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A Comparison of Academic Achievement Between Home School Students and Private Christian School Students

Joseph M. Thomas

A COMPARISON OF ACADEMIC ACHIEVEMENT BETWEEN HOME SCHOOL
STUDENTS AND PRIVATE CHRISTIAN SCHOOL STUDENTS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for

the Degree of Doctor of Philosophy in

Leadership and Education in

the Adrian Dominican School of Education of

Barry University

by

Joseph M. Thomas, B.S., MBA, MISM

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Area of Specialization: Leadership

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APPROVED BY:

Catharina M. Eeltink, Ph.D.
Chairperson, Dissertation Committee

Zorka Karanxha, Ed.D.
Member, Dissertation Committee

A. Eugene Tootle, Ed.D.
Member, Dissertation Committee

Terry Piper, Ph.D.
Dean, Adrian Dominican School of Education

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ABSTRACT

A COMPARISON OF ACADEMIC ACHIEVEMENT BETWEEN HOME SCHOOL STUDENTS AND PRIVATE CHRISTIAN SCHOOL STUDENTS

Joseph Michael Thomas

Barry University, 2007

Dissertation Chairperson: Dr. Catharina Eeltink

Purpose

This research sought to determine if there is a relationship between the educational environment (home school or private school) of the student and academic achievement as measured by the Stanford Achievement Test.

Specifically, the study attempted to determine if home schooled students are scoring higher on the Stanford Achievement Test than private school students.

Method

Three hundred and fifty students from the home-educated environment and two hundred and ninety two students from the private Christian schooled environment were sampled. Data were collected on their SAT scores during the 1996 - 1997 and 1997 - 1998 school years.

Major Findings

The initial hypotheses stated that home schooled students would perform higher on academic performance over private schooled students on the Stanford Achievement Test in the following areas: total reading, total language, and total mathematics. Overall, the hypotheses were not supported as the two groups performed similarly on the SAT. The findings in this study clearly indicate that

the hypothesis should be reexamined and that there is a need to perform additional research on the two educational environments.

ACKNOWLEDGEMENTS

There are three groups of people that I would like to acknowledge who were very influential in my life as I completed this degree: professors, school-community, and family.

First, I would like to take this opportunity to acknowledge the professors who were instrumental in my research. Their belief and support throughout different stages of this study has made it possible for me to get through this project. The journey on this road has been long, but I am sincerely appreciative to all professors who traveled it with me. Dr. Eugene Tootle's influence in the classroom has helped me to be a better educator in the classroom, and for that I am truly grateful.

Next, I am deeply appreciative to my fellow classmates for their support and dedication to this program. A very special thank you to my dearest friend Alan Smolowe for his friendship and all the golf we played discussing this research and the research he was working on as well. Alan is truly a great friend.

Last, but certainly not least, I would like to thank my family for their continual support and unconditional love. From the beginning to the end, you all supported me. Throughout this journey, you all held my hand. It was not just me working on a PhD, but you all too. The support that you all gave me made it possible for me to balance college, career, and family. I am forever grateful to God for placing you all in my life.

In conclusion, I would like to acknowledge various groups of people who were influential in my completing this degree: the professors, school-community, and my family. You all have made it possible for me to attain the degree of PhD, and I will forever thank God for placing you all in my life.

DEDICATION

I dedicate this dissertation and its research finding to all teachers in the world who believe that what they are doing is making a difference. The data that you collect on your students, the research that you conduct in the area of reading, language, mathematics, and the transfer of this knowledge into the classroom will lead you to make effective instructional decisions. As educators, we are learning continuously.

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CHAPTER I
THE PROBLEM

Introduction

As a rule teachers want a good education for the children sent to them, and they work to provide it (Ray, 1997). Then why do some parents teach their children at home? Many parents want to protect the family unit, guard against unwanted ideologies or influences, or avoid control by public schools. There are additional reasons for home schooling such as religious beliefs, academic achievement, and social development (Ray, 1997).

Home schooling is a voluntary activity, and demographic data indicate that parents who choose home schooling have education, income, and church attendance levels higher than the general population (Mayberry, 1988). Children from families with such demographic factors most likely would also score higher than average if they attended schools.

Home education is neither a new nor an unusual phenomenon. What is new in human history is institutionalized, compulsory schooling, and what may be unusual is the inordinate attention and concern being paid to the relatively small number of families who have chosen to conduct their children's education at home. The growing practice of home education has generated considerable controversy at state and local levels and has received growing attention in the popular press. Research on home education, however, has been meager, and policy makers have had little substantive information about who is learning at home, why they are doing so, and how well they are doing.

While national attention is focused on efforts to improve schools through greater external control in the forms of increased bureaucratization, professionalization, and standardization, a growing number of families are choosing to forego traditional schooling altogether (see Figure 1). When these non-credentialed parents assume control over the education of their children, the schools are placed in the position of defending the very structure of schooling. Meanwhile, educators themselves are speculating as to whether that structure itself may be obsolete and inappropriate. When parents withdraw their children from school because of ideological conflicts, educators are called upon to defend a common curriculum and common educational goals in an increasingly pluralistic society. And when parents propose alternative pedagogies, schools are placed in the position of defending traditional pedagogy that is also being widely criticized from other fronts (Deuink, 1988).

Home schooling is growing at a rapid pace. Legislators, educators, and the general public are being asked to learn more about this topic and to make decisions. A pragmatic approach to this topic would be to focus upon outcomes. If an educational method (however unconventional) works, then it deserves respect (Ray, 1994).

The number of families and children in home education programs registered with Florida School Districts from 1990 through 1997 were as follows: 1990 – 1991 there were 6,356 families and 9,992 children; 1991 – 1992 there were 7,203 families and 11,048 children; 1992 – 1993 there were 9,378 families and 14,208 children; 1993 – 1994 there were 11,161 families and 16,623 children; 1994 – 1995 there were 13,334 families and 19,392 children; 1995 – 1996 there were 16,789 families and 22,285 children; 1996 – 1997 there were 20,564 families and 25,930 children (Data provided to the Department of

Education by the school districts - Statistical Brief January 1996 Series 96-12B). The number of families and children in home education programs registered with Florida School Districts from 2005 through 2006 were 36,149 families and 52,613 children.

In working with the families of home schooled children and administrators of private Christian school students I found that both groups share in similar values and philosophy. They wanted to protect the family unit, guard against unwanted ideologies or influences, and avoid control by public schools.

The Christian School

Since the early 1960s we have been experiencing a phenomenal growth both in the number and the size of Christian schools (Catholic schools excluded) in the United States. Some Christian educators have hypothesized that during a part of this period, as many as two to three new schools have started daily (Deuink, 1988). Whether this figure is accurate or not would be impossible to verify since Christian schools are not represented by any one group and do not consistently make enrollment statistics public. We do know that in the last 20 years literally thousands of new Christian schools have been opened. Christian schools now account for twenty to thirty percent of all children enrolled in private schools in this country. Christian schools have experienced this growth at the same time that public school enrollments have declined and private schools in general have experienced lower enrollments (Deuink, 1988).

An interesting set of court cases in the 1970s and 1980s involved claims that public schools taught a religion, known as secular humanism, which could be a violation of the rights of those not subscribing to secular-humanist values. The issue arose over state regulation of private schools. During the latter part of the 1970s and into the 1980s,

the fastest-growing private schools were those identified as “Christian”. These usually were associated with a fundamentalist Christian organization. At first, people outside the movement assumed the growth of Christian schools was a result of “white flight” from desegregated schools system. But when Christian schools began to multiply in rural areas of Wisconsin and Alaska, where segregation was not an issue, it became evident that the movement was a result of strongly held religious values (Spring, 1996).

Problems began in the Christian-school movement when state authorities demanded that the schools conform to state minimum educational standards. Most state minimum standards are not a small list of requirements but a vast set of statutes and regulations covering everything from the design of the water fountain to the curriculum. Christian schools did not have any problems with regulations related to the safety of school buildings, but they did object to curriculum requirements that interfered with the Christian objectives of their schools (Spring, 1996).

Of primary concern were state regulations that required the schools to teach ethical values that the Christian schools called secular humanism. The simplest definition of secular humanism is that it comprises a set of ethical standards that place emphasis on a person’s ability to interpret and guide his or her own moral actions. This is in opposition to the Christian-fundamentalist viewpoint, which holds that the source of ethical and moral values should be the Bible and God. Secular humanism relies on the authority of human beings, while Christian fundamentalism relies on the authority of the Scriptures (Spring, 1996).

The Christian school movement has come of age. A fond dream only a few decades ago, it has developed from prayerful conception through careful nurturing, expert

guidance, dedicated effort, and purposive sacrifice to a reality that has successfully challenged the virtual monopoly of the public school system by offering an education that is philosophically, morally, and—in many cases—academically superior to its secular counterpart (Spring, 1996). But how does it compare to home education?

Home Education

What is home education? Who can teach in a home education setting? A home Education Program, as defined in Section 228.041(34), F.S. is “sequentially progressive instruction of a student in his or her home by his or her parent or guardian.” Section 229.808, Florida Statute, requires the Department of Education to survey all registrants of Florida Home Education Programs; however, participation in the survey is strictly voluntary. Section 232.02(4)(b)1., F.S. requires that parents notify the superintendent of schools of the county of residence of their intent to establish and maintain a home education program within 30 days of its establishment (State of Florida, Department of Education, 1996).

For the 1994-1995 school year, the Department of Education surveyed each school district to determine the names and addresses of those individuals who had registered their intent to establish home education programs. From the lists provided by the districts, the Department surveyed 13,334 families accounting for 19,392 children. This is a 16.7 percent increase in the number of children participating in home education programs from the previous year (State of Florida, Department of Education, 1996). Thus, like Christian schools, the number of students being home schooled increased significantly.

Research Problem

There are very few studies, if any, which have compared home school achievement to their private Christian educated counterparts. Are home schooled students scoring higher on achievement test than Christian educated students?

Purpose of Research

The research base on home education has expanded dramatically since the first studies and academic articles of the late 1970s that dealt with the modern home education movement. The purpose of this research is to see if there is a difference in academic achievement of students that are home schooled from students that are privately schooled in Central Florida.

The research population was a sampling of 655 students in Orange County and Seminole County, Florida, who were either home schooled or private schooled elementary-age children during the 1997-1998 school year. The Stanford Achievement Test, Ninth Edition, was used to compare raw scores, scaled scores, percentiles, and grade equivalents in the areas of reading, language, and mathematics.

This study will attempt to determine if home schooled students are scoring higher on the Stanford Achievement Test than private school students. Based on the results, they may show some differences or similarities of one environment over another to help make improvements or recommendations for either educational environment.

Research Question

There are a number of studies of home school achievement that have found that home-educated students score as high or higher than their public school educated counterparts. Studies such as those by Wartes (1990a), Ray (1990b, 1994, and 1997) have rendered the same conclusions on score outcomes. However, limited research has

been done comparing home-educated students with students in private Christian schools. The research question for this study is: Do home schooled students score higher on achievement tests than Christian educated students, specifically in the areas of reading, language, and mathematics?

Hypothesis

Hypothesis 1. Home Schoolers will show significantly higher academic achievement scores for total reading than students in private Christian schools.

Hypothesis 2. Home Schoolers will show significantly higher academic achievement scores for total language than students in private Christian schools.

Hypothesis 3. Home Schoolers will show significantly higher academic achievement scores for total mathematics than students in private Christian schools.

Importance of Research

Home Schooling was the educational norm for much of human history; it's only in the last 150 years or so that the public schools have gotten off the ground. Home schooling is still alive and well in areas of the country too isolated for easy access to public schools. Information about home schooling is needed or desired by a variety of people, including legislators, the media, parents of home schoolers and potential home schoolers, and, infrequently, the courts. This information can be used by the state to enact laws pertaining to home schooling. Parents of home schoolers and potential home schoolers may use this information as resource, and courts may use the information in consideration of court cases.

As more problems are associated with the public school systems, parents are looking for different alternatives to educate our children. Today, there are many parents

contemplating whether to send their children to private schools, or whether to home school. In either situation, there will be a curriculum used to educate their children, and academic achievement is of the greatest concern.

Definition of Terms

Home schooling - Each student was considered a home school student if 80% or more of what the family considers to be “schooling” was provided by or conducted under the supervision of the parent(s).

Test - The test used in this study is the Stanford Achievement Test series. This series consist of SAT (Stanford Achievement Test, 9th edition) for grades 1 to 7; the 1995 norms were used.

Private Christian Schooling - Each student was considered a private Christian (non-Catholic) school student if 80% or more of their “schooling” was provided by a Christian (non-Catholic) school system free of all governmental control, both financial and academic.

Curriculum - It is simplest to define curriculum as a planned program of educational experiences offered by the school. With this limited definition, the topic falls into two separate categories: academic and extracurricular activities.

Academic activities - All of the course work and related activities consciously directed toward the development of the cognitive, affective, and psychomotor domains of the student.

Extracurricular activities - All social activities and all competitive athletic programs.

Assumptions

It was assumed that the standardized achievement test scores reported in this study were reliable and valid and that they were properly administered and scored.

Delimitations

This study does not examine the extent to which several objectives of home education are met. For example, there is no focused assessment of whether the children develop psychologically, emotionally, and socially according to their parents' plans and desires; whether children adhere more or less to their parents' belief system than do children in the private Christian schools; or whether these children make better adult citizens than do those who never experienced home education.

Limitations

1. Achievement is measured in terms of raw scores, scaled scores, percentiles-stanines, and grade equivalents on the Stanford Achievement Test series, Ninth Edition. Other kinds of outcomes are not considered.
2. All relationships described in this research are correlational in nature. Nothing can be inferred from the analysis suggesting one variable is causing another to change.
3. It was very difficult to include a random sample of all home education families in the Central Florida area or the complete population for a study such as this. It is therefore, important, to keep in mind the limitations of representativeness and generalizability.
4. This study is descriptive and exploratory in nature. It is one of the very few studies that have been completed on home-schooled versus Private Christian schooled educated children, and leaves many questions yet to be answered about both groups in the Central Florida area.

CHAPTER II

REVIEW OF LITERATURE

There are a number of studies of home school achievement that have found that home educated students score as high or higher than their school educated counterparts, such as Wartes (1990a), and Ray (1990b, 1994, 1997), but there are very few studies that have compared home school achievement to their private Christian educated counterparts.

Case histories abound in the home schooling literature, but there have been relatively few systematic studies reported concerning the academic achievement of groups of students. Many of the studies that do exist contain serious flaws. In one study (Alaska Department of Education, 1985) the results were positive for home schoolers (students scored better than the national norm on the CAT). However, the response rate was only 53% - the conjecture is that parents of low scorers might have been more reluctant to send in their test results. Other tabulations of home schooler test scores have been produced by public authorities in Oregon, Arkansas, and Tennessee (Wartes, 1988c). Because these tabulations are the least restrictive in terms of method of sampling, they are probably the most generalizable results available so far. While these results have been uniformly positive for home schoolers (average to above average mean scores), they have not been incorporated into a formal report.

Only a few researchers have been able to correlate home school achievement with variables such as parent education level, contact with a teacher, and others. Rakestraw (1988) found no difference in test scores according to parent education level, parent's teacher certification status, or gender of student in a sampling of 84 Alabama home

education students. A very recent national study (Ray, 1990) of 1,516 home education students who were members of the Home School Legal Defense Association also produced a negligible relationship between test scores and parent education level, and no relationship between scores and teacher certification status of the parents. It must be noted that all these studies suffer from the self-selecting nature of the sampling process that was used.

Home schooling is now a stable and fast-growing form of education in America (Ray, 1997). Home Education is also rapidly reemerging in other developed nations around the world (Bendell, 1987; Ray, 1994; Webb, 1990). Whereas the home has often been the predominant center of education throughout the history of western civilization (Common & MacMullen, 1986; Gordon & Gordon, 1990), many countries shifted to the elaborate institutionalization of education in the late 19th and 20th century. The practice of children being taught at home by tutors, nannies, and parents, however, has never totally disappeared. Klicka (1993) and Common and MacMullen (1986) pointed out, for example, that Winston Churchill, Agatha Christie, Abraham Lincoln, Jamie and Andrew Wyeth, and C.S. Lewis were all home schooled as children. And during the past 20 years, there has been a dramatic increase in the number of parents who have decided to be the primary educators in their children's lives rather than send them to schools to be taught by other adults. The home has once again clearly become the most meaningful center of activity and learning for these children (Ray, 1997).

In spite of critics who say that these children will not be prepared for life in this highly technological age, these parents claim that with their own skills, their love for their children, and the aid of modern technology (e.g., computers, modems, video courses, and

on-line services such as the Internet) they can provide a solid education for their children (Breshears, 1996; Churbuck, 1993; Stecklow, 1994).

America's Educational Context

Parents' decisions to home educate their children might not be very surprising if one were to consider recent developments in American education. It appears that little has settled down since the *A Nation At Risk* report was published in 1983 (National Commission on Excellence in Education). The report described America's government-run schools to be in such an inferior state and their students learning so little that it was as if the United States had declared war on itself. Since then, there have been nationwide educational battles over back-to-basics curriculum, school choice and the privatization of schooling, school vouchers, charter school, the need (if any) for institutionalized schools, the government's role (if any) in teaching and raising children, moral education, outcome-based education (OBE), and national curriculum and achievement standards (Buehrer, 1995; Donmoyer, 1996; Duffy, 1995; Hudson, 1992, 1993; Lieberman, 1989; 1993; Martin, 1992; Nash, 1990; Perelman, 1992; Sowell, 1993; Toch, 1991b). The educational-political scene has been turbulent for over a decade. It appears, to date, that the debates and the proposing of solutions will not soon cease.

While the government, professional educators, and politicians are devising strategies for improvement, many parents today are not willing to wait for change in public schools while their children are in them and affected by them (Toch, 1991a). While many are moving toward private schools, there has also been a quiet, but significant, migration to home education. Whether the motivation is "the positive entry [to home education] impulse" or "the negative exit [from institutionalized schools]

impulse” (Audain, 1987, p. 18), many parents are choosing home education as an alternative to both government and private schools (Lewis, 1985). Home education appears to be here to stay.

Concerns of Education Professionals

The growth in popularity of home education (see figure 1) is seen as harmless by some and as a positive trend by other observers. On the other hand, it is a phenomenon that concerns many government officials, professional educators, and some commonplace citizens. Home education is different from conventional schooling. Reducing the level of control over children on the part of the government, it takes children out of the hands of formally trained, government-certified teachers and it places them in the hands of their parents who are not necessarily government certified or professionally trained teachers.

