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**THE ACADEMIC SUCCESS OF HOMESCHOOLED STUDENTS IN A
SOUTH CAROLINA TECHNICAL COLLEGE**

by

Jack N. Bagwell, Jr.

A DISSERTATION

**Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of the Requirements
For the Degree of Doctor of Philosophy**

**Major: Educational Studies
Under the Supervision of Professor Sheldon Stick**

Lincoln, Nebraska

August 2010

**THE ACADEMIC SUCCESS OF HOMESCHOOLED STUDENTS IN A
SOUTH CAROLINA TECHNICAL COLLEGE**

Jack N. Bagwell, Jr., Ph.D.

University of Nebraska, 2010

Advisor: Sheldon Stick

In 2010, homeschooling was increasing in prevalence in the United States. Yet, little was known about the academic achievement of these students as they matriculated into colleges and universities. The purpose of this mixed methods sequential explanatory study was to examine the academic success achieved by the homeschooled population (N=273) and a sample of the traditionally educated students (N=273) who had enrolled in credit courses between the years of 2001 and 2008 at York Technical College, a comprehensive community college in South Carolina. In the quantitative phase of the study, academic success measures included COMPASS placement scores in writing, pre-algebra, algebra, college algebra, and reading and collegiate grade point averages for the 1st semester in college, math courses, science courses, English composition courses, and collegiate overall. In each measure except COMPASS college algebra, the homeschooled students had higher scores/GPAs and each of these differences were statistically significant with the exception of the COMPASS algebra scores.

In the second phase, four homeschooled students and four traditionally educated students were selected from the enrolled population of the college and interviewed using a semi-structured methodology. The participants were selected to represent the diversity of both populations and to provide depth and context to the quantitative findings. Three themes emerged related to the preparation the participants received from their educational

history: general preparation, math preparation, and social preparation. All participants felt their educational histories generally prepared them for college-level work, all of the participants felt their weakest area of preparation was mathematics, and all expressed thoughts related to their social preparation for college. Although there were similarities between the two populations in the thoughts expressed leading to the identification of the first two themes, there was more diversity between participants from the two groups related to social preparation.

The findings from the quantitative and qualitative phases were integrated to offer a more complete analysis of the relative success of homeschooled students at York Technical College. This analysis has been interpreted to mean that homeschooled students compared favorably to their traditionally educated peers, but a possible area of concern was the mathematics preparation these students received prior to matriculating in college. This finding along with the theme of social preparation should be of particular interest to homeschooled students, their parents, and colleges that will enroll homeschooled matriculates.

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CHAPTER 1: INTRODUCTION

Statement of the Problem

Patricia Lines (2000), a senior fellow at the Discovery Institute, referred to the increasing prevalence of homeschooling as “one of the most significant social trends of the past half century” (p. 74). Will history judge Lines’ words to be prophetic or hyperbolic? That remains to be seen, but it is clear that homeschooling, which was uncommon less than 40-years ago, has become normalized (Stevens, 2003).

Concomitant with its increasing popularity, homeschooling has increasingly become a part of the national consciousness, but it is largely misunderstood (Medlin, 2000). This is due in part to the relative scarcity of research focused on the topic. Another factor contributing to the lack of understanding of the activity is that homeschooling is not the method by which most of the United States’ population has been educated. This, of course, was not always the case.

Homeschooling has a rich history in the world (Seelhoff, 2000a; Stevens, 2001), and it was the primary method of education in the United States prior to the 1870s when compulsory school attendance became the norm (Basham, 2001; Hill, 2000; Stevens, 2003). Despite compulsory school attendance laws some children continued to be homeschooled, because of necessity or choice. Some families lived in such remote areas of the country that it was impossible for their children to participate in institutionalized schooling (Basham, 2001). Other families opted for homeschooling for personal reasons.

In the 1960s the practice of homeschooling saw a resurgence (Basham, 2001; Lyman, 1998a; Seelhoff, 2000b). In 1999, homeschoolers made up approximately two percent of the nearly 54 million school-aged children in the United States (Bielick,

Chandler, & Broughman, 2001; Bielick & Chapman, 2003). To put that fact into perspective, the number of homeschoolers during 1999 was roughly equal to the number of children in the New York City Public School System (Hill, 2000), and nearly twice the number of students enrolled in charter schools ("Charter schools," 2008).

According to estimates by the National Center for Education Statistics, the number of homeschoolers increased 29% to 1.1 million between the years 1999 and 2003 ("*1.1 million homeschooled*", 2004) and increased 36% to 1.5 million between the years of 2003 and 2007 (Bielick, 2008). In 2006, the National Home Education Research Institute estimated that between 1.9 and 2.4 million children were homeschooled during the 2005-2006 school year.

