

**Comparing Reading Achievement Scores
of Fifth Grade Female Students in
Lutheran Schools to Those in a
National Norming Group**

Thesis

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ABSTRACT

The purpose of this study was to determine if there was a statistically significant difference between Reading Achievement scores of fifth grade Lutheran school female students compared to national norms.

Fifth grade female students ($n = 20$) from eight New York Lutheran elementary schools who took the Spring 1996 Stanford Achievement Reading Test were the subjects of this study. The scores were collected from eight Lutheran elementary schools and separated by gender. These scores were compared to the national Stanford Achievement Reading scores for fifth grade level. A t test was used to analyze the data. It was determined that there was no statistically significant difference between fifth grade Lutheran female students' scores and the national norming group's scores.

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CHAPTER I

Statement of the Problem

Much has been written in recent years about gender related differences in abilities of students. Male students have been found to score higher than girls on spatial and quantitative reasoning tests, whereas girls tend to score higher on verbal tests (Hyde, 1981; Maccoby & Jacklin, 1974). This pattern, which favors boys, is recurrent across countries and is obtained on various standardized tests (Pallas & Alexander, 1983). Although this pattern is consistent, there are instances in which outside influences have altered it. In Singapore, Trinidad, and Tobago, girls have performed at higher levels when their teacher were female (Lee, Loeb, & Manfred, 1992). In Nigeria and England reading scores for males were higher than for females. This result was attributed to cultural influences (Johnson, 1972). In cultures which viewed reading as male appropriate, males

displayed high achievement in reading related tasks (Fuller, Hua, & Snyder, 1994; Nash, 1979).

Parental influences also have a significant impact. Children in a traditional household, where the father is the main breadwinner and head of the family, recognize their gender role at the age of four, two years earlier than children from non-traditional families (Adams, Kuebli, Boyle, & Fivush, 1995; Fagot & Leinbach, 1995).

Some researchers in the field suggest that religion can also influence children. Francis (1995) discovered that girls who attend church and pray hold a more favorable attitude towards school than boys who attend church and pray. Higher levels of religiosity (attending church and personal prayer) among girls than among boys were reported by Brown (1987).

Gender differences are influenced by several factors and may determine how well students perform on reading tests. Female students on the average outscore male students in language areas. Would this pattern emerge in a private school where the female role is

defined in specific ways according to Lutheran beliefs? Would this alter the female students' definition of their gender role?

PURPOSE

The purpose of this study was to determine if there was a statistically significant difference between Reading Achievement scores of fifth grade Lutheran school female students compared to national norms.

Research Question

Is there a statistically significant difference between Stanford Achievement Test Reading scores of fifth grade female Lutheran students and the national norming group of the Stanford Achievement Reading Test?

THE NEED FOR THE STUDY

Lutheran schools

The Lutheran church is a cultural society in itself, and this culture with its beliefs spills over into the Lutheran schools which are closely associated. The Lutheran schools have teachers who are synodically trained in religious studies. The church congregation, which is associated with the school, supports the school financially and spiritually. In the Lutheran church and school men and women have specific roles in church life. In *Women in the Church: A Report of the Commission on Theology and Church Relations of the Lutheran Church-Missouri Synod* (1995), the church addresses women's role in the church. Several key points summarize the Church's view of women:

1. The Gospel record affirms their [women] value and dignity. Jesus clearly shows His regard for women, created equally with men in the image and likeness of God.
2. In the order of creation, God has placed women in a position subordinate to man. The Scriptural concept of subordination is a matter of function between two persons of equal worth and not a matter of inferiority/superiority. The subordination of women to man is not a dominative subordination. The subordination of wife to husband is analogous to the relationship which exists between Christ and the church.