Various groups oppose home education. Common and MacMullen (1986) asserted:

The [home education] innovation is resisted because it really threatens many of the assumptions that are held to be true in education, such as children learn as a result of the teaching act, children can be best educated in schools, teaching is a highly specialized and complex activity that can best be conducted by trained and licensed people. (p.7)

Audain (1987) characterized professional educators’ thoughts another way: “Most conventional educators are leery of the trend to home education. They see an erosion of their job security and power. Some actively try to discourage parents from this option” (p. 21). There are many examples of professional groups discouraging or attempting to tightly control home education (These include the National Association of State Boards of Education [NASBE], the National Education Association [NEA], and the Parent-

Teachers Association, see Lines, 1996, p. 65). For example, the NEA states (Eagle Forum, 1996, p. 4; NEA, 1990, p. 23-24):

The National Education Association believes that home schooling programs cannot provide the student with a comprehensive education experience. The Association believes that if parental preference home schooling study occurs, students enrolled must meet all state requirements. Instruction should be by persons who are licensed by the appropriate state education licensure agency, and a curriculum approved by the state department of education should be used. The Association further believes that such home schooling programs should be limited to the children of the immediate family, with all expenses being borne by the parents.

The National Association of State Boards of Education (NASBE) (1993) states:

Decision makers should insure that policies have the following components:

Strictly enforced registration of home schooled children with the school district ...Specific provisions for insuring the competency of the instructor ... Assurance that policies with regards to home schooling are aligned with the state's current outcome-based standards and graduation requirements Provisions for identifying child abuse in the home. (p. 1-2)

Further, the National Association of Elementary School Principals (1989-1990) "... urges local and state associations to support legislation which prohibits at-home schooling as a substitute for compulsory school attendance. (p. 4)

On the other hand, some longtime advocates of home schooling take an antithetical position. Dorian, who holds a master's degree in reading and a Ph.D. in

rhetoric and public address, and Tyler, founder and president of a statewide home school organization, for example, claim:

Anyone can home school Must the statement *anyone can homeschool* be qualified? Probably – but in a much different way than your common sense may dictate. The qualifying ingredient is not educational credentials or socioeconomic standing – the qualifying ingredient is motivation. Anyone who wants to homeschool can. (Dorian & Tyler, 1996, p. 15)

Despite attempts at dissuasion such as those by the NEA and the NASBE, parents continue to make the choice of home education for their children. Before making the choice to home educate their children, however, many parents, along with professional educators and others, ask numerous questions regarding the effect of home education on children. Such questions may include: What is home education? What are the origins of home schooling? How many children are home schooled today? Is home schooling legal and constitutional? What resources are available to home schoolers? How well do home-schooled children perform? How do public educators, policy-makers, and the public view home schooling? Who can teach in a home education setting? How do you register with the school district? What kind of records are parents supposed to maintain? What does the educational evaluation include? What type of diploma do home education children receive? Do home education students have any trouble being accepted into colleges or universities? Can home education students attend public schools part time or for selected courses? Can parents provide home education to the children of other parents? Does the state or local school district determine the curriculum or course of

study for students in home education? These are valid questions to ask if a parent is considering home schooling their children. The department of education can be one source to answer many questions. A home schooling organization in an area can be a resource, but the best resource would be to talk to parents who are already home schooling their children.

Research on Learner Outcomes

Researchers have consistently identified positive outcomes of home education on topics as varied as students' academic achievement, children's social and psychological development, and the performance of the home educated as adults (Ray, 1990b; Ray, 1994; Ray, 1997; Wartes 1990a; Wright, 1986).

Dr. Brian D. Ray, Ph.D., is President of the National Home Education Research Institute (NHERI), a nonprofit research and educational organization dedicated to serving home, private, and public educators by conducting research on home-based education, developing a network of researchers, and educating the worldwide public about home schooling. He has conducted numerous studies on home schooling, founded and serves as editor of the academic, refereed journal *Home School Researcher*, spoken widely to home school conferences and the media, and provided expert testimony before many courts and legislatures.

Ray (1994) provided an analysis of the standardized achievement test performances of 1,499 home-educated students in the State of Florida. Their test scores were obtained from test administrators in Florida who submitted all scores that they had for inclusion in this analysis. There was no selection for inclusion in this study of students according to their test scores levels. Furthermore, parents did not self-select

with respect to whether their children's scores would be included in this analysis. The scores of special needs students were included in this analysis since they were supplied.

These students scored, on average, at or above the 68th percentile in all areas tested. (The national average is the 50th percentile.) They were at the 73rd percentile in reading; 71st percentile in math; 68th percentile in language; 74th percentile in science; 74th percentile in social studies; 72nd percentile on the basic battery composite; 72nd percentile on the complete battery composite.

Based on this sample of students, Florida's home-educated students are performing well in terms of academic achievement. In fact, on average, they score 18 to 24 percentile points higher than the national average of students tested in conventional schools. These findings are consistent with those of numerous other researchers across the country (Van Galen & Pitman, 1991).

Wartes (1990a) Washington Homeschool Research Project was a cooperative and volunteer effort on the part of 13 individuals (including home schoolers and several public school educators) to gather objective information about Washington's home schoolers and to make that information available to the public. This report summarizes the results of four years of home school testing.

All of the test scores reported herein comes from those home schoolers who utilized any one of several testing services within Washington who cooperated with this research effort. Each service used the Stanford Achievement Test series, Edition 7, and forwarded a set of scores for each home schooler who was tested between 1986 and 1989; these 2,911 sets of scores were the basis of tabulation of the results.

Composite median scale scores for the 2,911 tests received during the 1986-1989 sampling seasons were as follows: 68th percentile in 1986, 65th to 66th percentile in 1987, 65th percentile in 1988, and 65th percentile in 1989.

With the median composite scales of the SAT series at the 65th to 68th percentile each year, it is evident that these students taught at home are not at a disadvantage compared to their conventional school counterparts.

Wartes (1990b) report is based upon a subset of those students tested in the Washington Research Project mentioned above. This report describes the relationship of selected variables to the test scores. The nine topics are listed below.

Topic 1 – The relationship between parent education level and academic outcomes.

These home school parents appear to be somewhat above average in the level of their own education. The primary parent (parent most involved in the education of the student) had, on average, 0.7 years less formal education than the other parent.

Children in families where the primary parent (the one most actively involved in the education of the children) had 12 years of formal schooling or less, the mean Complete Battery Total score was at the 61 percentile. Where both parents had a high school education or less, the mean score was at the 59 percentile. In general, fears that children of less educated parents are at an academic disadvantage receive little support from this evidence.

Topic 2 – The relationship between contact with a certified teacher and home schooler outcomes.

Only 15% of the parents and 7% of the students appearing in this sample had any contact with a certified teacher. Due to the small number, comparisons between those

with some teachers contact and those with none were not possible. However, the 545 students who had virtually no teacher contact during the previous school year scored, on average, at the 68 percentile on the Complete Battery Total scale. Students of parents who are certified teachers did tend to score better than students of non-teachers, but this result lessened as the number of years of home schooling increased, and the evidence suggests that this difference may relate more to parent education level than to teacher certification as such. In general, these data do not provide support to the concept that teacher contact is important to success in home schooling.

Topic 3 – Level of structure and hours of schooling as they relate to academic outcomes.

Parents in this sampling rated their level of structure (specific time spent in the day to accomplish learning vs relaxed delivery throughout the day) as an average 4.6 on a scale of 1 to 7 where 1 = very unstructured and 7 = very structured. The number of hours of “formal schooling” tended to increase with the student age and averaged 15 hours per week. Probably the most important result here is that neither hours per week of formal schooling or parent rated level of structure appear to have much relationship to academic outcomes.

Topic 4 – Is there any relationship between grade level and academic outcomes?

Analysis of variance revealed that very few mean scores earned by one grade level were significantly different ($\alpha = .05$) from the means of the other grades. Only 10 of the possible 89 comparisons between means produced a difference that was statistically significant. Of the 10, nine favored the higher grade (the higher grade students out scored the students in lower grades).

Topic 5 – The relationship between academic outcome and the length of time the student has been home schooled.

For the 875 students sampled, the mean number of consecutive years of home schooling was 2.7. Of 35 linear regression tests performed on the various levels of the composite test scales, only two produced a statistically significant coefficient ($p < .05$ or higher). None were negative. Speculation by neither critics of home schooling (concerned that the longer you home school the worse it will become) nor proponents (who have argued that it gets better) finds confirmation in this sampling. In general, test scores did not seem to change as the number of years of home schooling increased.

Topic 6 – Does family income level have a relationship to test scores?

The 845 parents who provided information reported a mean, before tax, income in the \$30,000 to \$35,000 range. Less than 6 % of these families described themselves as a two-income family. Where family income and scores on all levels of the composite test scales were examined by linear regression, 11 of 35 regression coefficients showed a positive relationship of weak magnitude. Where all test levels were combined, five out of six composite scales produced a positive coefficient of weak magnitude. The 72 students whose family income was reported to be less than \$15,000/year averaged at the 62 percentile on the Total Complete Battery scale. In general, these data were unable to provide any tangible basis for concern regarding academic achievement among home schoolers based upon family income levels.

Topic 7 – Male - Female Comparisons.

Because sex identity of the student was asked only on the 1989 questionnaire, the sample size on this topic is lower than for most others. In general, the two sexes scored

within the same range on the scales tested. The two exceptions were that girls out scored boys in total language (73 percentile and 59 percentile with an N of 127 and 114 respectively) and boys did better than girls in science (86 percentile and 72 percentile, N of 100 and 106). Potential concerns that either sex may be at a disadvantage compared to the other as a result of home schooling are not validated by these data.

Topic 8 – The relationship of previous success in conventional schooling to current test scores as home schoolers.

Among those home schoolers who had previously been in a conventional school, a regression analysis revealed a positive relationship of moderate magnitude between previous parent-reported success in that conventional schooling and their test scores as home schoolers. The general tendency is that these students remain at or near the same level when home schooled. An interesting observation is that the overwhelming majority of these students were doing well in their previous conventional schooling. A possible implication is that one reason why home schoolers, as a group, do so well is that they were strong students to begin with.

Topic 9 – Relationships involving religion.

The vast majority (98.7%) of this sample was affiliated with one subset or another of the Christian faith. Most common were those identifying with a nondenominational Christian group (42.3%) and those belonging to a conservative evangelical denomination (30.7%). On a five question Christian orthodoxy scale, 80.1% of the sample registered the strongest possible response (25 on a scale of 5 to 25).

When mean test scores of students were examined according to their parents' religion, virtually all were in the average to above average range. In this sample, no differences in test scores were detected between those of different religious orientation.

Only a few researchers have been able to correlate home school achievement with variables such as parent education level, contact with a teacher, and others. Rakestraw (1988) found no difference in test scores according to parent education level, parent's teacher certification status, or gender of student in a sampling of 84 Alabama home education students. A more recent national study (Ray, 1997) of 5,402 home education students produced a negligible relationship between test scores and parent education level, and no relationship between scores and teacher certification status of the parents.

The purpose of Richman, Girtten, & Snyder's (1990) study was to replicate many aspects of the research in Washington (Wartes, 1988, 1990a, 1990b) in order to determine whether it is appropriate to generalize its conclusions about factors affecting home schooling achievement in Pennsylvania. Like the Washington studies, this research matched standardized achievement test scores of home-educated students with survey results from their parents. They even borrowed many of the exact questions used in the Washington studies for their survey. Although 75% of the parents whose children were tested returned the questionnaires, there was a significant difference between the math scores of those whose parents did turn in the questionnaires, $t(169) = 2.6, p = .01$. The mean reading and math scores of the students whose parents returned the questionnaires were the 72nd and 60th normal curve equivalents. The mean reading and math scores of the students whose parents did not return the questionnaires were the 74th and 70th normal curve equivalents.

Mayberry (1993) examined the relationship between variables found conducive to creating effective learning environments and the education experiences of children in home schools. He found that many variables associated with effective learning climates are embodied in the home-school setting, which seems to provide children with learning processes emphasizing interdependence, cooperation, and an orderly learning environment characterized, by warmth and concern.

Growth and Academic Success are Redefining Today's Home-School Environment

When Erin Toelcke scored a perfect 1600 on her Scholastic Assessment Test in May, 1996, it was as much a cultural victory as a personal one. The Orlando 17-year-old put yet another plus mark into home-schooling's column. The same month, Rebecca A. Sealfon, a home-schooled 13-year-old from Brooklyn, N.Y., won the National Spelling Bee, and Kimara March, a former home-schooled student from Fort Lauderdale, was chosen Student of the Year by "Florida Leader" magazine.

The image of a onetime small, almost exclusively conservative Christian movement - which has had legal status for only 13 years in Florida - is being redefined not only by academic success stories but by dramatic growth, both in size and breadth. By the state's conservative count, the number of home-schooled children in Florida has grown 83 percent in the past five years from 14,208 to 25,930 (see Table 1). Growth has been even more dramatic in Central Florida, where the numbers have almost doubled from 2,360 to 4,686. By comparison, Central Florida public-school enrollment has grown 19.8 percent in the same period, from 316,078 to 378,773 (Jones, 1997).

Table 1.

Florida's Home-schooled students

<u>Year</u>	<u>'92-93</u>	<u>'93-94</u>	<u>'94-95</u>	<u>'95-96</u>	<u>'96-97</u>
Brevard	584	774	879	976	1,181
Lake	217	276	368	483	608
Orange	725	1,004	1,208	1,278	1,489
Osceola	154	119	117	93	108
Seminole	395	428	614	668	713
Volusia	285	303	417	530	587
Central Fla.	2360	2,904	3,603	4,026	4,686
State	14,208	16,623	19,392	22,285	25,930

Source: Florida Department of Education (Orlando Sentinel, Jones, 1997)

These state numbers for home-schooled children do not include thousands more enrolled in Florida private schools that exist solely to support home-schoolers. Erin, for instance, is not counted by state officials as being home-schooled. That is because she is enrolled in a Christian School in Orlando (Jones, 1997).

Nationwide, the National Home Education Research Institute estimates that there are 1.2 million home-schooled students, a number growing by 15 percent to 40 percent a year. Moreover, the profile of who schools at home has changed. These days, conservative Christians – unhappy with the values being taught in public schools – remain the lion’s share of parents who home-school. But increasingly, parents who do not share the same religious tenets or political values as the founders of the movement are opting to home-school their kids because they are unhappy with the quality of public

schools and can not afford, can not get in or do not want to send their children to the existing private schools (Jones, 1997).

Today, about 84 percent of the parents who home-school their children say they are born-again Christians, according to the National Home Education Research Institute. In 1990, using a different methodology, 92 percent of parents listed themselves as born-again Christians, said Bill Loyd, the institute's Washington representative (Jones, 1997).

"It's going to become a more mainstream, more common kind of a situation to see people teaching their children at home," Loyd said. "I do not have any problems in the next five years seeing 5 million children being home-schooled." (Orlando Sentinel, Jones, 1997, p. G-4)

Rebecca Sealton, who won the 1997 National Spelling Bee, is among the ranks of children being home-schooled, but not for religious reasons. Her father, a neurologist, and her mother, who holds a master's degree in social work, said they brought her home at age 8 because she was very bright and her learning style didn't conform well to the way her classes were taught. Rebecca, whose younger brother and sister also are taught at home, was reading Dante at age 11 and Plato at age 12. Nevertheless, she has decided to attend a public high school in New York next year to broaden her experience (Jones, 1997).

Nationally, research shows that parents who home-school their children are not only more religious than the general population, but more affluent, better educated and more technology-adept (Table 2 presents these findings).

Table 2.

Comparison of Home Schooled Students with the General Population

Average education	53% of home-school parents have earned bachelor's degrees or higher.	24% of general population have earned bachelor's degrees or higher
Household income	\$43,000 household median for home-school families	\$35, 492 household median for U.S. married couples
Children	3.3 per home-school family	1.8 for married couples
Technology	86% have computers	34% have computers

Source: National Home Education Research Institute

In Ray's 1997 Study of 1,657 home schooled families, he found that home-schooled children scored, on the average, at high percentiles on standardized academic achievement tests: (a) total reading, 87th, (b) total language, 80th, (c) total math, 82nd, (d) total listening, 85th, (e) science, 84th, (f) social studies, 85th, (g) study skills, 81st, (h) basic battery (typically, reading, language, and mathematics), 85th, and (I) complete battery (all subject areas in which student was tested), 87th. (The national average is the 50th percentile). See Table 3.

Table 3.

Achievement Levels of Home Schooled Students

Variable	<u>Natl. %ile</u>	<u>Mean z</u>	<u>SD z</u>	<u>N</u>
Reading, Total	87	1.15	.84	1594
Listening, Total	85	1.05	.85	580
Language, Total	80	.85	.90	1486
Math, Total	82	.90	.87	1613
Science	84	1.00	.82	1133
Social Studies	85	1.03	.82	1099
Study Studies	81	.87	.81	916

Basic Battery	85	1.05	.81	1338
Complete Battery	87	1.11	.80	1092

Source: Ray 1997, Second Nationwide Study of Home Education

The Future of Christian Education

The rapid rise of conventional Christian schools, which took place in the seventies, is slowing down, perhaps having reached its goal. Parents have begun to question the schools, eventually either strengthening them or causing them to go out of business. Due in part to this probing, home schools are quickly increasing and may become to the eighties what the conventional schools were to the seventies. The home-school movement resulted from a rejection of the poor job some Christian schools were doing and their lack of imagination in curriculum and teaching methods. It is too early to predict how long this growth will continue, but it will eventually plateau as the conventional school movement has done (Deuink, 1988).

Many Christian schools today, whether home or conventional, have one hundred or fewer students. Although size does not determine the quality of a school's program, it may intensify certain problems that Christian schools in general are facing. One of the biggest problems is the need for qualified teachers. Historically, the Christian school runs thirty to forty years behind the public school. At the end of World War II, public schools had a teacher shortage and a lack of adequate classroom facilities. The rapid growth of the conventional Christian school in the seventies caused a shortage of teachers – especially of qualified teachers – for the Christian school. Some schools hired qualified

people anyway; others used the shortage as an excuse for hiring unqualified people (Deuink, 1988).

Keeping personnel may be another problem for Christian schools. In the early seventies, Christian school teachers were called upon to sacrifice for the vision of what Christian education could do with dedicated Christian teachers to accomplish its goals. Consequently, the salaries of Christian teachers have always run behind those of public school teachers. In the early days, there was not much disparity between the two groups, but today the disparity is great. In many cases, the public schools, even in the lowest paid states of the nation, can offer two times the amount that the average Christian school teacher is paid (Deuink 1988).

Unless the Christian schools can increase the salaries offered so that their personnel can meet personal and family needs, they will not be able to keep the qualified teachers they have today. Conventional Christian school teachers are relatively young and are mostly women because a married man, and particularly a family man, cannot exist on the salaries currently paid – unless his wife also works full time. If qualified teachers are not kept in the Christian Schools, we may see a decline in the quality of education and maybe a decline in the achievement scores on standard academic achievement test.

