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# A Summary of Homeschooling Across North Carolina:

## Academic Achievement and Demographic Characteristics

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# Introduction and Purpose

Research on home-based education has expanded dramatically since the first studies and academic articles of the late 1970s that dealt with the modern homeschool movement. Numerous researchers have examined the academic achievement of home-educated children and youth, their social, emotional, and psychological development, and their success into adulthood and various aspects of homeschool families. Researchers have also explored myriad other aspects and issues related to home education in disciplines such as philosophy, sociology, and law. Scant research, however, has focused on a sample of home educators and their children in the state of North Carolina.

# Introduction and Purpose

The purpose of this statewide cross-sectional, descriptive study (Johnson, 2001) is to examine the educational history, demographic features, and academic achievement of home-educated students and the basic demographics of their families in the state of North Carolina, and to assess the relationships between the students' academic achievement and selected student and family variables.

# Methods

Data on the homeschool families and students were from a survey instrument and national standardized academic achievement tests. The survey instrument was comprised of five parts.

- Qualifiers
- Student demographics
- Parent and family demographics
- Scholastic information
- Other information.

# Methods

Academic achievement is considered, in this study, to be the formal demonstration of learning (including knowledge, understanding, and thinking skills) attained by a student as measured by standardized academic achievement tests.

For example, knowledge and ability in the areas of reading, language, and mathematics are included. The achievement tests most used in the nationwide study that was the basis of this state-specific study were the Iowa Tests of Basic Skills and California Achievement Tests.

# Methods

The target population was all families in the United States who were educating their school-age children at home and having national standardized achievement tests administered to their children. A total of 11,739 students provided useable questionnaires with corresponding achievement tests. Of these, 1,149 were from North Carolina. The achievement test and questionnaire results were combined to form the dataset used in this analysis.

# Findings

The data revealed several key findings about these homeschool students and their families. Following is a summary.

# Major Findings: Demographics

The median income for these home-educating families in North Carolina ($70,000-$74,999) is somewhat less than for all married-couple families nationwide with one or more related children under age 18 (median income $74,049 in 2006 dollars; or roughly $79,015 in 2008 dollars).

# Major Findings: Demographics

Homeschool parents have more formal education than parents in the general population; 62.7% of the fathers and 58.2% of the mothers had a college degree (i.e., bachelor's degree) or a higher educational attainment. In 2007, 29.5% of all adult males nationwide ages 25 and over had finished college and 28.0% of females had done so.

# Major Findings: Demographics

These homeschool families are notably larger – 62.8% have three or more children – than families nationwide.

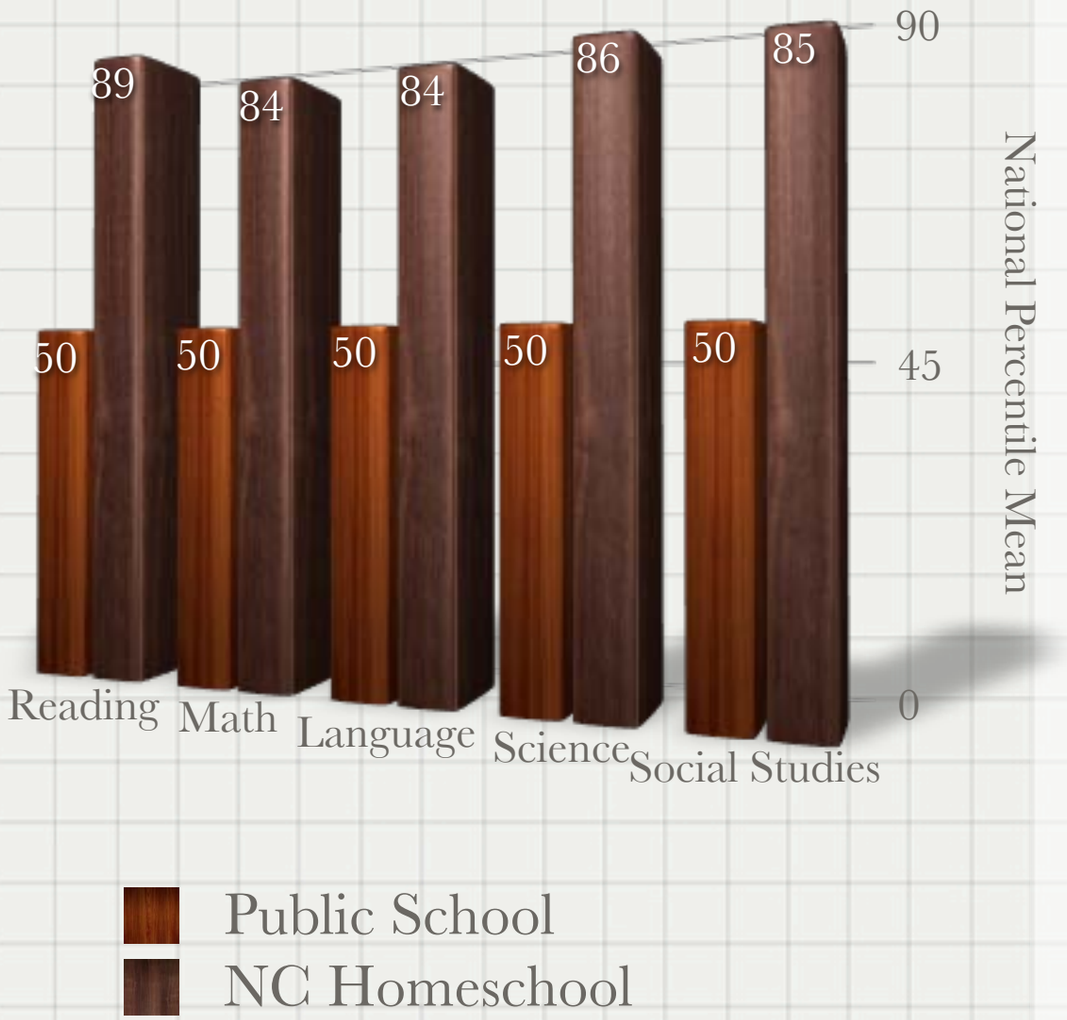
The percent of homeschool students in this study who are White/not-Hispanic (92.5%) is disproportionately high compared to public school students nationwide.