The increasing numbers of homeschooled students have gained a reputation for high academic achievement. Cosh (2002) described how homeschooled children were disproportionately represented in competitions such as the National Spelling Bee and the National Geographic National Geography Bee, despite constituting just two-percent of the total K12 schoolchildren; they were 11% and 22% of the contestants respectively. An examination of the results of the 2007 Scripps National Spelling Bee revealed that five of the top 15 finishers (including the winner) were homeschooled students ("Top finishers," n.d.). In the 2006 and 2007 National Geographic Bee finals, homeschoolers represented five states in 2006 ("2006 state winners," n.d.) and six states in 2007 ("2007 state winners," n.d.). The winner of the 2007 National Geographic competition was 14 year-old Caitlin Snaring, an 8th grade homeschooled student; she was only the second girl to win the competition in the 19-year history of the event ("Winner," 2007).

As the homeschooled children mature, they reach the point of matriculating at a postsecondary institution of education. Some opt for four-year schools. Others prefer the

community college route and reports have stated that the latter institutions have been accepting many more such students. These colleges have begun to embrace homeschoolers interested in enrolling as freshmen or who are interested in enrolling in college courses that can also be used to meet high school graduation requirements; e. g. dual credit courses (Shek, 2001a). Also, it has been reported that on a national level, 63% of colleges have seen an increase in admission applications from homeschoolers. This percentage jumped to 72% when only community colleges were considered (Shek, 2001b). Duggan (2010) recognized that the number of homeschooled students is inherently hard to quantify, but that “a few facts are certain: the numbers are steadily increasing, these students are attending college, and, in many instances, they are choosing community colleges” (p. 59).

This trend of increasing numbers of homeschooled students seeking higher education has been evident at York Technical College, an open-door institution that is a member of the South Carolina Technical and Comprehensive Education System. The College serves York, Chester, and Lancaster counties of South Carolina. The population of the college’s service area was estimated to be 295,538 in 2006 (“YTC 2007 ACFR,” 2007) with 45,681 of the residents enrolled in K-12 schools during the 2007-2008 school year (“Public Schools,” 2010). The number of homeschooled students located in the colleges service area could not be determined. In the fall of 2007, there were 5,098 students enrolled in at York Technical College with a full-time equivalency of 3,245 students (“YTC fall enrollment,” 2009). From the spring semester of 2001 to the fall semester of 2007, the college enrolled approximately 273 homeschoolers. Table 1.1, below, shows the number of homeschooled students enrolled by academic year and

provides the percentage increase or decrease from the previous year, which runs from fall semester of one year through the summer of the following year.

Table 1.1

Homeschooled Students Enrolled at York Technical College by Academic Year

Academic Year	Total # of Homeschooled Students Enrolled	% Increase / (Decrease) from Previous Year
2000 - 2001	6	NA
2001 - 2002	37	NA
2002 - 2003	48	29.7
2003 - 2004	71	47.9
2004 - 2005	127	78.9
2005 - 2006	100	(27.0)
2006 - 2007	154	54.0
2007 - 2008	169	9.7
2008 - 2009	73	NA

Table 1.2, below, shows the number of homeschooled students who enrolled for the first time at York Technical College each academic year between 2000 – 2001 and 2008 – 2009. Percentage increases and decreases from the previous year are included.

Table 1.2
Number of Homeschooled Students Enrolled for First Time in Academic Year

Fall to Fall	# of Homeschooled Students Enrolled for First Time	% Increase / (Decrease)
2000 – 2001	6	NA
2001 – 2002	22	NA
2002 -2003	14	(57.1)
2003 – 2004	28	100
2004 – 2005	36	4.6
2005 - 2006	23	(56.5)
2006 – 2007	56	144
2007 – 2008	58	3.6
2008 - 2009	30	NA

Collectively, tables 1.1 and 1.2 show a trend of increasing enrollments for homeschooled students at York Technical College. Importantly, the data presented is incomplete for the academic years 2000 – 2001 and 2001 – 2002 because at that time little to no consideration had been given to origin of a student’s K-12 education and the raw scores presented in the first two tables are the only concrete facts. Thus it was not possible to determine meaningful percentage changes. Furthermore, the institution has not conducted any studies comparing the academic success of the homeschooled students to traditionally educated students.