3. The relationship between man and woman can also be defined as a headship structure of God-Christ-man-woman, each member of the order superordinated to the succeeding member. This is a theological and not merely a sociological relationship.
4. The order of redemption, while affirming that man and woman are one in Christ and joint heirs of the grace of life, does not abolish the order established at the time of creation.
5. According to 1 Cor. 14:33b-35 and 1 Tim. 2:11-15 women are not to exercise those functions in the local congregation which would involve them in the exercise of authority inherent in the authoritative public teaching office.
6. Men who find themselves in positions of leadership and authority must assume the attitude which Jesus Himself required: "rather let the greatest among you become as the youngest, and the leader as the one who serves" (Luke 22:26). Christian leadership and service must model Him.
7. Women have all of the God-given rights, privileges, and responsibilities of the priesthood of all believers that men do. .. All Christians have been given the responsibility to profess and share the Christian faith and to judge all doctrine.
8. The inspired writers of Scriptures do not discuss the implications of the order of creation for life in the civil estate. In Lutheran theology there is general agreement on the necessity of distinguishing carefully between that which happens in the civil sphere and that which takes place in the spiritual sphere.

These key points translate into practical applications. A woman may hold such offices as deaconess, Christian day school teacher, and parish worker, but can not be pastor or elder. This raises the question: Does this culture affect the performance of female students in Lutheran schools?

Numerous studies have established that females usually outscore males in reading and verbal tasks in the United States and also around the world. There are also outside influences which may be a factor in how gender roles are formed and altered depending on their environment. There is a need to research the effect, if any, small religious schools have on the performance of each gender. The Lutheran church has a strong cultural background that differs from the present day society. This strong culture, although not directly taught, may be an underlying influence which affects the female students' perception of their gender role. If so, what is the impact on the female gender? Will females experience lower reading achievement scores compared to the national norming scores or will the female students follow the national norming scores? This study strives to answer that question.

DEFINITIONS

Gender differences: The differences attributed to each gender.

Sex Differences: The differences attributed to each gender.

Sex Role Knowledge: The awareness of roles assigned to gender denoting specific characteristics which are associated with a gender.

Sex Role Differences: The differences in characteristics between the roles assigned by gender.

Synodically Trained: Teachers who have attended a Lutheran University and have taken a series of college courses dealing with the Lutheran religion and the Lutheran church.

Traditional family: A family where the father is the head of the household and major income provider.

Religiosity: It is defined as self-reported church attendance and personal prayer.

Limitation

Due to the small sample size, the results from the study may be difficult to generalize.

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The purpose of this study was to determine if there is a statistically significant difference between reading achievement scores of fifth grade Lutheran female students and the national norming. Gender related differences in the abilities of students have been a popular topic for study in recent years. Specific gender abilities along with influences such as parental, teacher and peer influence, and cultural have been studied to determine what impact these influences may have on the academic achievement of each gender. This chapter will review the literature related to these areas.

Male versus Female

The issue of gender differences has been a topic of concern for research studies for many decades. In their review of the literature,

Maccoby and Jacklin (1974) found that females outscore males in tests of verbal ability and language. Since then, these findings have been confirmed by several studies.

A study by Martin and Hoover (1987) examined the relative achievement of more than 9000 males and students females over a six year period, grades three through eight, using scores from the Iowa Test of Basic Skills. Female students had higher scores in verbal and language abilities whereas boys excelled in mathematics and spatial relationships.

In a study by Wright and Houck (1995) which examined verbal reasoning and numerical ability test scores of 222 Appalachian high schools students, female students tended to register higher scores than males did in mathematics and verbal reasoning.

In another longitudinal research study of gender differences, Wentzel (1988) investigated the performance of 30 males and 30 in math and English as measured by standardized test scores and classroom grades from grades six through twelve. The findings of the

study revealed that female and male classroom performance remain fairly stable throughout high school, however female mean standardized test scores revealed a trend to decline slightly in relation to male mean scores over this same time period.

More recently, a study of preschool curricula that included 719 inner-city four-year-olds found that girls earned higher communication and social skills scores and showed greater mastery of basic academic skills regardless of the type of school program (Marcon, 1991).

Higher test scores for female students were also confirmed by Becker and Forsyth (1990) in their study comparing reading scores of male and females. The results indicated an advantage in favor of females with the difference at grade three being larger than the differences at grade four through eight.

The previous research has indicated female students achieve higher reading scores than male students (Becker & Forsyth, 1990; Feingold, 1992; Hyde & Linn, 1988; O'Brien, 1994; Schram, 1996).