Summary

The population of home-educated students in the United States is large enough to warrant serious attention from researchers, educators, public school officials, private school officials, politicians, and other public servants. Although home education has a long-standing worldwide history, it has just recently experienced a strong resurgence in

the United States. The origins of some of today's home schooling efforts are the alternative education movement of the 1960s and the 1970s. Nonetheless, it appears that the primary motivating factor for parents of home schoolers today is related to their desire to teach Christian values to their children. This primary impetus, however, is mixed with other motivations such as strong academics.

The characteristics of home-school families and those who participate in private Christian schools are not drastically different. Some differences do appear in family composition, educational background of parents, and their religiosity. Other generalizations about home schoolers are specific to them as a subpopulation of the United States.

The research body on home education is young and limited, but growing at a rapid rate. Three considerations should be given to future study of home education. One is the fact that research in general should continue from a broad range of academic perspectives. Second, advocates of conventional schools and private schools should carefully examine and plan constructive responses to home schooling. Third, if home education is considered a valid alternative in education, various responsible groups should contemplate how to ensure that the educational and familial needs of home schoolers are adequately met.

CHAPTER III

METHODOLOGY

The design of this research is descriptive. The research seeks to determine if there are differences in achievement between the educational environments of the student (home school or private school). The study attempts to determine if home schooled students are scoring higher on the Stanford Achievement Test than private school students.

Procedure

In order to help home schooling families and private schools analyze their students' academic achievement and to assess the usefulness or success of their curricula, Stanford Achievement Tests (SAT) were administered to private Christian and home school students, in group settings, usually in the Sunday School rooms of a Church at locations sponsored by home schooling supports group and private Christian schools. All test administration was closely supervised by two Florida certified teachers. Confidentiality of answers and student achievement test scores were protected.

Population and Sample

The research target population consisted of 2000 students in Orange County and Seminole County, Florida, who were either home schooled or in private Christian (Catholic and Jewish schools excluded) schools during the 1997-1998 school year. Grade levels 1 through 6 were used and both male and female students were in the sample.

Many of these families lived in remote areas of the counties and were not easily accessible. However, there were 642 children, 350 Home Educated students and 292

Private Christian educated students, who were readily accessible through contacts with church schools and home-school parents or support groups. There were 76 first graders, 129 second graders, 112 third graders, 100 fourth graders, 112 fifth graders, and 113 sixth graders. All of the children were between the ages of 6 and 12.

A phone call was made to the home school parents and meetings were held with the private school parents describing the purpose of the research project and asking for their participation voluntarily. After approval was received, a cover letter explaining the procedure, describing the research project, and explaining that the research was confidential was distributed.

Instrumentation

The Stanford Achievement Test, Ninth Edition, was used to compare raw scores, scaled scores, percentiles, and grade equivalents. There is a large literature base on the Stanford Achievement Test, Ninth Edition that was used in this study that is accessible to those interested in exploring the validity and reliability of those instruments (e.g., Mitchell, 1983, 1985). Of all the forms of standardized tests, academic achievement tests are the most commonly used in elementary and secondary schools. These tests are designed to measure cognitive development in specific academic disciplines (Deuink, 1986). In general, these tests have very high validity and reliability coefficients of about .90 (Borg & Gall, 1989; Hopkins & Stanley, 1990).

Analysis of Data

The data was analyzed by comparing the test scores of the students from the home schooled environment and the private school environments. Students' scores on tests were handled in the following manner. The questionnaire asked for students' national

percentile ranks on various test components and batteries. Parents usually reported percentiles as requested and typically attached photocopies (as requested) of their students' scores as provided by a testing service. When copies were provided, the reported percentiles were checked and verified when appropriate. Very few errors were detected. In addition, linear systematic sampling was used to select 5% of the families for a verification of the accuracy of data entry; data entry was sufficiently accurate.

Research Hypotheses

Hypothesis 1. Home Schoolers will show significantly higher academic achievement scores for total reading than students in private Christian schools.

Hypothesis 2. Home Schoolers will show significantly higher academic achievement scores for total language than students in private Christian schools.

Hypothesis 3. Home Schoolers will show significantly higher academic achievement scores for total mathematics than students in private Christian schools.

CHAPTER IV

RESULTS

Chapter 4 will present, in the form of descriptive statistics, the data that were collected. This chapter will also summarize the findings and make comparisons between Private Christian schools and Home School children.

Pretest Stanford Achievement Test Comparisons

Table 8 provides the data collected from the Stanford Achievement Test, administered in 1996 - 1997, by grade level, for Private Christian schools and home schools. The data includes the number of students tested, their scaled scores, national percentile ranking, and the students' grade equivalents. The data was summarized for total reading and has been included in this table for grades 1 - 6.

Figures 8 - 10 display Private Christian vs. Home School total reading scaled scores, national percentile rankings, and grade equivalents for grades 1 - 6, in a graphical format. This format gives a visual representation of how the two groups performed academically. In terms of grade equivalents, the groups were very similar across grades 1 – 5. The home school students in grade 6 were two years ahead of the private school students.

The scaled scores in figure 8 seem to be closely aligned with one another, with a slight advantage to the home schoolers. Figure 9 shows a close relationship, except for grades 5 and 6, where the home schoolers showed a 14% increase in grade 5 over private schools, and a 24% increase in grade 6 over private schools. Figure 10 also shows a close alignment, with a two-year difference in the sixth grade for home schoolers. There was a slight advantage for the private schools in the 4th grade with a difference of 6 months.

Table 8. Comparison of Private and Home School Pretest SAT Scores for Total Reading.

Pretest SAT Scores - Total Reading

School Type	Grade Level	Number Students	Scaled Score	N / PR %	Grade Equiv
Private	1	37	557.1	72	2.3
Home	1	38	571.0	76	2.5
Private	2	55	597.4	67	3.6
Home	2	67	609.0	71	3.7
Private	3	63	619.5	63	4.6
Home	3	50	631.0	63	4.6
Private	4	48	645.0	62	6.4
Home	4	50	650.0	61	5.8
Private	5	44	652.5	52	6.9
Home	5	63	670.0	66	6.9
Private	6	37	661.5	53	6.9
Home	6	73	691.0	77	9.1

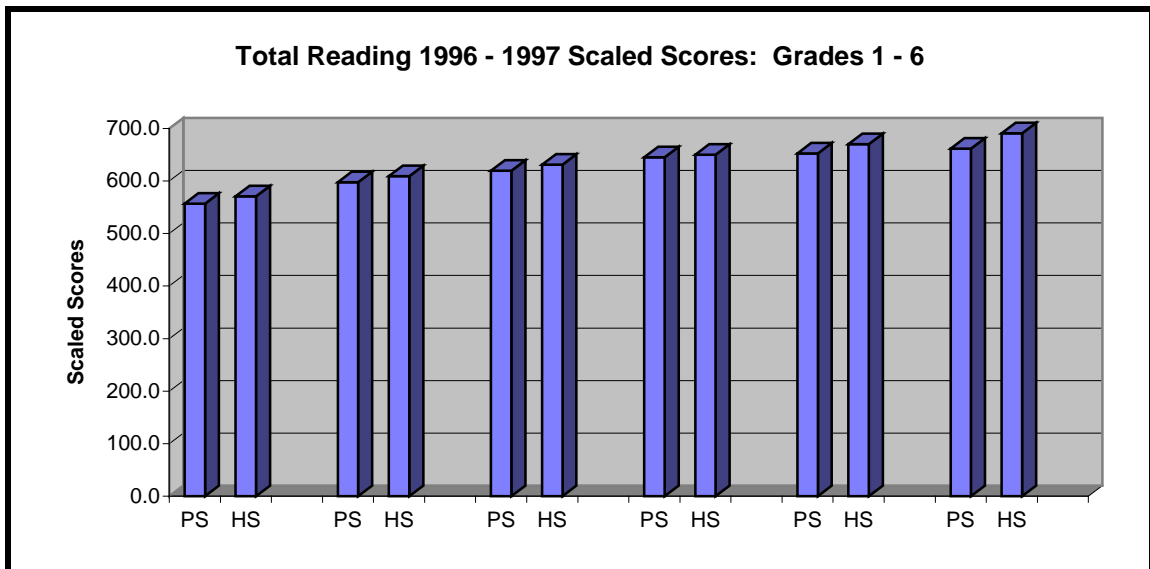


Figure 8. Pretest SAT Scaled Scores in Total Reading. PS = Private School; HS = Home School.

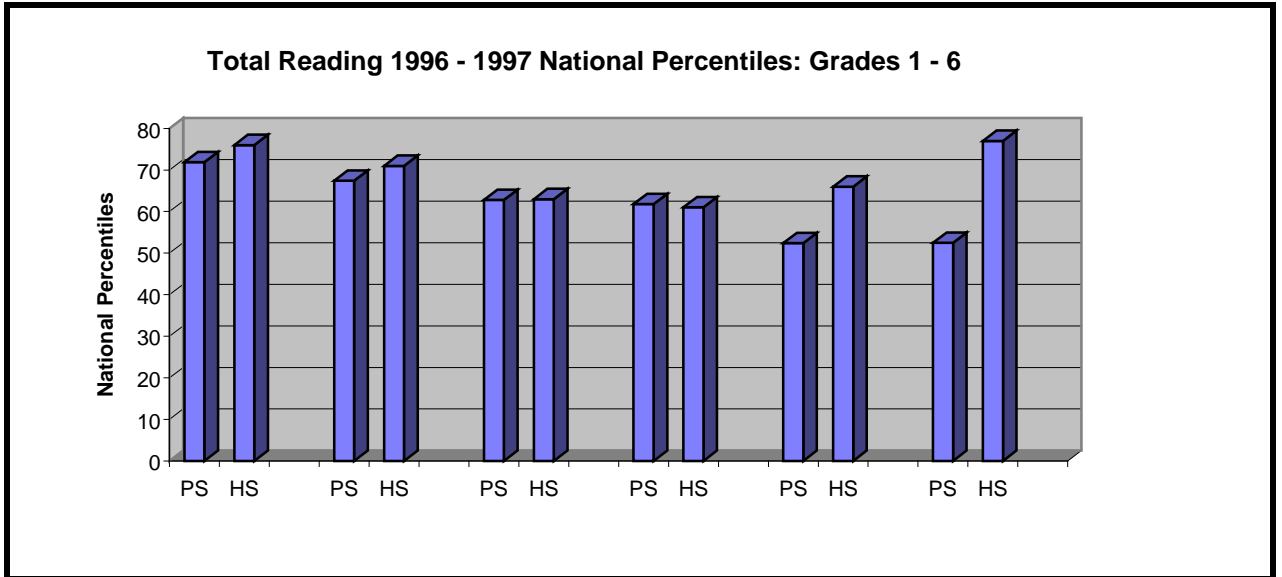


Figure 9. Pretest SAT National Percentiles in Total Reading. PS = Private School; HS = Home School.

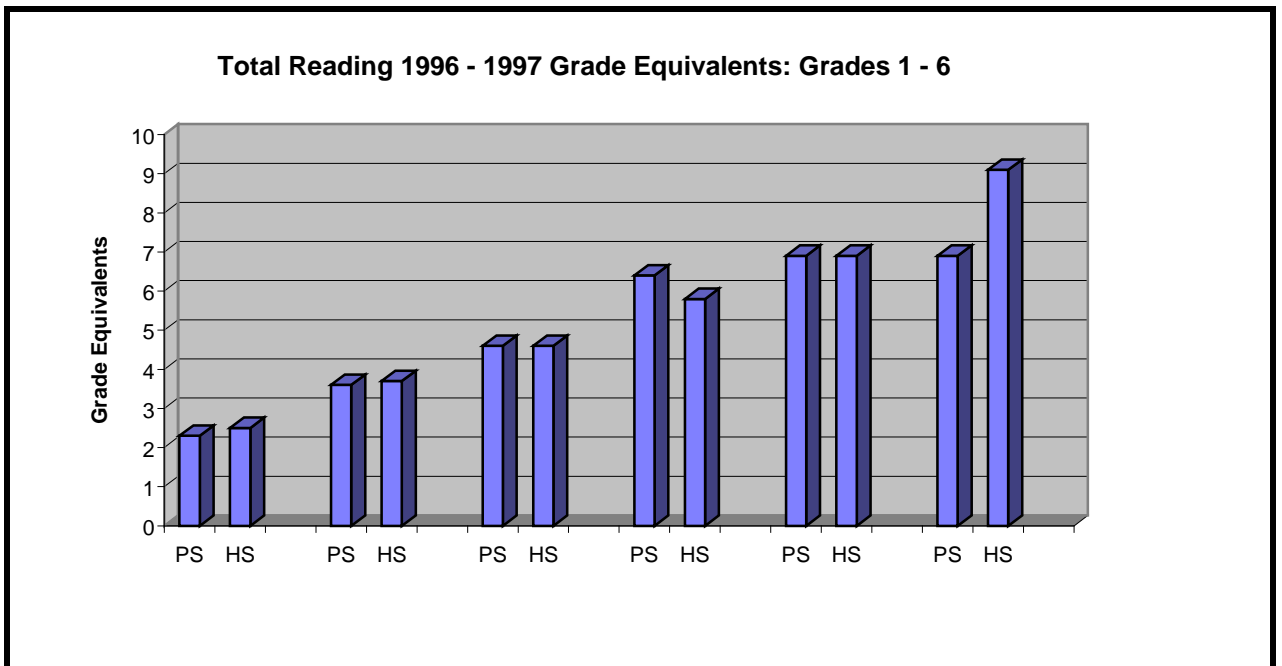


Figure 10. Pretest SAT Grade Equivalents in Total Reading. PS = Private School; HS = Home School.

Table 9 provides the data collected from the Stanford Achievement test, administered in 1996 - 1997, by grade level, for Private Christian schools and home schools. The data includes

the number of students tested, their scaled scores, national percentile ranking, and the students' grade equivalents. The data was summarized for total Language and has been included in this table for grades 1 - 6.

Figures 11 - 13 display total language scaled scores, national percentile rankings, and grade equivalents for grades 1 - 6, in a graphical format. This format gives a visual representation of how the two groups performed academically. The two groups were similar in terms of grade equivalents, although in grades 4 and 5 the home school students scored lower than the private school students.

The scaled scores in figure 11 seem to be closely aligned with one another, with a slight advantage to the private schoolers in grades 3 - 6. Figure 12 shows a close relationship, except for grades 4 and 5, where the private schools showed an 11% increase in grade 4 over home schools, and a 15% increase in grade 5 over home schools. Figure 13 also shows a close alignment, with a 1.7 year difference in the 4th grade and a 2.1 year difference in the 5th grade. There was a slight advantage for the home schools in the 6th grade with a difference of 1.6 years.

Table 9. Comparison of Private and Home School Pretest SAT Scores for Total Language.

Pretest SAT Scores – Total Language

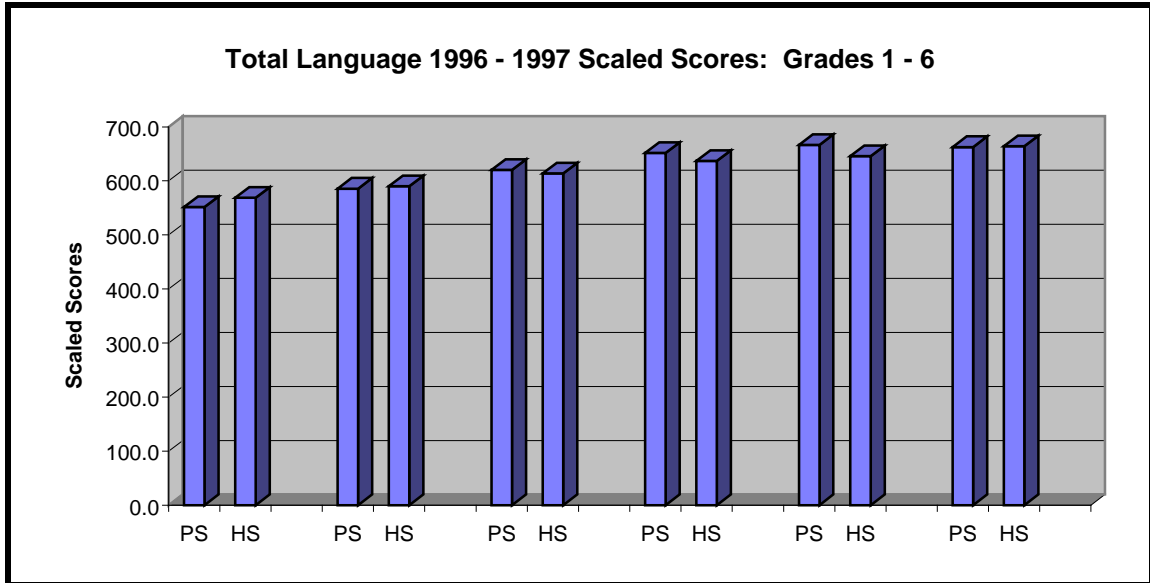


Figure 11. Pretest SAT Scaled Scores in Total Language. PS = Private School; HS = Home School.

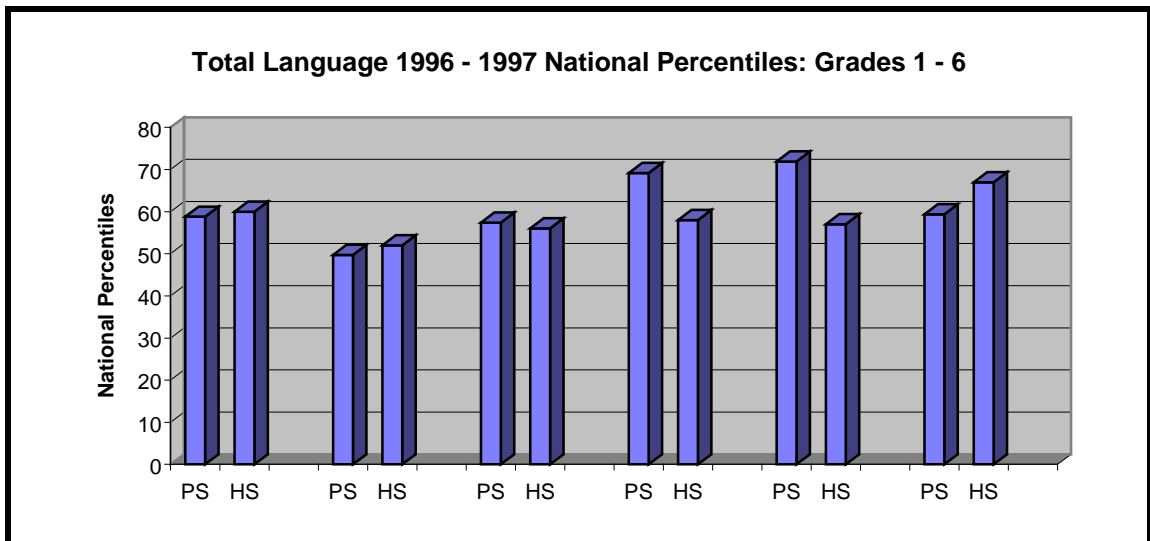


Figure 12. Pretest SAT National Percentiles in Total Language. PS = Private School; HS = Home School.