# Major Findings: Demographics

Almost all homeschool students (96.4%) are in married-couple families. Most of these homeschool mothers (79.7%) do not participate in the paid labor force; almost all homeschool fathers (97.3%) do work for pay.

The median amount of money spent annually on educational materials is about $400 to $599 per home-educated student.

# Major Findings: Academic Achievement

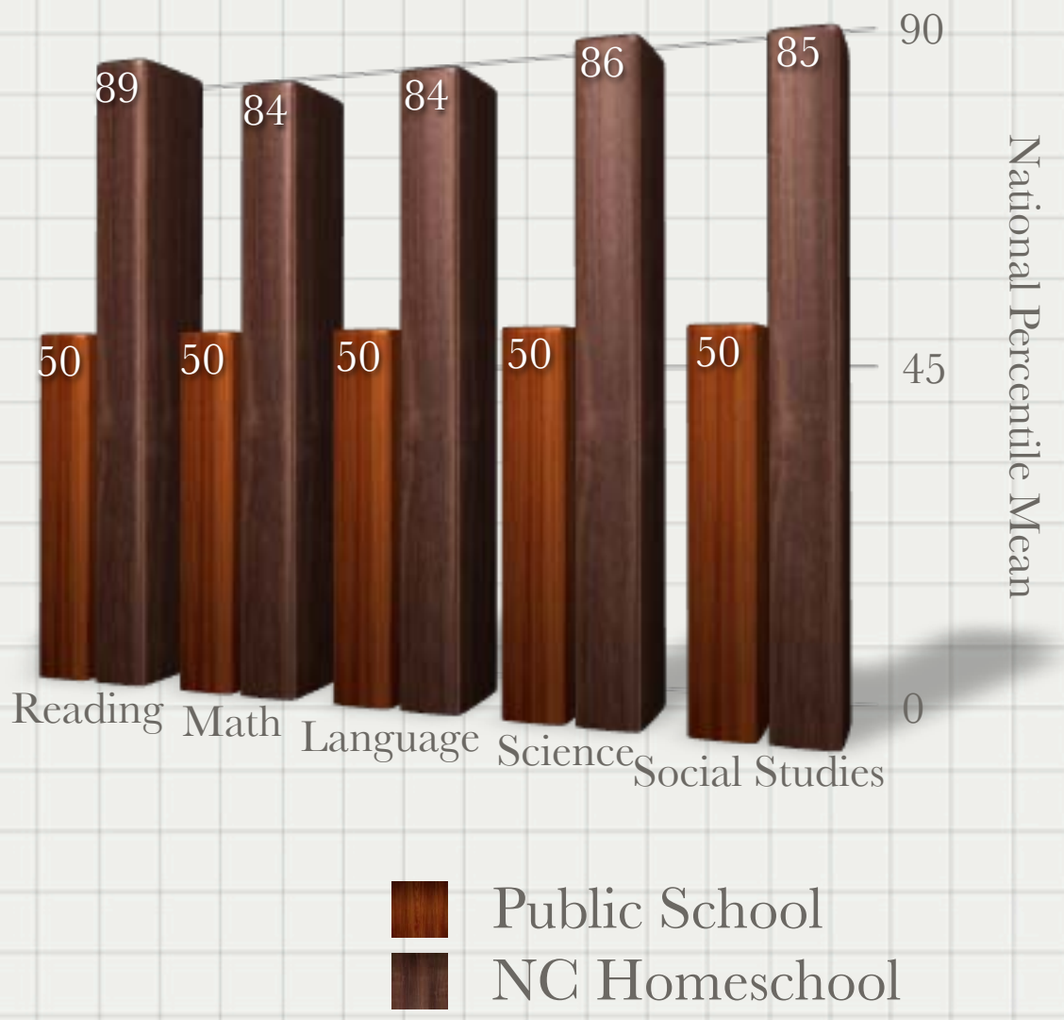



Homeschool student achievement test scores are exceptionally high in this study in North Carolina. The mean scores for every subtest (which are at least the 84th percentile) are well above those of public school students.