The gender gap between the reading scores is diminishing. Some researchers have concluded that gender differences have almost disappeared in verbal tasks due to the awareness of possible influences that may promote gender differences (Feingold, 1992; Hyde & Linn, 1988). In regard to spatial tasks, boys continue to hold a slight advantage (Linn & Hyde, 1989).

Other Countries and Cultures

The findings that female students performed higher in reading areas on standardized tests are repeated around the world and in other cultures. Cahan and Ganor (1995) conducted research involving Israeli students in which their verbal, spatial, and mathematical abilities were measured to determine if there were any gender differences. This study revealed that male students scored significantly higher in spatial and mathematical abilities than female students. In Hong Kong, significant female superiority in expressive skills of writing and speaking were reported by Ho (1987).

In Sweden, Balke (1990) analyzed the achievement of fifth graders in English as a foreign language and found that females achieved better on reading comprehension and vocabulary tests. Females also outscored males on essay tests. Branberg, Henriksson, Nyquist and Wedman (1990) found similar results on the Swedish Scholastic Aptitude Test. Male students scored higher in tests that included a numerical and quantitative component. Rosen (1995) investigated gender differences in cognitive abilities with 1224 Swedish 13-year olds, conducting 13 ability tests and three standard achievement tests. Rosen found mean differences in favor of females in general intelligence. Males had higher means on most spatial dimensions and numerical ability.

Some studies yielded inconsistent results. In a study by Johnson (1972), reading tests, specifically given to analyze sex differences, were conducted in four different countries: England, Nigeria, Canada and the United States. Standardized test scores in reading were compared. In England and Nigeria the male students

performed higher than the female students while the reverse was true for Canada and the United States. Johnson attributed this to the society of Nigeria and England where women are still strongly defined in terms of their relationship to males whereas women in Canada and the United States have made progress toward equality because they are regarded as individuals rather than as a wife or daughter.

Superiority of male students in language skills, on the other hand, was cited by Nash (1979). Nash reported that in cultures that regard reading and other language-related activities as male appropriate, males demonstrate superior performance in these tasks. This study seems to suggest that cultures and the society in which one lives may influence success in academic areas.

Influences of Parents, Culture, Teachers and Peers

There are several factors which may influence or foster different abilities in each gender. Parental influences, especially the father's influence may be an important determinant in how children

view their gender role. Fagot and Leinbach (1995) found that a father's traditionality or lack thereof appeared to make a difference in a child's understanding of gender. This study looked at the age in which preschool children showed sex role knowledge. Children from traditional families (father as head of the household) showed sex role knowledge two years earlier, at the age of four, than non-traditional families. Best, House, Barnard and Spicker (1994) found similar results. Children from Germany developed gender specific characteristics at an earlier age than Italian or French children.

Ve (1990) conducted a project in Norway in an attempt to produce a gender-neutral learning environment in the first years of primary school. As part of the research design, measures were proposed which would help to create a gender-neutral, non-stereotypic learning environment and counteract known patterns of boys' or of girls' behavior which reinforced sex-role stereotyping. Although this research is continuing, Ve (1990) has concluded that even in their first weeks of formal schooling, very clear gender stereotypes occur on

what activities in the classroom are liked and are acceptable to each sex.

The sex of a student's teacher may have an impact on female achievement levels. In Nigeria female students scored higher in mathematics when taught by a female teacher (Fuller, Hua, & Snyder, 1994). Lundberg and Linnakylia (1993) found that in the countries of Singapore, Trinidad and Tobago females performed at higher levels in all areas when their teacher was female.

Single-sex schools may have a direct impact on the academic performance of female students. Female students in Botswana displayed higher achievement in test scores when attending single-sex schools as well as female students in Thailand and Malawi (Fuller, et al., 1994). While studying Catholic schools that were both coeducational and single-sex, researchers found that single-sex schools evidenced consistent and positive effects on student attitudes toward academics (Hanmer, 1996). These students were more likely to express interest in mathematics and English. In a statistical

analysis of performance on Advanced Placement examinations, several girls' schools have found that their students score higher than female students in co-educational schools on tests in biology, English and U.S. history (Hanmer, 1990).