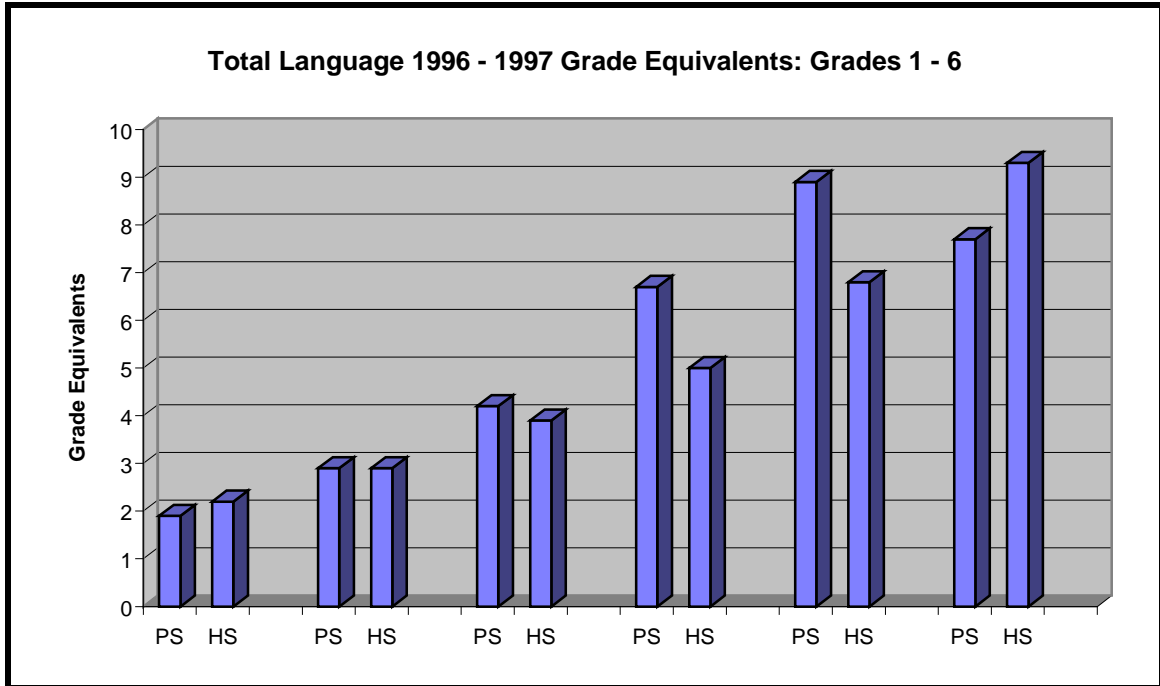


Figure 13. Pretest SAT Grade Equivalents in Total Language. PS = Private School; HS = Home School.

Table 10 provides the data collected from the Stanford Achievement test, administered in 1996 - 1997, by grade level, for Private Christian schools and Home Schools. The data includes the number of students tested, their scaled scores, national percentile ranking, and the students' grade equivalents. The data was summarized for total mathematics and has been included in this table for grades 1 - 6.

Figures 14 - 16 display total mathematics scaled scores, national percentile rankings, and grade equivalents for grades 1 - 6, in a graphical format. This format gives a visual representation of how the two groups performed academically. In terms of grade equivalents the two groups were very similar across grades 1 - 6.

The scaled scores in figure 14 seem to be closely aligned with one another, with no advantage to either educational environment. Figure 15 shows a close relationship, except for grades 1, 2, and 4, where the private schools showed a 17% increase in grade 1 over home

schools, a 9% increase in grade 2, and a 13% increase in grade 4 over home schools. Figure 16 also shows a close alignment, with a 1 year difference in the 4th grade, and a 0.7 year difference in the 5th for private schoolers. There was a slight advantage for the home schools in the 6th grade with a difference of 0.9 years.

Table 10. Comparison of Private and Home School Pretest SAT Scores for Total Mathematics.

Pretest SAT Scores – Total Mathematics

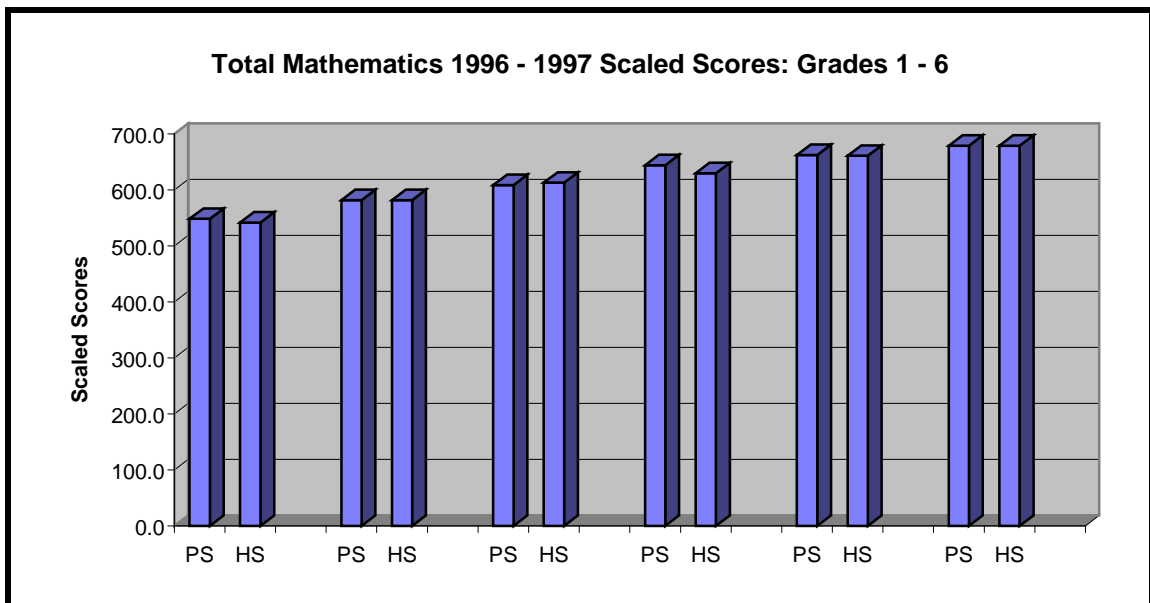


Figure 14. Pretest SAT Scaled Scores in Total Mathematics. PS = Private School; HS = Home School.

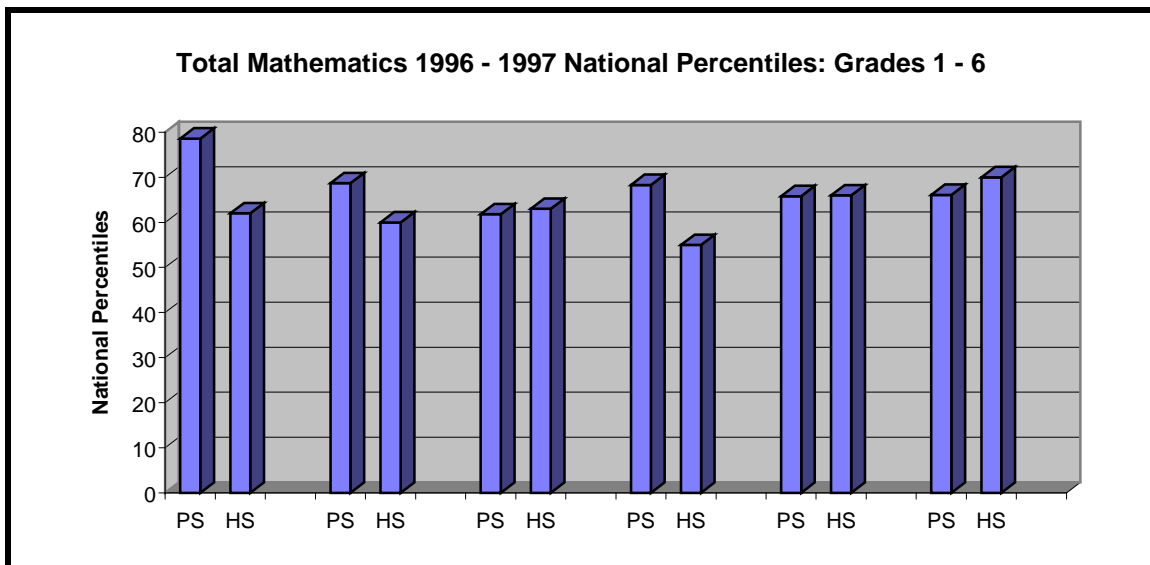


Figure 15. Pretest SAT National Percentiles in Total Mathematics. PS = Private School; HS = Home School.

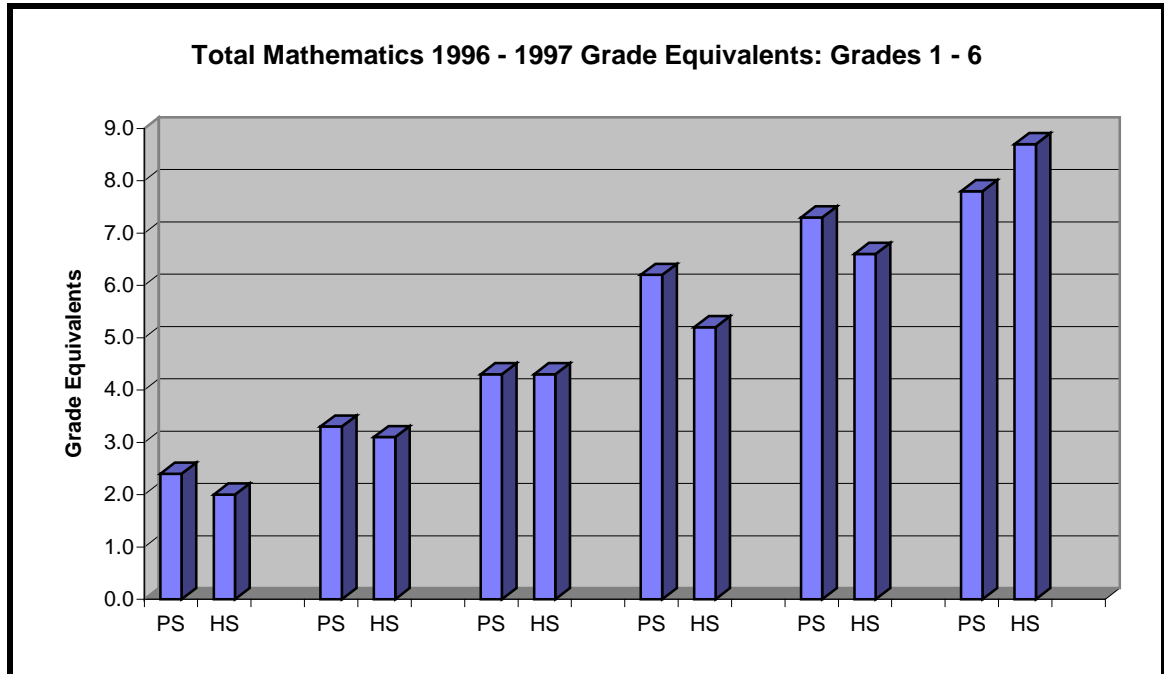


Figure 16. Pretest SAT Grade Equivalents in Total Mathematics. PS = Private School; HS = Home School.

Posttest Stanford Achievement Test Comparisons

Table 11 provides the data collected from the Stanford Achievement test, administered in 1997 - 1998, by grade level, for Private Christian schools and Home Schools. The data includes the number of students tested, their scaled scores, national percentile ranking, and the students' grade equivalents. The data was summarized for total reading and has been included in this table for grades 2 - 7.

Figures 17 - 19 display total reading scaled scores, national percentile rankings, and grade equivalents for grades 2 - 7, in a graphical format. This format gives a visual representation of how the two groups performed academically. In terms of grade equivalents the

two groups were similar, but the home school students tended to score somewhat higher than the private school students across the grade levels.

The scaled scores in figure 17 seem to be closely aligned with one another, with slight advantage for home schoolers in the 1st and 2nd grade. Figure 18 shows a close relationship, except for grades 2, 3, and 7, where the home schools showed a 15% increase in grade 2 over private schools, a 12% increase in grade 3, and a 9% increase in grade 7 over private schools. Figure 19 also shows a close alignment, with a 0.6 year difference in the 2nd grade, a 1.1 year difference in the 6th grade, and a 3.5 year difference in the 7th grade.

Table 11. Comparison of Private and Home School Posttest SAT Scores for Total Reading.

**Posttest SAT Scores
– Total Reading**

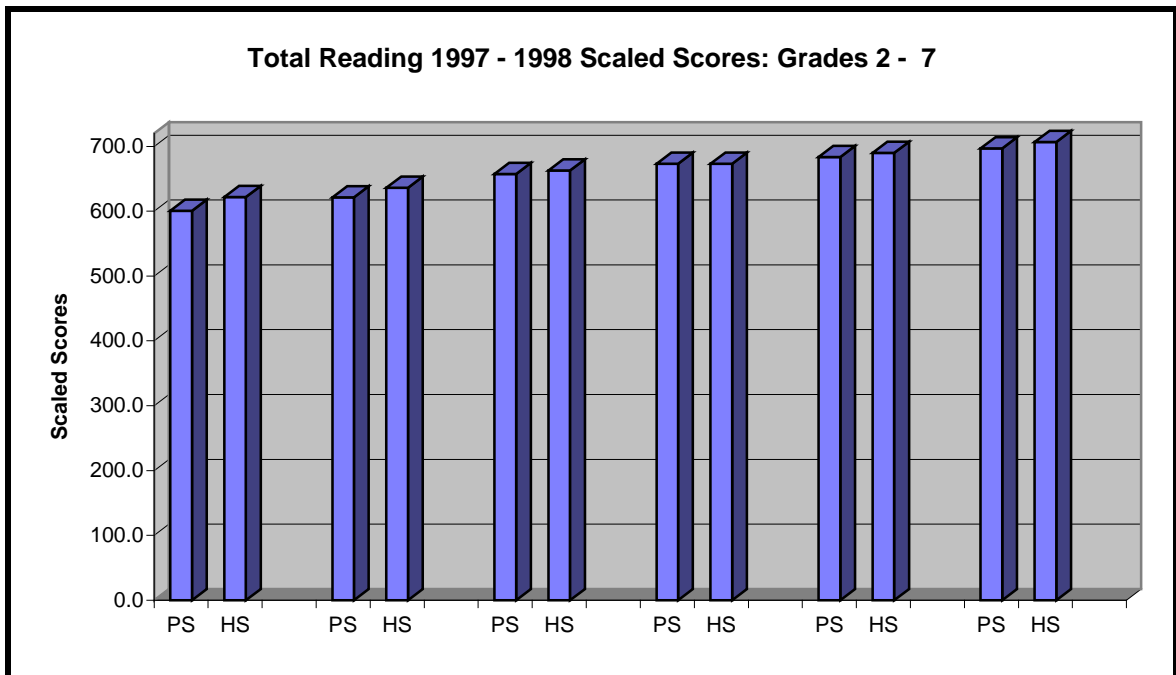


Figure 17. Posttest SAT Scaled Scores in Total Reading. PS = Private School; HS = Home School.

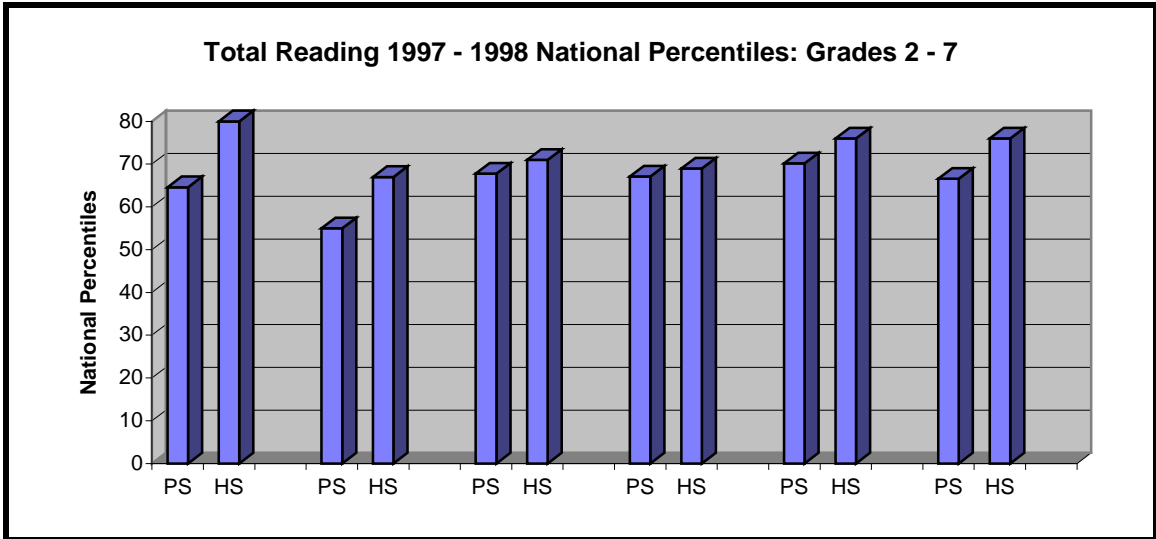


Figure 18. Posttest SAT National Percentiles in Total Reading. PS = Private School; HS = Home School.

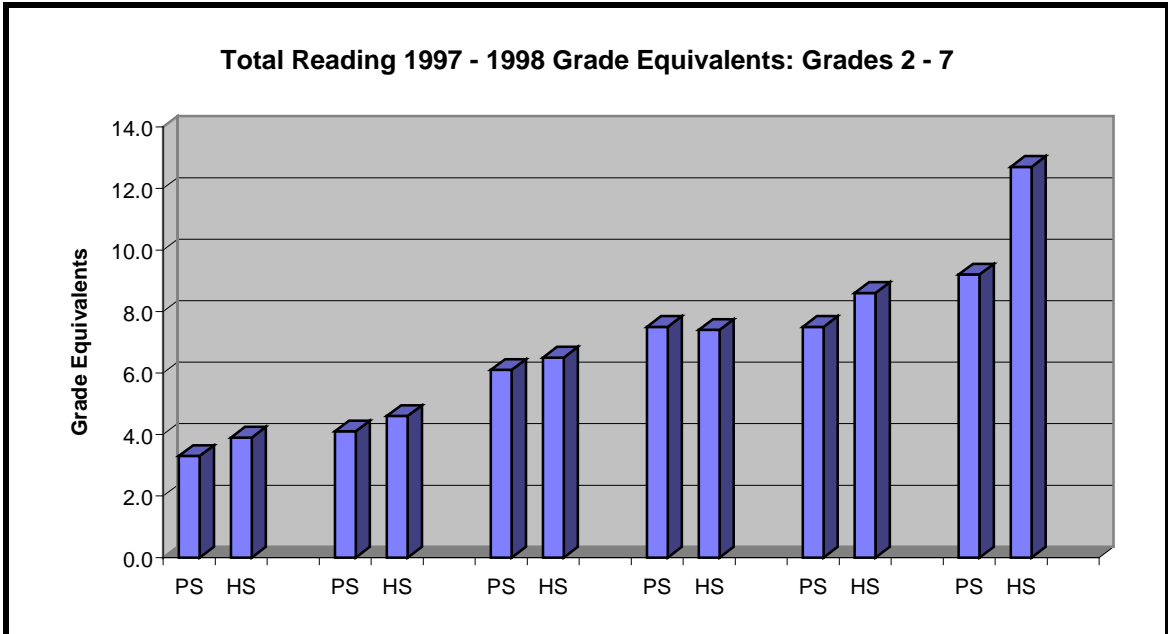


Figure 19. Posttest SAT Grade Equivalents in Total Reading. PS = Private School; HS = Home School.