There are no statistically significant differences in achievement by whether the student has been home educated all his or her academic life, whether the student is enrolled in a full-service curriculum, student's gender, amount of money spent on home education, family income, whether either parent had ever been a certified teacher, degree of structure in the homeschooling, and amount of time student spends in structured learning.

# Major Findings: Academic Achievement

There are statistically significant differences in achievement among homeschool students whether the parents knew the child's test scores before participating in the study (but both groups were above the general national average), the parents' education level, the number of children living at home, and the age at which formal instruction of the student began. However, parent education level explained only about 1.5%. of the variance in student scores and the other variables explained only small amount of variance (and some of this variance might be redundant).



# Major Findings: Academic Achievement

**Table 1:** Mean z-scores and corresponding national percentiles by subtest for North Carolina homeschool students

Table 1 shows the mean z-scores for home-educated students on the Reading Total, Language Total, Mathematics Total (with computation), Science, Social Studies, Core (with computation), and Composite (with computation) subtest scores. Core is comprised of combination of a student's Reading, Language, and Mathematics scores. Composite is a combination of all subtests that the student took on the test. The corresponding percentiles shown in the table are the within-grade percentile scores for the nation that correspond to the given z-scores. By definition, the 50th percentile is the mean for all students nationwide (last column). Wide ranges of z-scores were included in the study (with scores as low as -2.33 z, about the 1st percentile, being reported).

a. Following are a few z-score/percentile equivalents: -0.67 = 25th percentile; 0.00 = 50th percentile; 0.67 = 75th percentile; 1.00 = 84th percentile.
b. Ray, 2010.

# Major Findings: Academic Achievement

**Table 1:** Mean z-scores and corresponding national percentiles by subtest for North Carolina homeschool students

| Subtest | N | Minimum z-score | Maximum z-score | Mean z-score[a] | Standard Deviation, z-score | North Carolina National Percentile Mean | Homeschool National Percentile Mean[b] | Public School National Percentile Mean |
|---|---|---|---|---|---|---|---|---|
| **Reading Total** | 1147 | -2.33 | 2.33 | 1.2105 | .7832 | 89 | 89 | 50 |
| **Language Total** | 1127 | -2.33 | 2.33 | .9847 | .8396 | 84 | 84 | 50 |
| **Math Total** | 1146 | -2.33 | 2.33 | .9772 | .8673 | 84 | 84 | 50 |
| **Science** | 731 | -1.75 | 2.33 | 1.0879 | .7569 | 86 | 86 | 50 |
| **Social Studies** | 729 | -1.88 | 2.33 | 1.0296 | .8489 | 85 | 84 | 50 |
| **Core** | 1096 | -1.48 | 2.33 | 1.1561 | .7852 | 88 | 88 | 50 |
| **Composite** | 617 | -1.56 | 2.33 | 1.1665 | .7967 | 88 | 86 | 50 |

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# Major Findings: Academic Achievement

**Table 2:** Summary of relationships between core test z-scores and studied variables

The relationships between homeschool students' academic achievement and several variables were examined. Table 2 gives a summary of the relationships between core test z-scores and those variables.

a. Yes – $p < .01$; No – $p >= .01$; n.a. – not applicable; not tested or calculated.

b. Qualitative terms used are from Hopkins (2000, chapter "A Scale of Magnitudes for Effect Statistics") and Cohen & Cohen (1983); terms range from least to most significant: trivial, small, moderate, large, very large, nearly perfect, and perfect.

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# Concluding Remarks

The results of the present study in North Carolina are consistent with previous studies of the achievement of home school students (Ray, 2000, 2010; Rudner, 1999; van Pelt, 2003). Comparisons between home-educated students and institutional school students nationwide should, however, be interpreted with thoughtfulness and care.

# Concluding Remarks

As stated at the beginning of this report, this is a cross-sectional, descriptive study (Johnson, 2001). It is not a controlled experiment and readers should be careful about assigning causation to anything. On the one hand, as Rudner (1999) wrote: "This study simply shows that those parents choosing to make a commitment to home schooling are able to provide a very successful academic environment."

On the other hand, it may be that something about the very nature and practice of home-based education in North Carolina and across the nation causes higher academic achievement than does institutional state-run schooling (Ray, 1997, 2000).

# References



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