According to Riordan (1990) several studies have found co-educational schools may be a disadvantage to females students. "In England substantial empirical evidence shows that British girls are at a disadvantage if they attend a mixed school. Girls in mixed schools score lowest of all students in both England and America" (Riordan, 1990, p. 10).

While reviewing the literature, Byrne (1990) discovered that in many African and South Asian countries where males have a specific gender role and that role is considered superior to females, female students score lower on tests and experience an unequal education which leads to high drop out rates. In Iraq, Jordan and other countries with strong religious affiliations, where women have specifically

defined roles, only certain educational programs are offered to female students.

In a study which focused on the influence teachers have on their students, Harris (1993) found that for young women, feelings about academic performance correlate strongly with relationships with teachers. He concluded, "Teachers are important role models for young women"(p.57).

Children also are influenced by other children. Fagot, Leinbach, and Hagan (1986), while conducting their study of gender labeling, found that children are influenced by each other. This study used 43 children ranging in age from 21 months to 40 months. Four taped sessions of playtime over a two week period were review by trained observers noting specific sex-typed behaviors such as aggressiveness and playing with sex-typed toys (tools, trucks and blocks). Children were also asked to identify boys and girls in stereotypical pictures. Only scores of ten or greater (out of 12) could be considered beyond the level of chance responding. Only the heads

and shoulders of fully clothed figures were shown. The results of this study indicated that where early sex typing has been found consistently it is related to the children's ability to apply the labels "boy" and "girl" accurately. Children who succeeded at the gender labeling task spent more time playing with members of their own sex, and girls who succeeded at the task showed almost no aggression in the classroom. The study concluded that once a girl becomes aware that boys and girls belong in different categories, she begins to modify her own behavior to conform with that which is expected of her sex.

Gender was also found to be a stronger predictor of positive school-related attitudes in eleven-year-old children who attended church regularly (Francis, 1992). The 3,762 pupils in this study were given a questionnaire about attitudes toward school. The results of the multiple regression analysis for the influence of gender showed a statistical significant difference of .1 and higher. The study revealed that girls held more favorable attitudes toward school and especially towards English, music, and religious education such as Sunday

School. A religious environment may account for this positive attitude.

Some studies indicate students from different religious backgrounds achieve different academic results according to gender. Based on the Scholastic Achievement test scores of 1,699 high school sophomores and seniors, Dijkstra and Peschar (1996) discovered that male and female students with a Protestant background had no significant differences on test scores. The estimated mean score for Catholic male students was 103.01 and for Catholic female students was 98.78. Although male students scored higher than female students, it was found that it was not statistically significant. Catholic male students scored higher in verbal and mathematics achievement scores than Catholic female students.

Private School versus Public Schools

Many parents and educators have questioned the quality of education provided by public schools. A high drop-out rate and

declining test scores in public schools reinforces the notion of private schools' superiority in the area of education. Do private schools really outperform public schools?

Until recently, there has not been a way of comparing student achievement in public and private schools. Private and parochial schools seldom release test scores. Also, private and parochial schools do not necessarily use the same tests as public schools (Shanker, 1993).

The National Assessment of Educational Progress (NAEP), which is a congressionally mandated project of the National Center for Education Statistics that assess student performance in various subject areas, answered this dilemma when they released the results of its 1990 mathematics examination. On a 500 point scale, where a score of 200 means basic numeracy and a score of 350 indicates that a student is prepared to do college-level math, this test indicated that private school students scored, on the average, ten to fifteen points

higher than public school students between the fourth and eighth grade (Shanker, 1993).

Mathematics was not the only subject tested by NAEP. In 1994, the NAEP found that fourth, eighth and twelfth grade students attending non-public schools displayed a higher average reading proficiency than their counterparts attending public schools. Both public and non-public twelfth graders have demonstrated a decline in performance since 1992 (Campbell, Donohue, & Reese, 1996; Williams, Reese, Campbell, Mazzeo, & Phillips, 1994). This study concluded that for each grade level for the 1994 Reading Achievement assessment, the percentages of non-public school students at or above the three achievement levels tested were significantly higher than the percentages for the students attending public schools.