Table 12 provides the data collected from the Stanford Achievement Test, administered in 1997 - 1998, by grade level, for Private Christian schools and Home Schools. The data includes the number of students tested, their scaled scores, national percentile ranking, and the students' grade equivalents. The data was summarized for total language and has been included in this table for grades 2 - 7.

Figures 20 – 22 display total language scaled scores, national percentile rankings, and grade equivalents for grades 2 - 7, in a graphical format. This format gives a visual representation of how the two groups performed academically. In terms of scaled scores the two groups were similar across grades 2 – 7.

The scaled scores in figure 20 seem to be closely aligned with one another, with slight advantage for home schoolers in the 3rd grade and an advantage for the private schools in the 5th grade. Figure 21 shows a close relationship with the national percentiles with an increase for home schoolers in the 2nd and 3rd grade, and in the 5th and 7th grades the increase was with the private schools. Figure 22 also shows a close alignment, with a 1.3 year difference in the 4th grade for private schools, and a 1.2 year difference in the 5th grade for private schools.

Table 12. Comparison of Private and Home School Posttest SAT Scores for Total Language.

Posttest SAT Scores – Total Language

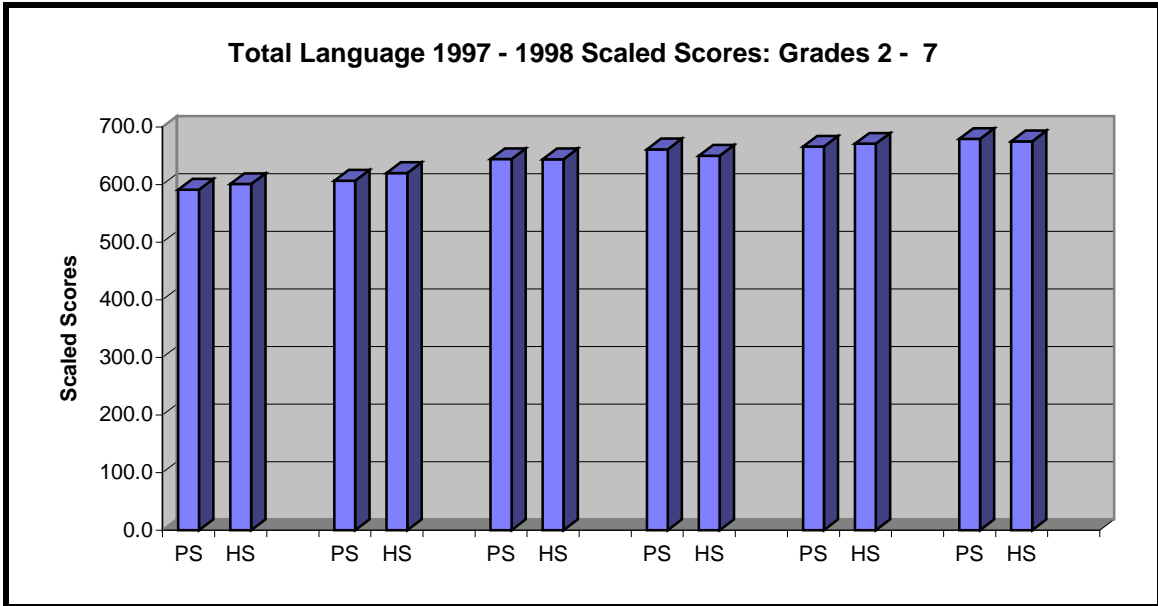


Figure 20. Posttest SAT Scaled Scores in Total Language. PS = Private School; HS = Home School.

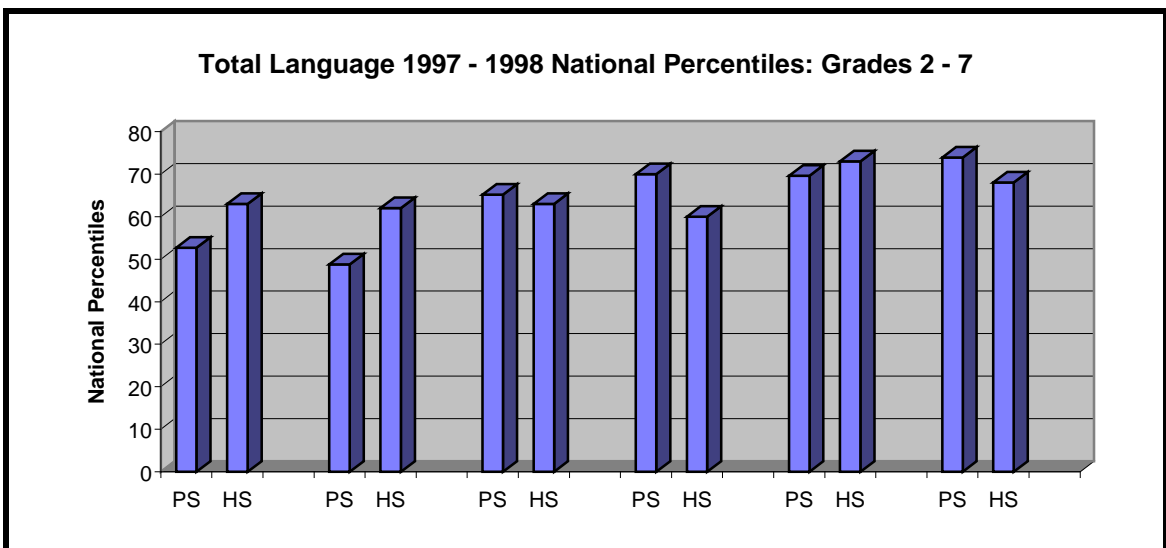


Figure 21. Posttest SAT National Percentiles in Total Language. PS = Private School; HS = Home School.

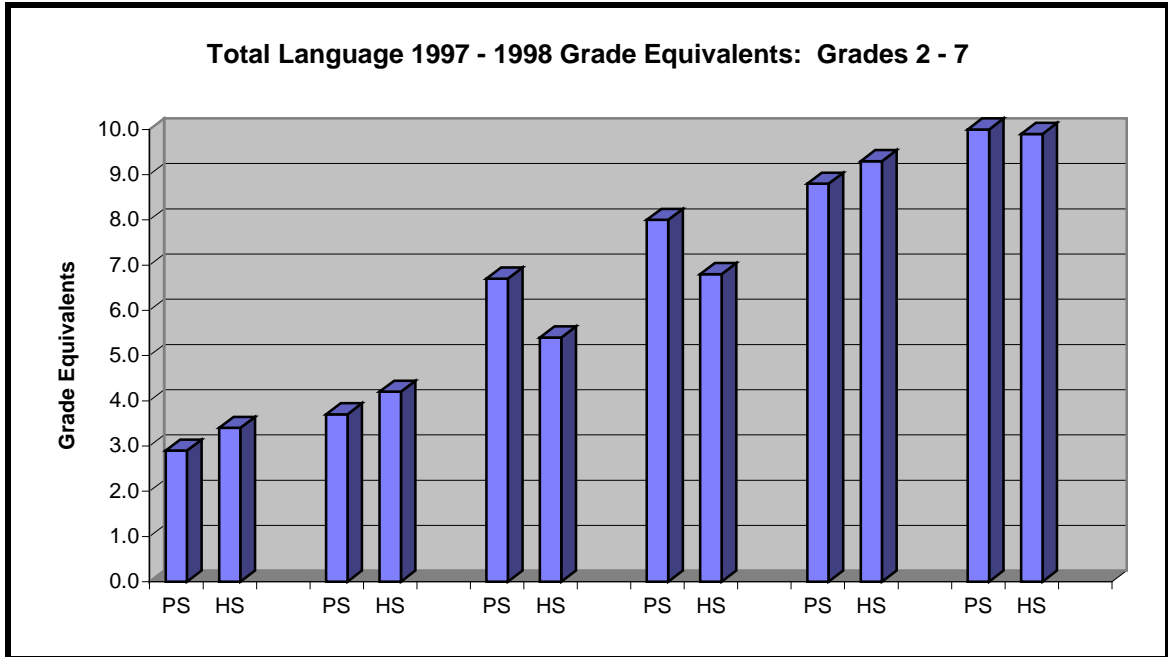


Figure 22. Posttest SAT Scaled Scores in Total Language. PS = Private School; HS = Home School.

Table 13 provides the data collected from the Stanford Achievement Test, administered in 1997 - 1998, by grade level, for Private Christian schools and Home Schools. The data includes the number of students tested, their scaled scores, national percentile ranking, and the students' grade equivalents. The data was summarized for total mathematics and has been included in this table for grades 2 - 7.

Figures 23 – 25 display total mathematics scaled scores, national percentile rankings, and grade equivalents for grades 2 - 7, in a graphical format. This format gives a visual representation of how the two groups performed academically. In terms of scaled scores the two groups were similar, but the home school students tended to score somewhat higher than the private school students across the grade levels.

The scaled scores in figure 23 seem to be closely aligned with one another, with slight advantage for private schools in the 5th. Figure 24 shows a great deal of fluctuations with the

national percentiles at an increase for home schoolers in the 2nd, 4th, the 6th and 7th grades.

Private schools had an increase in the 5th grade. Figure 25 shows differences in grade equivalents with a slight advantage for private schoolers in the 5th and 6th grades, and a slight advantage for home schoolers in the 7th grade.

Table 13. Comparison of Private and Home School Posttest Sat Score for Total Mathematics.

Posttest SAT Scores – Total Mathematics

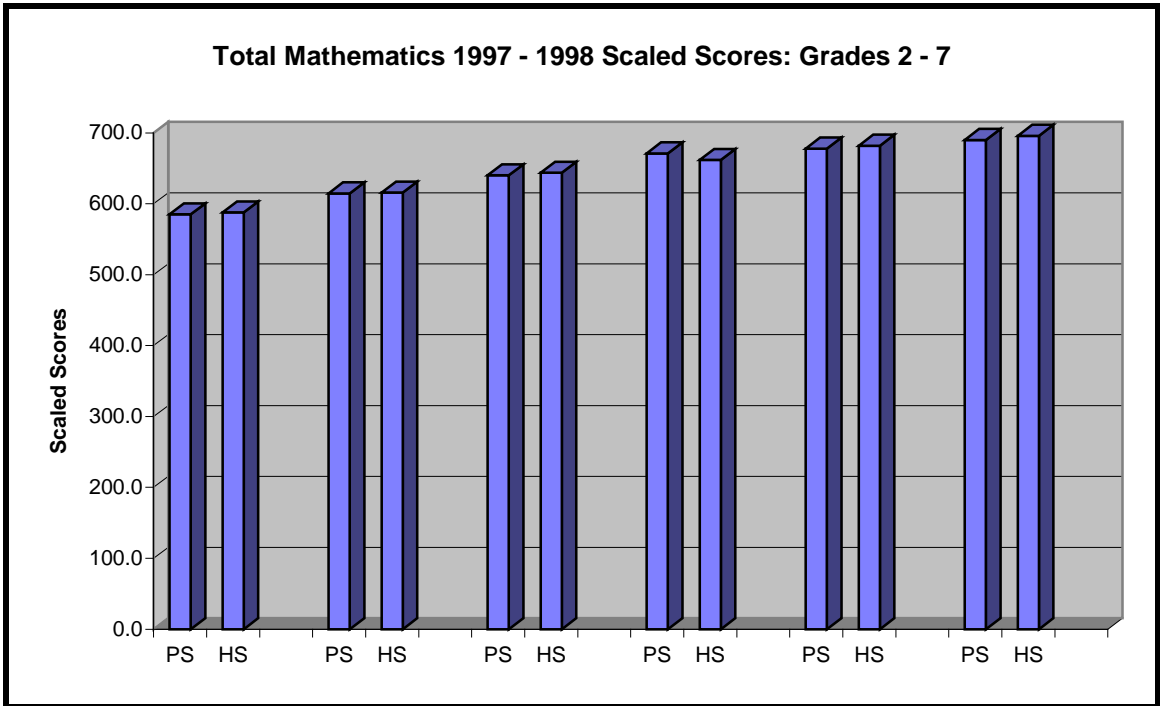


Figure 23. Posttest SAT Scaled Scores in Total Mathematics. PS = Private School; HS = Home School.

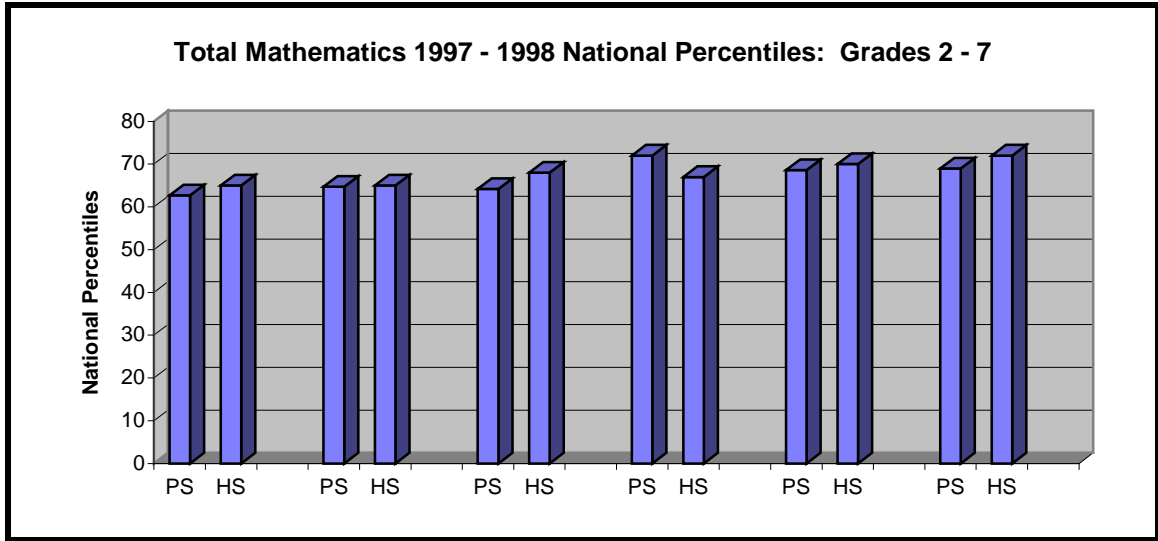


Figure 24. Posttest SAT National Percentiles in Total Mathematics. PS = Private School; HS = Home School.

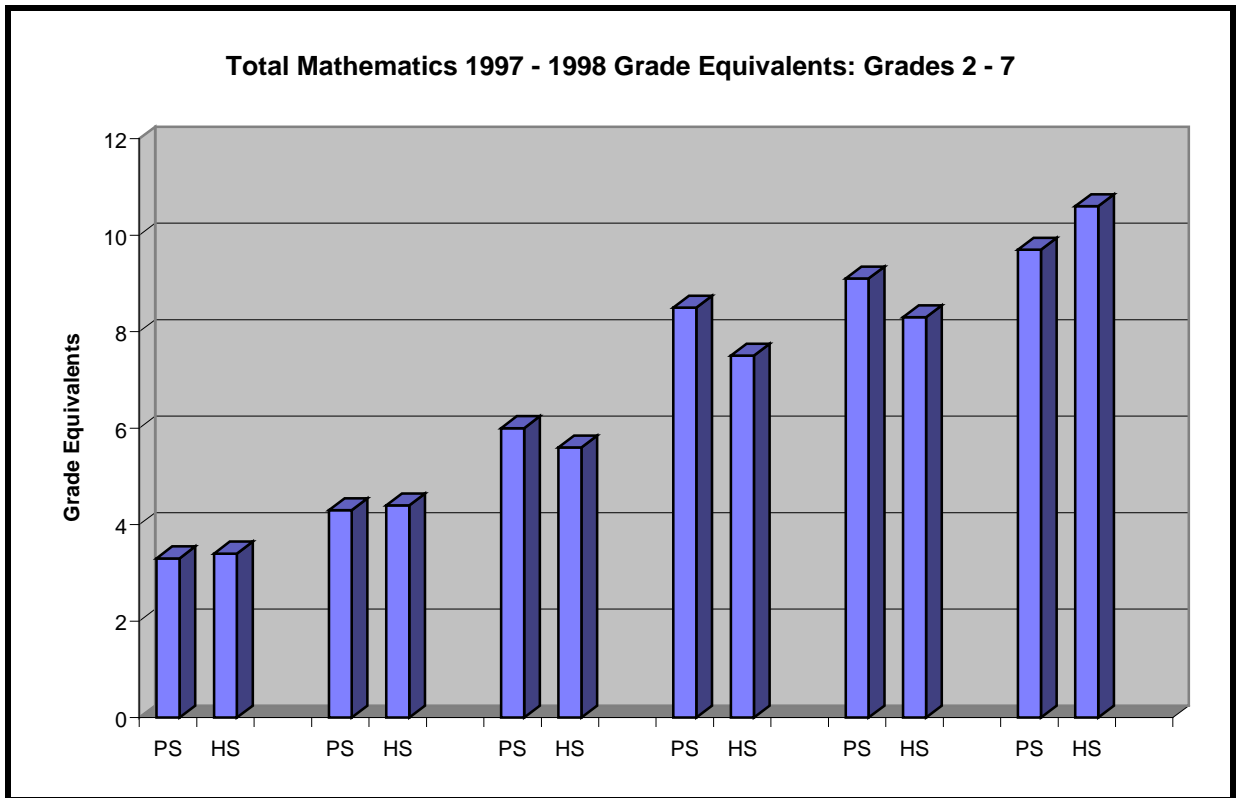


Figure 25. Posttest SAT Grade Equivalents in Total Mathematics. PS = Private School; HS = Home School.

Figures 26 – 27 display total reading scaled scores, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed academically from one year to the next.

