39.66
ITBS Social Studies	50.48	43.77
Reading Class	2.02	2.05
Math Class	2.20	2.39
Science Class	1.77	2.27
Social Studies Class	2.00	2.17
Absences	5.13	5.57

$p<.05$

the merits of same-gender schooling for males and females and certain ethnic groups.

The passage of Title IX of the Educational Amendments in 1972 virtually mandated that American public education be coeducational (Riordan, 1990). It states "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance" (Educational Amendments of 1972, Sec. 901, a).

Although Title IX makes it difficult to conduct same-gender classes, several lawful projects, such as the Johns Hopkins University Study of Mathematically Precocious Youth (Brody & Fox, 1980) and the University of Missouri-Kansas City same-gender math class (MacDonald, 1980), have shown promising results for female students. Gender inequities characteristic of the larger society are found in abundance in coeducational classrooms, such as gender segregation, gender-stereotyped teacher-student interaction, and imbalanced cross-gender peer interaction (Klein, 1985). Yet, supporters of coeducational education continue to argue that it provides the best chance of offering males and females equal educational opportunities. This simply is not true. Shaw (1984) noted that in principle coeducation does offer equality of opportunity but in fact, it actually reduces the opportunity of equality. Same-gender schooling might offer genuine equality of opportunity in the highly unequal society in which we live (Shaw, 1984).

Therefore, strong grounds exist for thoroughly reconsidering the possible advantages of same-gender schooling. Based on this study, students in same-gender classes had improved attendance and improved achievement on some test scores and improved classroom grades in all areas.

Recommendations

The subjects of this study are now in middle schools in all coeducational classes. It would be very interesting to follow several of the students' attendance record to see if the gains in attendance are sustained among the male students who attended the same-gender class. Additional research needs to be conducted to examine the effects of class organization on students' overall achievement. This study presents tentative evidence to support same-gender schooling for males and females and inner city African American students. However, a one year study is not enough time to make definite claims regarding the benefits and advantages of same-gender schooling. Yet, there are two clear conclusions presented in these data. One, females, in general, achieve at a higher level both in grades and on standardized tests than males (Table 20). Two, there is a consistent pattern of higher means for grades in all subject areas in same-gender classes for both males and females (Table 19).

Implications of Further Research

Schools reflect the society in which they exist. No words, commission reports, or studies can adequately convey the serious problems our educational system struggles to address. In response to the problems and to the implications of this study, same-gender education, especially for African American students, merits consideration, especially in inner city schools. Since the late 1980s, the social, economic, and educational status of young African American males and females has been declining. As early as kindergarten and as late as the twelfth grade, these students have been turning away from education and turning to poverty, drugs, crime, and, ultimately, to incarceration or an untimely death.

Much controversy surrounds the issue of how to most effectively educate African American youth, especially males. During the past twenty years, educators have proposed, and in some cases, implemented reforms aimed at reversing the pattern of school failure among minority students (Cummins, 1986). These programs have included pre-school compensatory programs and bilingual education programs. There is a growing interest in same-gender schools or at least same-gender classes to adeptly educate African American students.

It appears that many educators do not realize the extent to which gender, ethnicity, and cultural differences influence attendance, learning, and achievement. This study raises significant issues regarding the validity of same-gender and coeducational schooling, especially among African American

students. Are African American students more achievement oriented in same-gender or coeducational classes? Based on the findings of this study, same-gender schooling fosters better achievement than coeducational schooling among African American students. There significant differences in achievement between African American males and females. In general, African American females' attendance and achievement were consistently higher than African American males with few exceptions. Does classroom organization make a difference in school attendance and achievement? Classroom organization makes a significant difference in school attendance and classroom achievement among African American students. Further research needs to be conducted to thoroughly examine why African American students in same-gender classes in inner city schools have higher achievement in selected courses and attend school more regularly. According to related literature and research, improved self-esteem and discipline generated in same-gender classes contribute significantly to the students' achievement and attendance.

It is generally accepted that males are absent more often than females. This study supports that hypothesis ($p=.0044$). A partial answer to this finding might lie in the fact that African American males are expelled and suspended more than any other group of students, regardless of ethnicity (Williams, 1989; Garibaldi, 1979). Additional research of this outcome variable is encouraged. Perhaps, there are other causes of poor attendance of African American males,

such as low socio-economic conditions which can account for a lack of the necessities these students need to attend school regularly.

A credible education has become increasingly important globally in occupational recruitment and training. As nations become more technological and industrialized, there is a greater dependency on a competent educational structure. Americans must be willing to accept the challenge of building such an instructional system that is designed to meet the needs of all of it citizens. Perhaps, James G. Carter summed it up best in 1826 when he said that the poor and the ignorant members of our society represent a threat to the republic. The government (society) must eradicate ignorance for its own survival.

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