DeMarco (1996) conducted a study comparing first-grade reading achievement, in the first half of the school year, between children who attended kindergarten at a public school and children who attended kindergarten at a private school. The first grade students

were given a pre-test and a post-test assessing reading readiness skills such as vocabulary, phonics/decoding, and comprehension. A survey was also completed by the first grade teachers. The findings of the study revealed that the majority of private school students had mastered all the reading readiness skills in the kindergarten curriculum while the majority of public school students had only mastered a few of them.

Coleman, Hoffer, and Kilgore (1992) surveyed the mathematics and reading learning rates (how fast a student grasps new material) of private school students, Coleman, Hoffer, and Kilgore (1992) discovered that scores in mathematics and vocabulary learning rates of private school students were higher than public school students. For reading comprehension, the same results were also true except for Catholic school students who were equal to or lower than public school students. Topolnicki (1994) had similar results. This study found that when Scholastic Aptitude Test scores from private, Catholic and public schools were compared the private school

students' scores were higher than the public school students' scores.

The scores of the Catholic school students were not consistently higher than students in public schools or other private schools.

While the previous research focused on test performance, Williams (1987) not only examined test score but also included a survey which requested information on the size of the school, parental involvement, and the socioeconomic background of each student tested. Although Williams found that private school students scored higher on standardized tests, the difference was not significant.

Williams concluded that the size of the school, the size of the classroom, and the level of parental involvement were determining factors in higher test scores for students. Smaller class size may be a predictor of higher test scores along with the level of parental involvement. Socioeconomic factors did not seem to have any effect on scores because of the students' similar backgrounds. According to Williams, low-income families who choose small church-related schools for philosophical and religious reasons are willing to sacrifice

to pay tuition fees. Some of the private schools provided workstudy programs or tuition remission plans for students affiliated with the sponsoring church. This kind of commitment parents have to the private schools tends to cancel out socioeconomic effects.

The research suggests the private school students tended to achieve higher test scores than public school students. Whether the differences in the scores of public and private school students are significant depends on the study. Several factors such as class size and parental commitment may affect how students perform on test.

CHAPTER III

Design of the Study

Purpose

The purpose of this study was to determine if there was a statistically significant difference between reading achievement scores of fifth grade Lutheran female students compared to national norms.

Research Question

Is there a statistically significant difference between Stanford Achievement Test scores of fifth grade female Lutheran students and the national norming group of the Stanford Achievement Test?

Methodology

Subjects

The subjects were twenty fifth-grade female students from six New York Lutheran elementary schools who took the Spring 1996 Stanford Achievement Reading Test.

Materials

The subjects' Stanford Achievement Test Reading Comprehension raw scores from spring 1996 were used along with the Stanford Achievement Test Reading Comprehension raw scores from spring 1996 of the national norming population.

Procedure

The Stanford Achievement Test (Reading) scores was administered in the spring of 1996 to all fifth grade students in the

schools from which the subjects were drawn. The scores were separated by gender. The female scores were compared to the national norms of the Stanford Achievement Test (Reading) for fifth grade level.

Analysis of Data

The raw scores from fifth grade Lutheran female students and the raw scores from the national norming group were statistically analysed through the use of a t test.

CHAPTER IV

Analysis of Data

Purpose

The purpose of this study was to determine if there was a statistically significant difference between reading achievement scores of fifth grade Lutheran female students compared to national norms.

Null Hypothesis

There is no statistically significant difference between Stanford Achievement Reading Test scores of fifth grade female Lutheran students (Group B) and the scores of national norming group of the Stanford Achievement Reading Reading Test (Group A) when tested at the 95% confidence level.

Findings

Table 1
Analysis of Mean Scores: Stanford Achievement Test: Reading

	n	Mean Score	Standard Deviation	Obtained t
Group A	1486	35.10	11.0	
				-.62
Group B	20	36.62	12.96	

$t_{crit. (.05)} = \pm 1.96$

Since the t required for 1504 degrees of freedom at the 95% confidence level is ± 1.960 , and since t obtained is $-.62$, the data failed to reject the null hypothesis and conclude that there is no statistically significant difference in favor of either sample.

CHAPTER V

Conclusions and Implications

Purpose

The purpose of this study was to determine if there was a statistically significant difference between reading achievement scores of fifth grade Lutheran school female students compared to national norms.