Figures 26 and 27 show how students performed during one school year compared to the next year. The scaled scores in figure 26 seem to be closely aligned with one another, with a very slight advantage to the home schoolers. The scaled scores in figure 27 seem to be closely aligned with one another, with twenty point higher score for home schoolers in the 1st and 2nd grade.

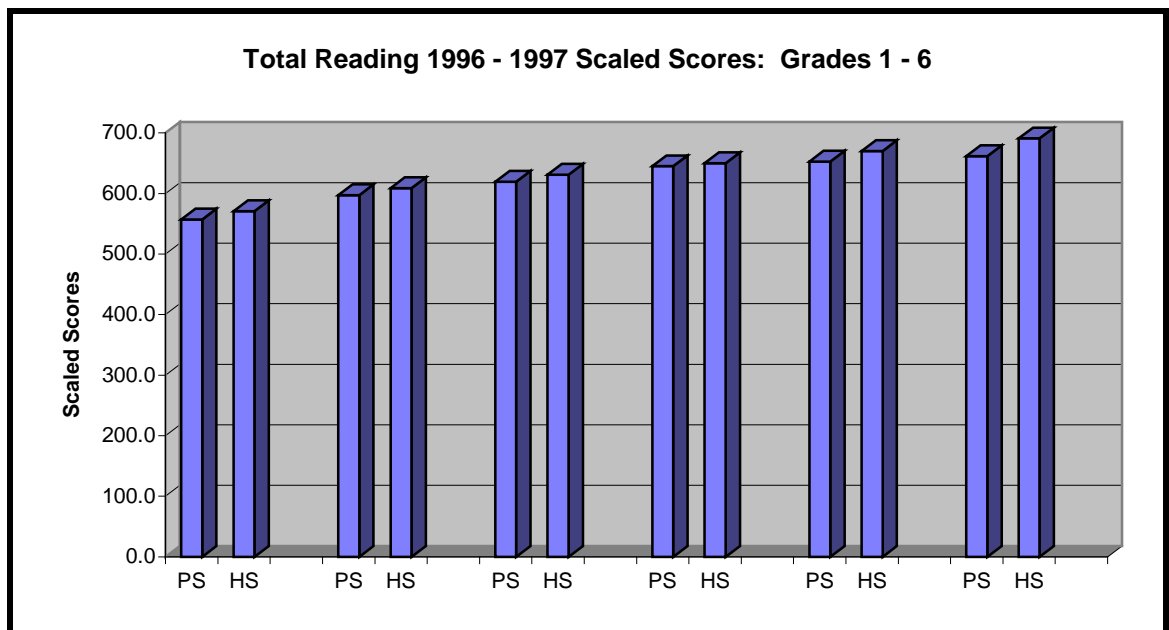


Figure 26. Pretest SAT Scaled Scores in Total Reading. PS = Private School; HS = Home School.

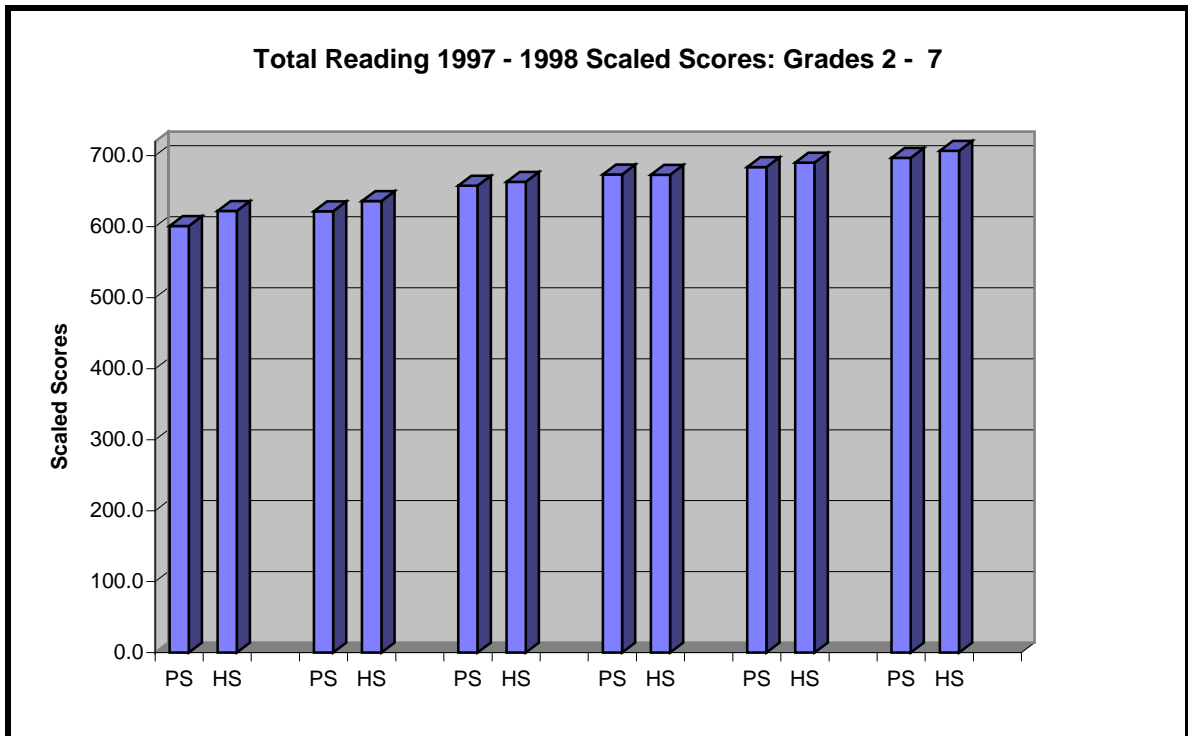


Figure 27. Posttest SAT Scaled Scores in Total Reading. PS = Private School; HS = Home School.

Figures 28 – 29 display total reading national percentiles, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed compared to all the students taking the Stanford Achievement Test, from one year to the next.

Figures 28 and 29 show the students' national ranking, of all the students taking the Stanford Achievement Test during one school year compared to the next year. The national percentile rankings in figure 28 show a close relationship, except for grades 5 and 6, where the home schoolers showed a 14% increase in grade 5 over private schools, and a 24% increase in grade 6 over private schools. The national percentile rankings in figure 29 show a close relationship, except for grades 2, 3, and 7, where the home schools showed a 15% increase in

grade 2 over private schools, a 12% increase in grade 3, and a 9% increase in grade 7 over private schools. Overall the rankings are higher than the national average of fifty percent.

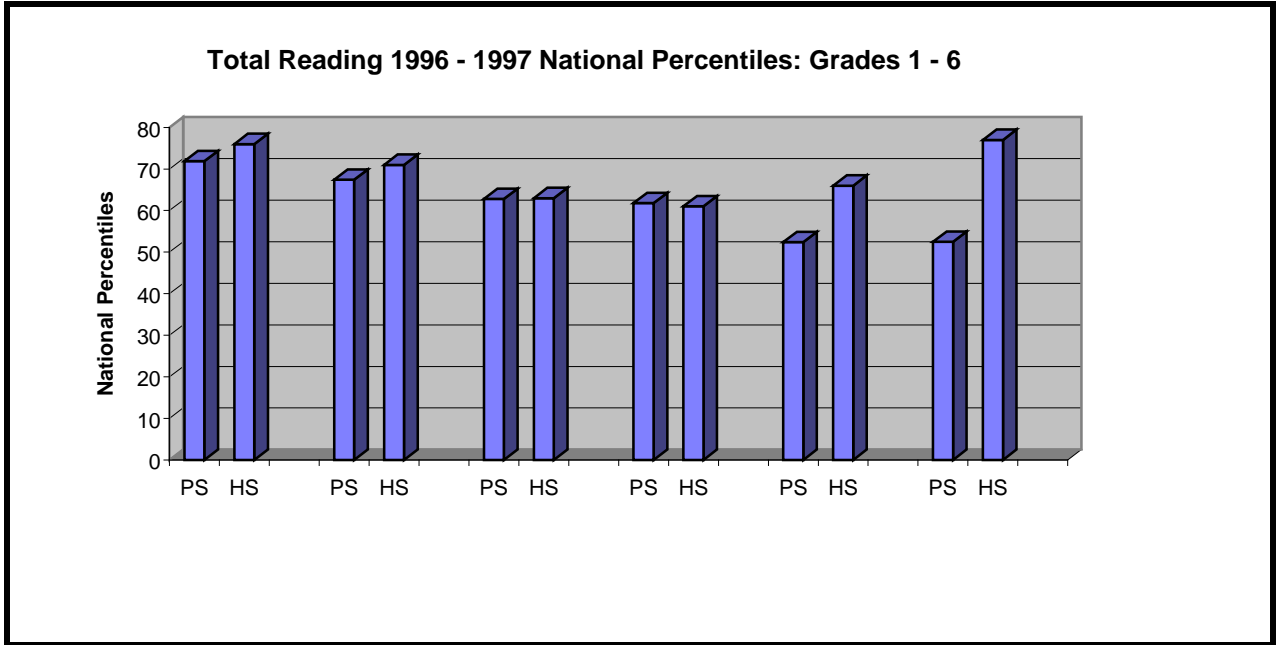


Figure 28. Pretest SAT National Percentiles in Total Reading. PS = Private School; HS = Home School.

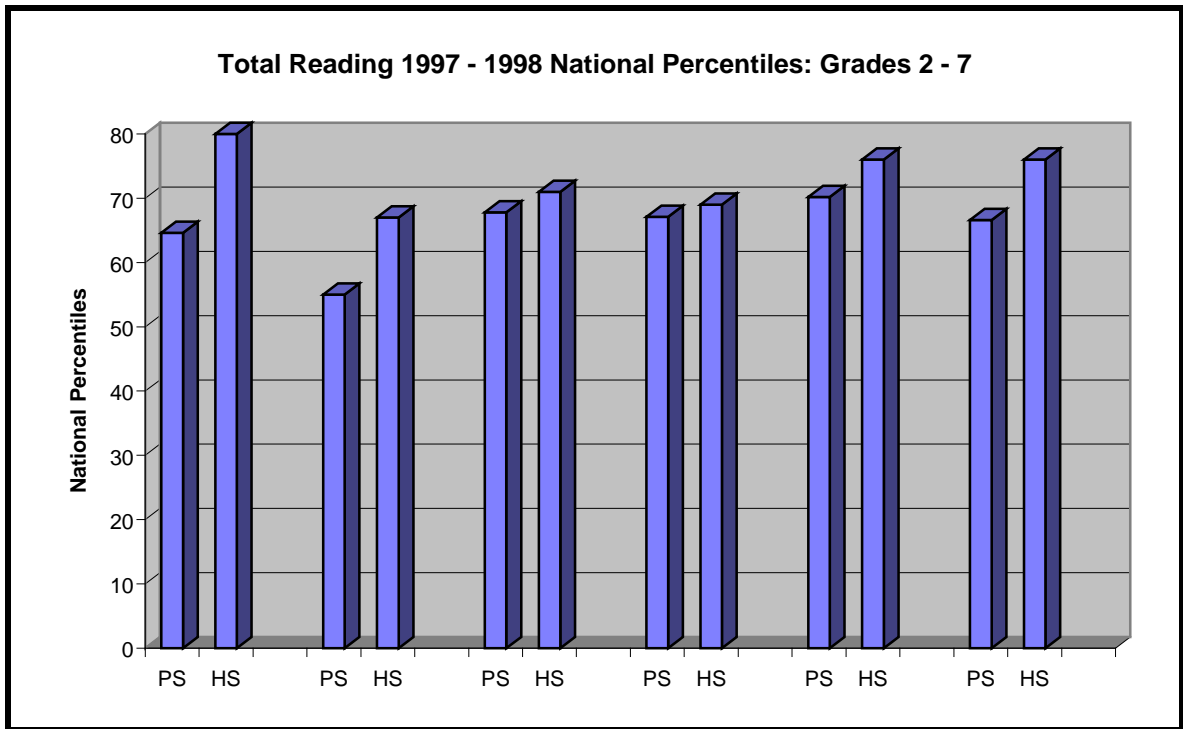


Figure 29. Posttest SAT National Percentiles in Total Reading. PS = Private School; HS = Home School.

Figures 30 – 31 display total reading grade equivalents, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed compared to all the students taking the Stanford Achievement Test, from one year to the next.

Figures 30 and 31 show students' grade equivalents during one school year compared to the next year. Figure 30 shows a close alignment, with a two-year difference in the sixth grade for home schoolers. There was a slight advantage for the private schools in the 4th grade with a difference of 6 months. Figure 31 show still a close alignment, with a 0.6 year difference in the

2nd grade, a 1.1 year difference in the 6th grade, and a 3.5 year difference in the 7th grade for home schoolers.

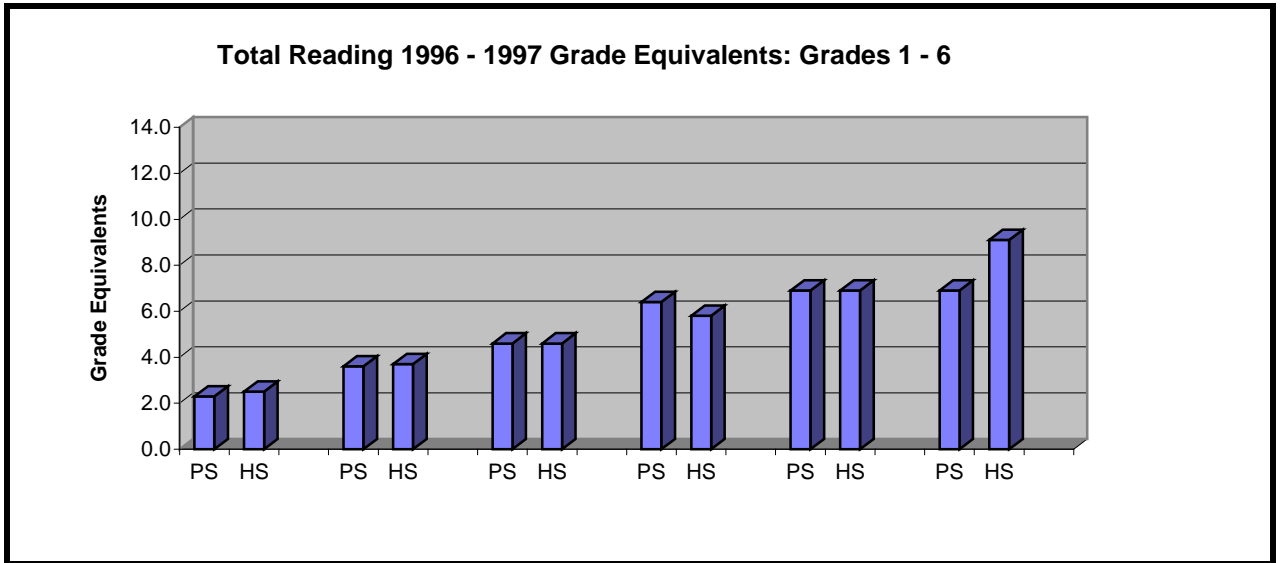


Figure 30. Pretest SAT Grade Equivalents in Total Reading. PS = Private School; HS = Home School.

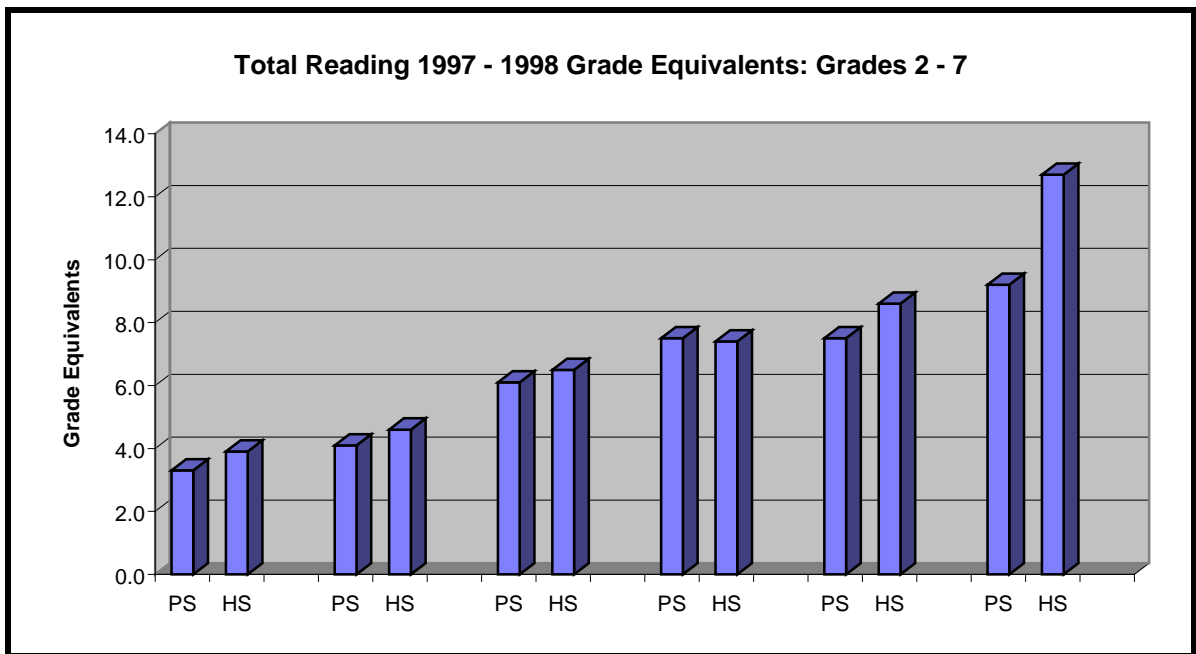


Figure 31. Posttest SAT Grade Equivalents in Total Reading. PS = Private School; HS = Home School.

Figures 32 – 33 display total language scaled scores, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed academically from one year to the next.

Figures 32 and 33 graphically show the scaled score data for total language, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year. These two figures show how students performed during one school year compared to the next year. The scaled scores in figure 32 seem to be closely aligned with one another, with a slight advantage to the private schoolers in grades 3 - 6. The scaled scores in figure 33 seem to be closely aligned with one another, with slight advantage for home schoolers in the 3rd grade and an advantage for the private schools in the 5th grade.

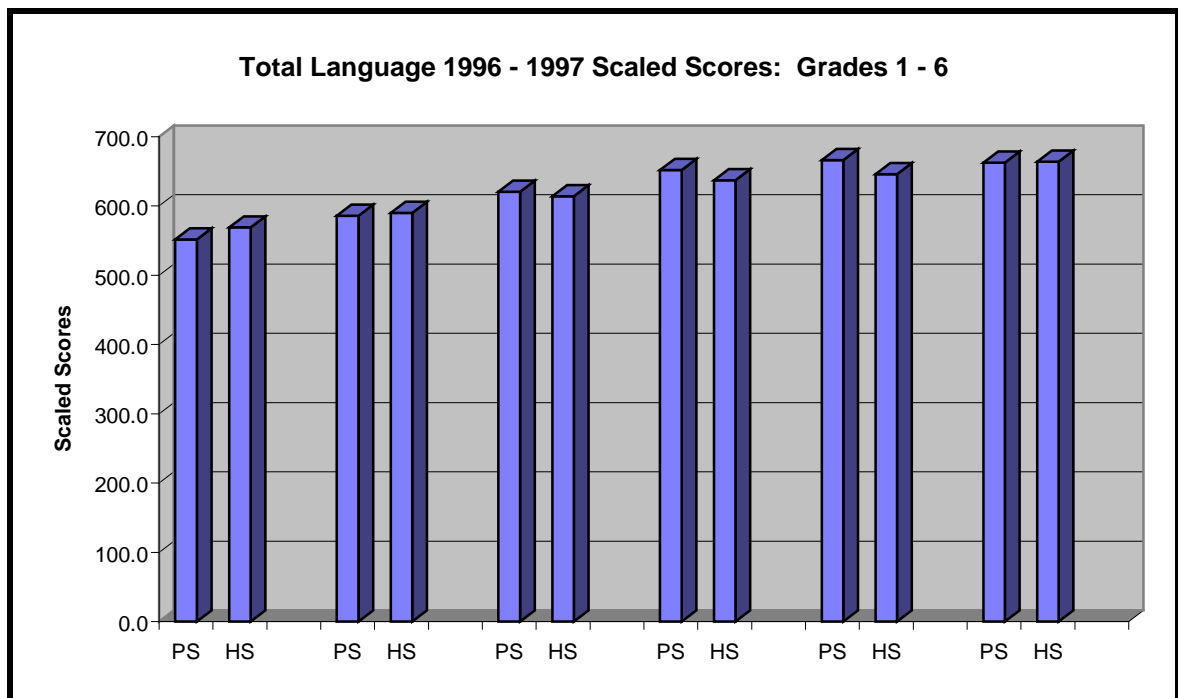


Figure 32. Pretest Scaled Scores in Total Language. PS = Private School; HS = Home School.

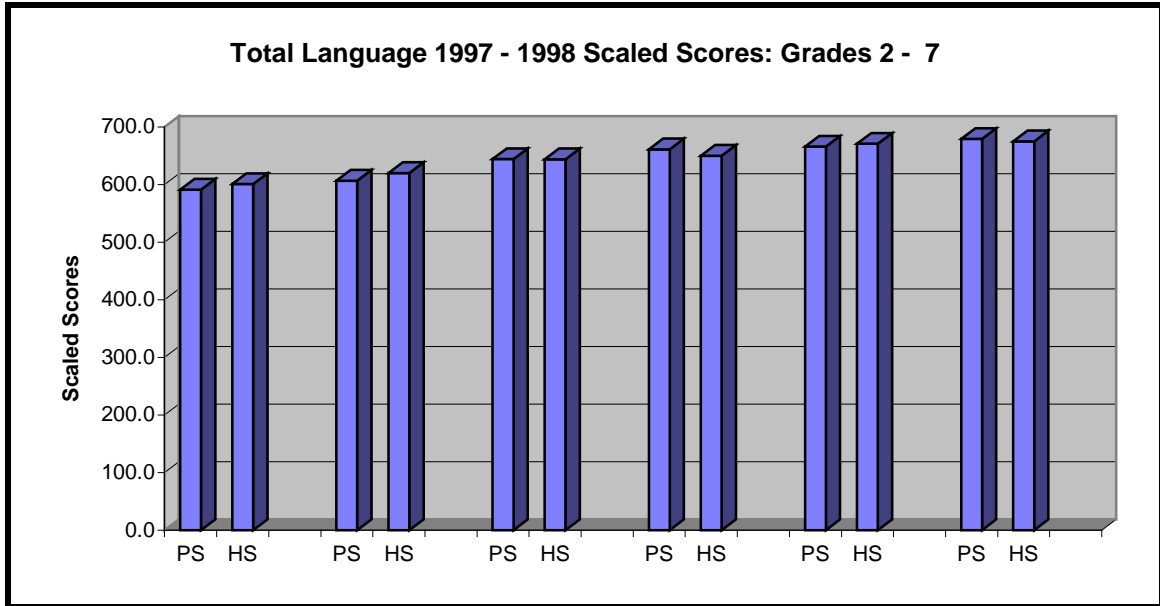


Figure 33. Posttest Scaled Scores in Total Language. PS = Private School; HS = Home School.

Figures 34 – 35 display total language national percentiles, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed compared to all the students taking the Stanford Achievement Test, from one year to the next.

Figures 34 and 35 graphically show the national percentile rankings data for total language, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year. These two figures show the students national ranking, of all the students taking the Stanford Achievement Test, during one school year compared to the next year. The national percentile rankings in figure 34 shows a close relationship, except for grades 4 and 5, where the private schools showed a 11% increase in grade 4 over home schools, and a 15% increase in grade 5 over home schools. The national percentile rankings in figure 35 shows a close with an increase for home schoolers in the 2nd and 3rd grade, and in the 5th and 7th grades

the increase was with the private schools. What is interesting here is that, in 1996 - 1997, grade five for home schoolers and grade six for private schoolers, both groups had a national percentile ranking close to the national average. In the following year, the same groups, scored above a 70 percentile ranking. This was a fifteen percentile ranking increase in one year.

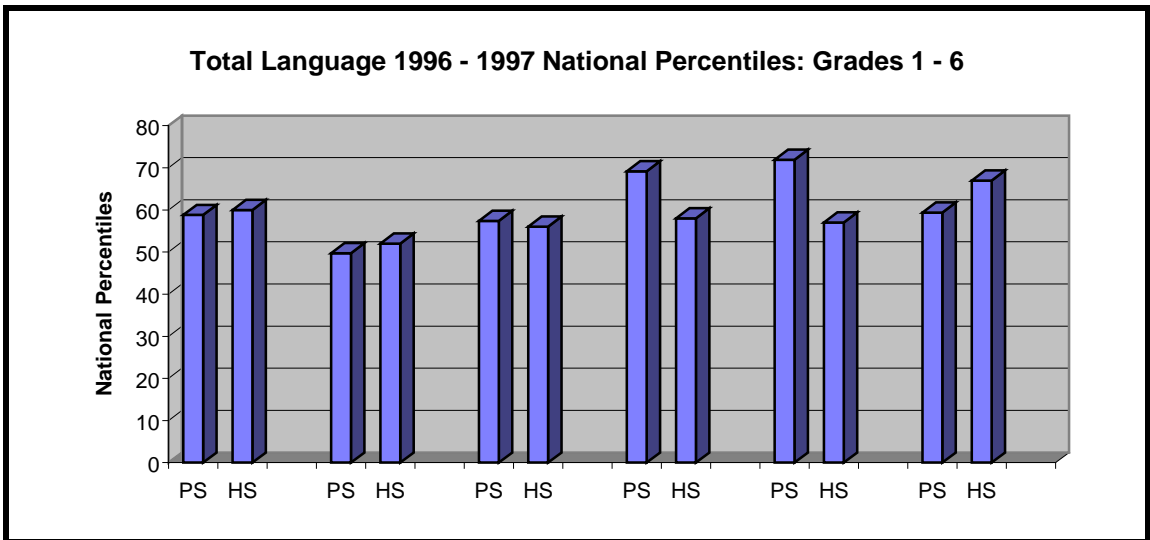


Figure 34. Pretest National Percentiles in Total Language. PS = Private School; HS = Home School.

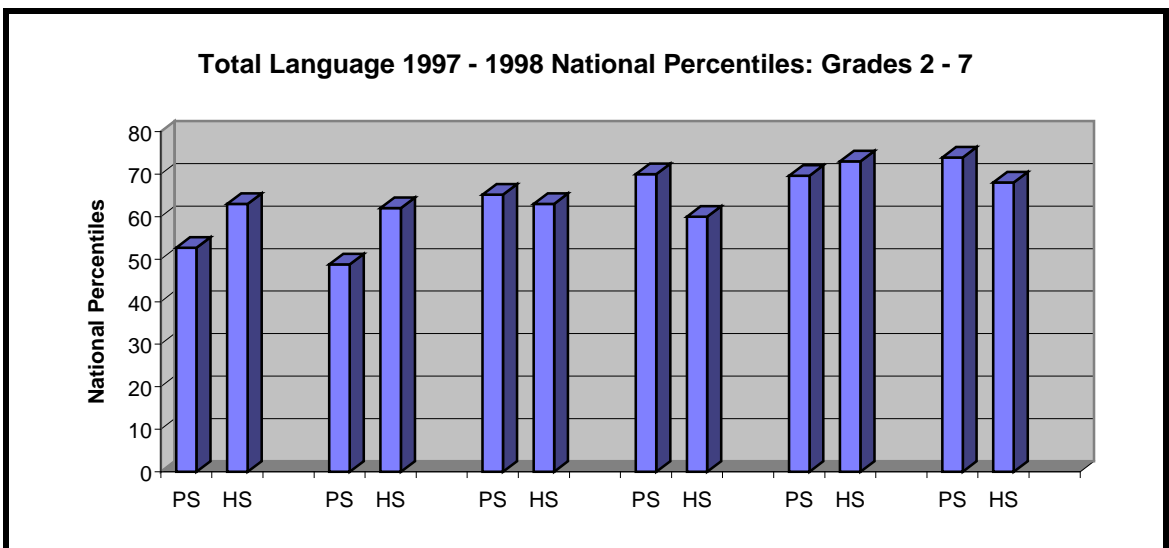


Figure 35. Posttest National Percentiles in Total Language. PS = Private School; HS = Home School.

Figures 36 – 37 display total language grade equivalents, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed academically from one year to the next.

Figures 36 and 37 show students grade equivalents during one school year compared to the next year. Figure 36 shows a close alignment, with a 1.7 year difference in the 4th grade and a 2.1 year difference in the 5th grade. There was a slight advantage for the home schools in the 6th grade with a difference of 1.6 years. Figure 37 shows a close alignment, with a 1.3 year difference in the 4th grade for private schools, and a 1.2 year difference in the 5th grade for private schools. Figures 36 and 37 show that both groups are above their grade level tested.

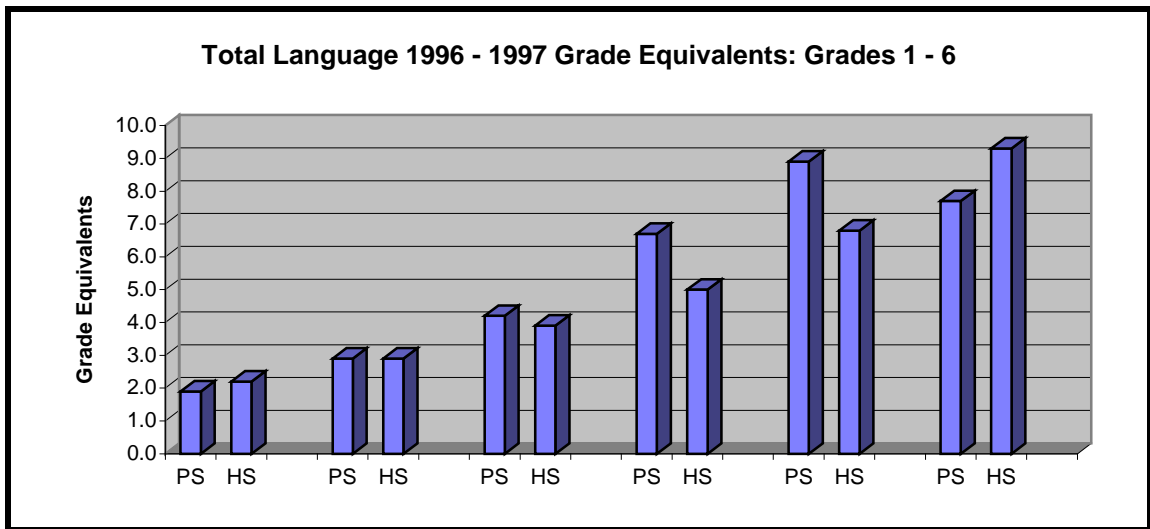


Figure 36. Pretest Grade Equivalents in Total Language. PS = Private School; HS = Home School.

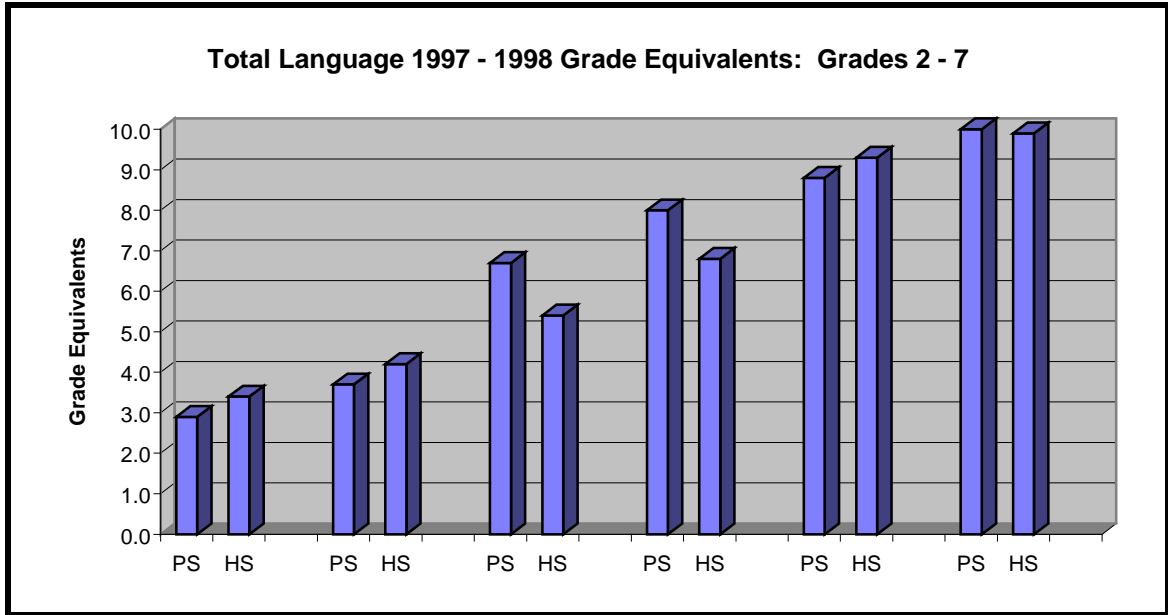


Figure 37. Posttest Grade Equivalents in Total Language. PS = Private School; HS = Home School.

Figures 38 – 39 display total mathematics scaled scores, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed academically from one year to the next.

Figures 38 and 39 show how students performed during one school year compared to the next year. The scaled scores, in figure 38, seem to be closely aligned with one another, with no advantage to either educational environment. The scaled scores in figure 39 seem to be closely aligned with one another, with slight advantage for private schools in the 5th.

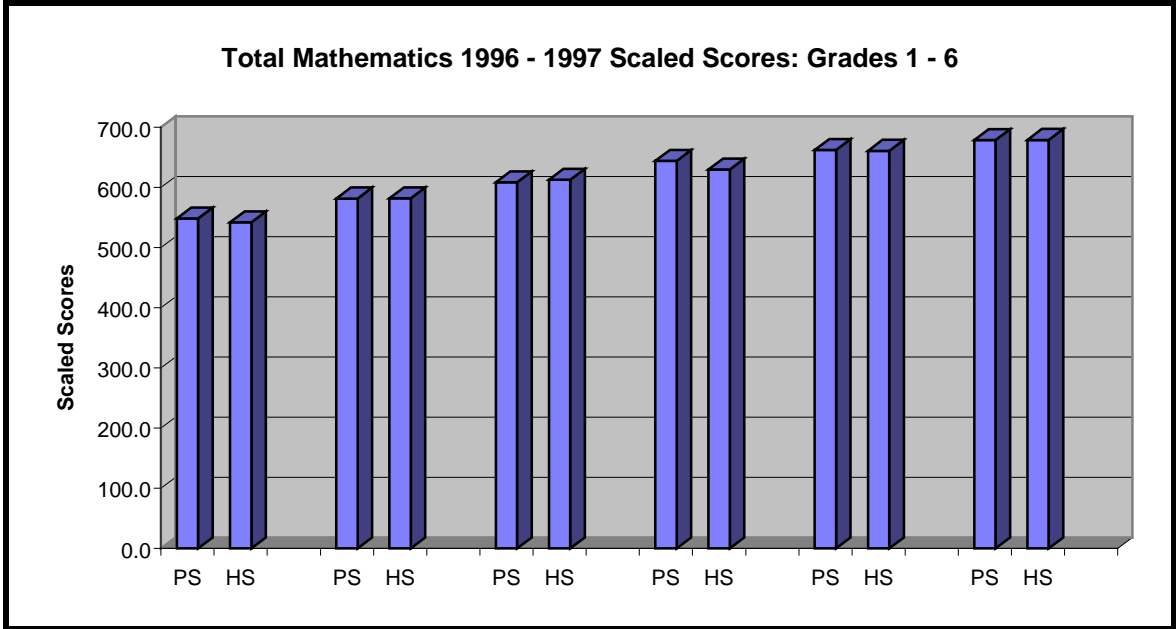


Figure 38. Pretest Scaled Scores in Total Mathematics. PS = Private School; HS = Home School.

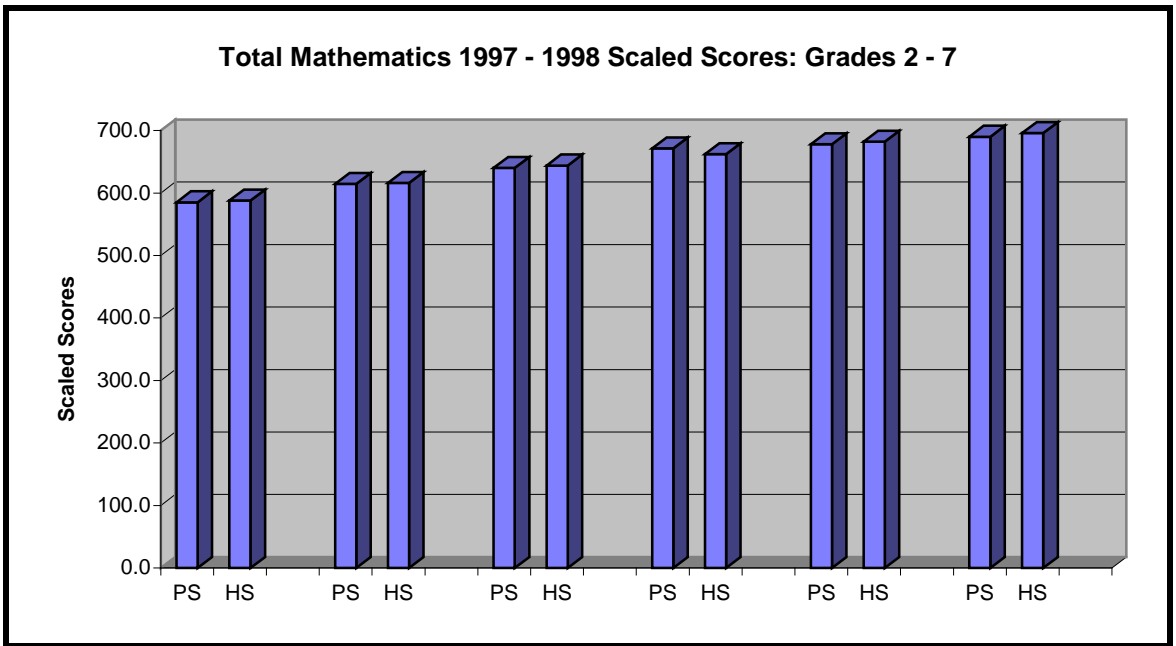


Figure 39. Posttest Scaled Scores in Total Mathematics. PS = Private School; HS = Home School.