Conclusions

Findings suggest the fifth grade Lutheran female students perform on the average at the same level in the Stanford Achievement reading test as do the students in the Stanford norming group. In the previous studies mentioned, female students out-performed male students in the reading areas of standardized testing (Becker & Forsyth, 1990; Feingold, 1992; Hyde, 1981; Maccoby & Jacklin, 1974; Martin & Hoover, 1987; O'Brien, 1994; Schram, 1996). This

present study found different results. Why did female Lutheran students perform at the same level as students in the national norming group? There are several possibilities which may help to explain the study's results.

A more accurate test in which to identify students' level of reading comprehension is a possibility. The Stanford Achievement test is a "fill-in the blanks" test that leaves little room for authentic assessment. High level questions which may indicate a deeper understanding may be needed to correctly assess the students' comprehension of what they read.

Another possibility is resources. Due to lack of resources and money, synodically trained Lutheran teachers do not have the opportunity to attend workshops and seminars which may offer new ideas, strategies and insights in teaching their students. The lack of educational materials such as computers, hands on material and books may also affect students' learning and therefore their performance of tests.

Cultural differences may also be a factor. Countries where males are considered superior to females, males score higher on tests than females (Bryne,1990; Johnson,1972). In the Lutheran Church males have a definite gender role as do females. Men can be pastor or elders. Women cannot. Traditionally men can be presidents of congregations and ushers. Women cannot. A woman's role is limited inside the Lutheran church. Do these gender roles influence the female students' performance in reading? As stated earlier, some studies have found that females consistently score higher than males in reading. The present study found that fifth-grade female Lutheran students' reading scores were at the same level as the national norming group. Lutheran views of what men and women roles are may be a contributing factor in why these fifth-grade Lutheran female scores were not higher. A Lutheran school is supported spiritually and financially by its associated church. Lutheran teachers specifically trained in church doctrine teach in Lutheran schools. Although students may not be taught directly what gender roles they should

follow, these defined gender role are modeled to the students everyday. How could the students not be influenced by what they see everyday?

Implications for Further Research

The female Lutheran students' scores of this study were consistent with the national norming scores which consist of both female and male females scores. Should not the female Lutheran students performed slightly higher if the were following the trend of previous research studies? Is there an underlying influence exerted upon the female students that might lower their performance to match male students' performance? Further research comparing female Lutheran scores to female scores from the national norming samples would be useful in determining any differences between reading comprehension. Other academic areas could be examined for differences in performance of female Lutheran students and public school female students.

Further research should also be conducted to investigate how female Lutheran students' test performance differ from male students' test performance of the national norming group but also male Lutheran students' performance. Research into this area would give more insight into the cultural effect that the Lutheran church may have on the students of their religious schools.

This study focused on female Lutheran students in New York. Would the results from this study be duplicated in studies originating in other parts of the United States? Future studies involving a more varied sample may answer this question.

Other Implications

As this study indicates, there is no statistically significant difference between female Lutheran students' scores and the national norming scores. Private education has been perceived as being superior to public education (Shanker, 1993; Topolnicki, 1994; Williams, 1987). Since this present study found no statistically

significant difference in the scores of the female Lutheran students and the national norming scores, this may indicate the education is improving in public schools. Public school enrollments may increase if parents decide that a public schools can provide an education that is comparable to private school education.

Parents enroll their children in private schools in the belief that their children will receive a better education with higher standards (Coleman, Hoffer, Kilgore, 1982; Shanker, 1993, Topolnicki, 1994).

Lutheran schools state “the average Lutheran elementary and secondary school student will score at the 75th percentile on standardized achievement test” (Grube & Moser, 1993, p. 16).

According to the present study, this is not an accurate statement. If Lutheran students do not perform as high as the Lutheran schools claim, parents may choose a public school education or different private schools education than a Lutheran education.

Final Statements

This study was an attempt to determine if there was a statistically significant difference between Stanford Achievement Reading scores of fifth grade Lutheran female students and the national norming students. This study does conclude that there is no statistical difference between these two populations. Further research is needed to explore the area of female students in private schools to obtain a clearer view of female performance and the influences which may affect that performance.

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