Figures 40 – 41 display total mathematics national percentiles, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical

format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed compared to all the students taking the Stanford Achievement Test, from one year to the next.

Figures 40 and 41 show the students' national ranking, for all the students taking the Stanford Achievement Test during one school year compared to the next year. The national percentile rankings, in figure 40, show a close relationship, except for grades 1, 2, and 4, where the private schools showed a 17% increase in grade 1 over home schools, a 9% increase in grade 2, and a 13% increase in grade 4 over home schools. The national percentile rankings, in figure 41, show a great deal of fluctuations with the national percentiles with an increase for home schoolers in the 2nd, 4th, 6th, and 7th grades. Private schools had an increase in the 5th grade. Overall the rankings are higher than the national average of fifty percent.

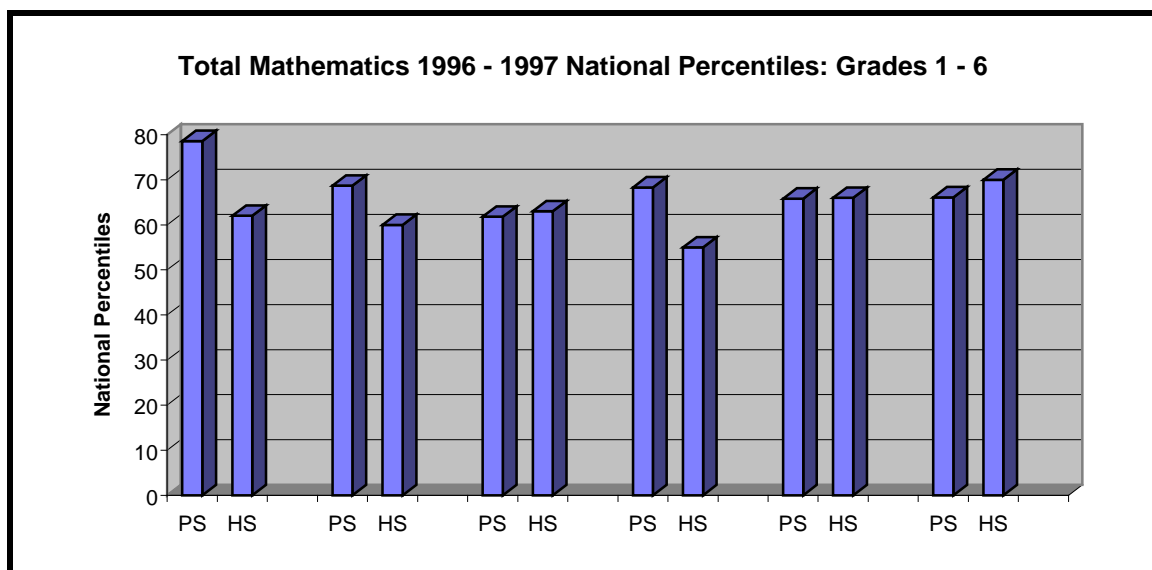


Figure 40. Pretest National Percentiles in Total Mathematics. PS = Private School; HS = Home School.

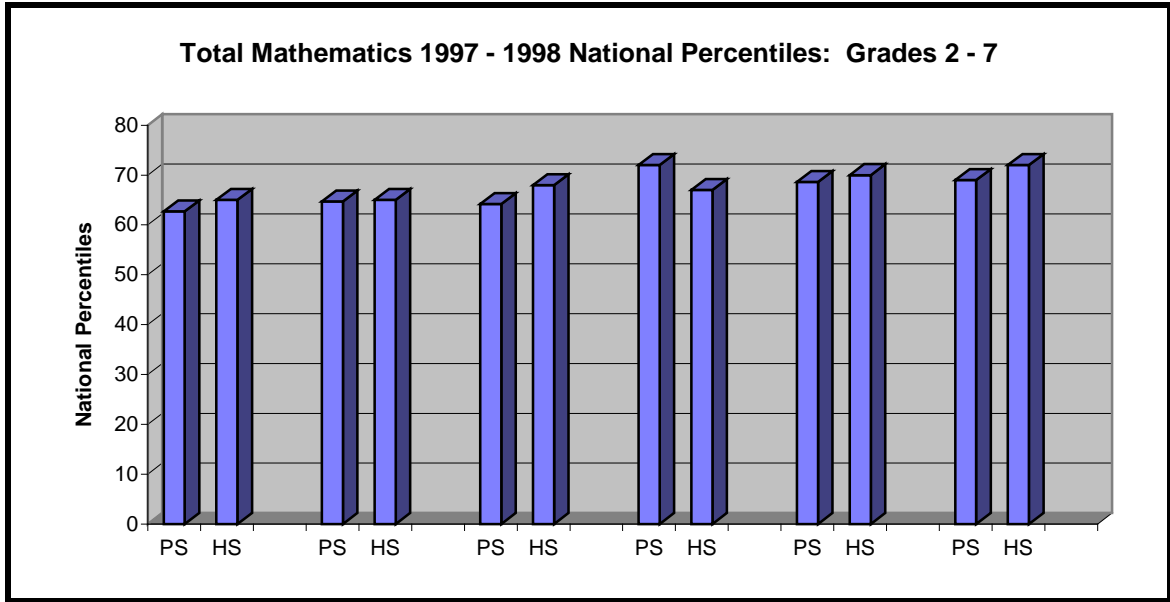


Figure 41. Posttest National Percentiles in Total Mathematics. PS = Private School; HS = Home School.

Figures 42 – 43 display total mathematics grade equivalents, for grades 1 - 6, during the 1996 - 1997 school year, and grades 2 - 7, during the 1997 - 1998 school year, in a graphical format. This format gives a visual representation of how the two groups, private schoolers and home schoolers, performed academically from one year to the next.

Figures 42 and 43 show students grade equivalents during one school year compared to the next year. Figure 42 shows still a close alignment, with a 1.0 year difference in the 4th grade, and a 0.7 year difference in the 5th for private schoolers. There was a slight advantage for the home schools in the 6th grade with a difference of 0.9 years. Figure 43 shows a close alignment, with a slight advantage for private schoolers in the 5th and 6th grades, and a slight advantage for home schoolers in the 7th grade.

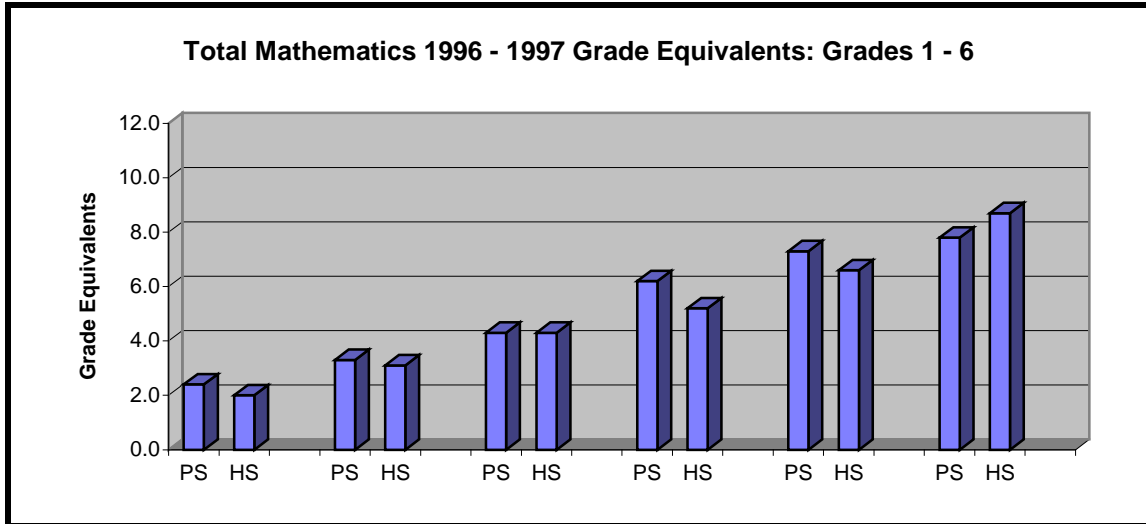


Figure 42. Pretest Grade Equivalents in Total Mathematics. PS = Private School; HS = Home School.

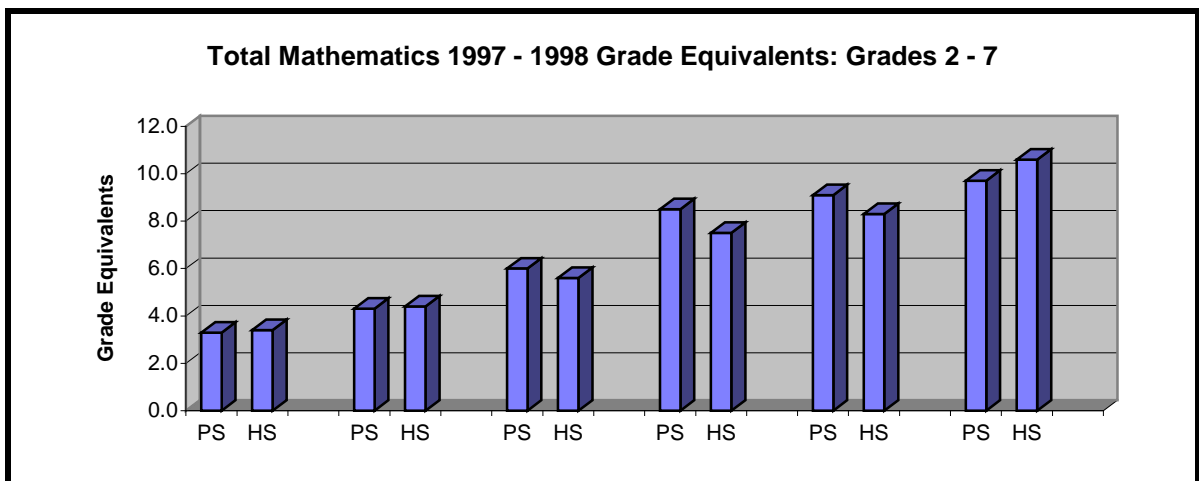


Figure 43. Posttest Grade Equivalents in Total Mathematics. PS = Private School; HS = Home School.

Summary

The initial hypotheses stated that home schooled students would show significantly higher academic achievement scores over private schooled students, on the Stanford Achievement Test, in the following areas: total reading, total language, and total mathematics.

The data findings in this study clearly indicate that the hypotheses were not confirmed. The two educational environments seem to score the same in all areas.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

There are a number of studies of home school achievement that have found that home-educated students score as high or higher than their public school educated counterparts. Studies such as those by Wartes (1990a), Ray (1990b, 1994, and 1997) have rendered the same conclusions on score outcomes. However, limited research has been done comparing home-educated students with students in private Christian schools. The research question for this study was: Do home schooled students score higher on achievement tests than Christian educated students, specifically in the areas of reading, language, and mathematics? This chapter provides a synopsis of the findings of this study and some reflective and interpretive commentary.

Restatement of the Methodology

The design of this research was descriptive. The study investigated if home schooled students score higher on the Stanford Achievement Test than private school students. The study involved analyzing the performance of 642 children of which there were 350 Home Educated students and 292 Private Christian educated students. There were 76 first graders, 129 second graders, 112 third graders, 100 fourth graders, 112 fifth graders, and 113 sixth graders. All of the children were between the ages of 6 and 12. Their Stanford Achievement Test scores were obtained from church schools and home-school parents or support groups, in Florida who submitted all scores that they had for inclusion in this research. There was no selection, for inclusion in this study, of students according to their test score levels, and parents, and principals did not self-select with

respect to whether their student's scores would be included in the analysis. Pretest data from the 642 students were analyzed and Posttest data from 655 students were analyzed, 294 from Private Christian Schools, 361 from Home Schools.

Conclusion

The researcher's initial hypotheses, based on previous studies, stated that home schooled students would perform higher on academic performance over private schooled students on the Stanford Achievement Test in the following areas: total reading, total language, and total mathematics. The findings in this study clearly indicate that the hypotheses were not confirmed, as the two educational environments scored approximately the same in all areas, and there is a need to perform additional research on the two educational environments.

The achievement scores of these two groups, private schooled and home schooled students, were quite high in all areas considered. Data was collected on the following: reading, language, and math. These students scored, on average, at or above the 70th percentile in all three categories. The national average in conventional schools is the 50th percentile. These data are consistent with those in several other studies and reports (e.g. see Ray, 1988). These findings show that the achievement scores are high in all grade levels, K to 12, and in all subject areas. It could be argued that these students would have done well in any educational setting, considering the family backgrounds, motivational levels of parents, and so forth from which they come. On the other hand, a logical argument could be made that the home education and private education environments would naturally cause higher achievement because of factors such as the low student-to-teacher ratio, flexibility that is possible in a small, private setting, close contact between

teacher and student, and the enhanced opportunity to individualize curriculum and methodology to meet the gifts and limitations of a particular student. However, no tight statistical controls to test such hypotheses were applied in this study, nor have they been applied in other studies to date.

To better understand why the hypothesis was not confirmed, it would have been helpful to have had additional data. Information such as demographics, the type of curriculum used, parents' educational backgrounds and its influence on their children, presence of computers or technology in the classroom or home, and the number of hours spent each week in class may have provided possible explanations of the findings in this research.

Implications for Leadership

The population of home schooled and private schooled students in the United States is large enough to warrant serious attention from researchers, educators, public school officials, politicians, and other public servants. I believe that home schooling is here to stay and there is no indication that its popularity will disappear in the near future. A committee should be formed, with educators, public school officials, home school parents, and politicians to examine the valid alternatives in education to help parents do the best possible for the children-students. Public schools should provide help with areas such as library materials, curriculum materials, athletic activities, group music, and expensive specialized equipment (e.g., laboratory apparatus and computers).

Recommendations

Overall I think what I have learned from my inquiry might be of benefit to four groups of people. First, to public school educators, everything I saw indicated that

private and home schooling is an efficient way to cover the academic agenda of institutional schools. For educators there is certainly nothing to fear in terms of whether or not home schoolers are providing an adequate education for their children at home. Within the traditional school paradigm most often used to measure school success, school authorities can be confident that their kind of academic success is not in jeopardy. Secondly, to home schoolers, they can be encouraged that everything I saw confirmed the findings that by institutional school standards their home schooling is working. However, I am concerned that the rich educational experiences I had anticipated seeing are not being displayed because the full potential of home schooling has not yet been discovered and is therefore not being exploited. Third, to private schoolers, my review of private schools indicate that they provide a lower student-to-teacher ratio, a higher degree of discipline in the schools, and the enhanced opportunity to individualize curriculum and methodology to meet the gifts and limitations of a particular students. Private schools keep doing what you're doing. Finally, to historians, how interesting it is that the influence of institutional school, whether it be experiences of the past or its presence today, extends into the area of learning at home. Institutional schooling available for every child, though only being around for the last 150 years or so, now forms the foundation of modern society and today most people can't imagine society without it. Set up to meet the perceived government responsibility to educate every child for the demands of an industrial and now a technology society, today the process might almost be seen to be in reverse with society in general and family life in particular functioning in such a way as to facilitate meeting the demands of the now culturally all-pervasive notion of school.

It is the traditional school paradigm that, while facilitating a measure of “school success,” appears to be working to constrain what might otherwise be a rich learning environment. The research body of home and private education is young and limited, but growing at a rapid rate. I hope this research provides a foundation for further research in home and private schooling, with a comparison to public education included.

Recommendations for Practice

A committee should be formed, with educators, public school officials, home school parents, and politicians to examine the valid alternatives in education to help parents do the best possible for the children-students. Public schools should provide help with areas such as library materials, curriculum materials, athletic activities, group music, and expensive specialized equipment (e.g., laboratory apparatus and computers). A partnership should be formed with Public School administration, Private School Administration, and Home School Parents to address educational issues. Should public administration look at a hybrid approach to education?

Recommendations for Future Research

I would recommend that additional research can be conducted on whether Curriculum used has an influence on SAT scores. Does the educational background of the parents have an influence on how well their children test? Does a computer or technology have an influence on test scores and does the number of hours spent each week in class have an effect on test scores? Does the family’s income have an effect on test scores? All these questions can provide opportunity for additional research on this topic.

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APPENDIX A

The Stanford Achievement Test, Eight Edition, Form J (Copyright 1990) is administered every year in the Spring to students in grades 2-11. The Stanford Achievement Test is a norm-referenced standardized test that is designed to measure the important learning outcomes of the school curriculum.

An annual report present to the Board of Education analyzes the results of all assessments administered to students in the district. The results are reported in mean percentiles using national norms.

Definitions:

ACHIEVEMENT TEST: A test designed to measure school achievement in specific content areas at a certain point in time.

MEAN: The mean, or average, is the score obtained by adding together a group of scores and dividing by the total number of scores.

NATIONAL MEAN: National average, or percentile of 50.

NORM-REFERENCED TEST: Based on a relative standard and shows how well a student's performance compares with that of other students in the nation.

NORMAL CURVE EQUIVALENTS (NCE): A standard score with a known mean and standard deviation.

STANINE: Range from a low of 1 to a high of 9 and indicates relative standing in a reference group.

PERFORMANCE CATEGORIES: Comparison of scores base on stanine.

APPENDIX B

(Cover Letter)

Dear Parent,

We would like to take this opportunity to invite you to participate in a research study on Home Schooling and Private Christian Schooling in the State of Florida. We are currently involved in studying different aspects of the two schooling environments to determine differences and similarities. We feel you are one of the best sources of information for us to learn more about Home Schooling and Private Christian Schooling.

Participation in this study is voluntary. After the data has been collected, the log sheet with numerical identifying information will be destroyed. No individual will be identified in the research report.

Thank you for your assistance in this study. We will be certain to report the findings of this study to you and hope that they will be of interest to you.

Sincerely,

Joseph M. Thomas
Doctoral Candidate

Eugene Tootle, Ed.D
Dean of the School of Education

Enclosures.