Researchers have compared the academic performance of homeschoolers to students acquiring a more conventional K-12 education and concluded that homeschooled

students performed as well or better than traditionally-educated students (Gray, 1998; Hill, 2000; Jenkins, 1998; Jones, 2002; Jones & Gloeckner, 2004; Lyman, 2000; Rockney, 2002). Gray claimed:

Virtually all the data show that the group of home-schooled children who are tested is above average. Although there have been relatively few studies done on the academic achievements of home-schoolers, research reveals that these children generally score at or above the national average. Statistical data continues to conclude that home-schooling not only works, but it works effectively. (p. 36)

The collegiate success of the homeschooled students has not been as well established, but studies claim that they compare favorably with their more traditionally educated peers. Researchers have examined, among other things, the first-year success of homeschooled students (Galloway, 1995; Gray, 1998; Jenkins, 1998; Jones, 2002), their performance in English courses (Galloway, 1995; Mexcur, 1993), and their performance on standardized tests (Ashford, 2005; Clemente, 2006; Galloway, 1995; Gray, 1998; Jenkins, 1998; Jones, 2002; Mexcur, 1993; Oliveira, 1994). These studies are reviewed in depth in chapter 2 (literature)

Jenkins (1998) contended, “Home school research is in its infancy and many areas are left to be explored” (p. 76). This is especially true of research related to homeschoolers’ performance in college. Jenkins predicted it would be fertile area for continued research because of the increasing numbers of parents who were homeschooling their children. Subsequently, increasing numbers of these students will seek to enroll in the postsecondary institutions of the United States. Previous studies also supported continued efforts in this area (Gray, 1998; Jenkins, 1998; Jones, 2002), reasoning that it was important so the postsecondary institutions would be able to make more informed decisions about recruiting and enrolling homeschooled students.

Parenthetically, the information culled from such studies would provide feedback to the parents of homeschoolers on the important issue of how their children performed when they matriculated into colleges and universities.

This dissertation adds to the body of research on the relative effectiveness of homeschooling in the United States. And, it contributes to understanding how successful homeschoolers are upon matriculating into a selected institution of higher education; a previously unexplored domain of professional interest.

Purpose of the Study

The goal of this mixed-methods sequential explanatory investigation was to study the success of homeschooled students in two distinct phases. In this research methodology, quantitative data was obtained and analyzed from 273 homeschooled students enrolled at York Technical College between 2001 and 2008. A comparison cohort was selected from traditionally educated students.

The demographic characteristics of the homeschoolers available to the researcher provided parameters for a sampling technique that allowed the researcher to compile the comparison group of traditionally educated students. This was followed by the second phase in which qualitative data obtained from semi-structured interviews was used to explain or build upon the quantitative findings (Creswell, 2003). The purpose of combining the two data types into one study allowed a more “robust analysis” than could have been obtained by examining either the quantitative or qualitative data alone (Ivankova, Creswell, & Stick, 2006, p. 3).

During Phase 1, the quantitative phase, a statistical analysis of students’ academic performance was performed. In Phase II, the qualitative phase, the researcher selected eight case studies using the principle of maximum variation; four homeschooled students

and four traditionally educated students. The researcher selected two high achievers and two low achievers from each group, and interviewed each using a semi-structured interview methodology. The nature of the interviews were guided by the findings from Phase I, and allowed the investigator to explore more fully the results obtained from Phase I.

Research Questions

Phase I Research Questions

1. Is there a statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students?
2. Is there a statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students?
3. Is there a statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated students?
4. Is there a statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students?
5. Is there a statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated students?
6. Is there a statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students?
7. Is there a statistically significant difference between the mean collegiate English composition GPA of homeschooled students and that of traditionally educated students?
8. Is there a statistically significant difference between the mean collegiate overall GPA for homeschooled students verses that of traditionally educated students.

Phase I Null and Alternate Hypotheses

1. Null: There is no statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students.

2. Null: There is no statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students.

3. Null: There is no statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated students.

4. Null: There is no statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students.

5. Null: There is no statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated students.

6. Null: There is no statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students.

7. Null: There is no statistically significant difference between the mean collegiate English composition GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean collegiate English composition GPA of homeschooled students and that of traditionally educated students.

8. Null: There is no statistically significant difference between the overall collegiate GPA for homeschooled students verses that of traditionally educated students.

Alternate: There is a statistically significant difference between the overall collegiate GPA for homeschooled students verses that of traditionally educated students.

Phase II Research Questions

The undergirding question that guided the qualitative portion of this study was:
What competencies and experiences do students acknowledge as having been influential to their success in college?

Definition of Terms

- COMPASS – a college placement test used to place entering students into the correct courses based on the abilities of the student.
- Dual enrollment - this is the enrollment in college courses while still in high school. The course credits are used to meet both high school graduation and college graduation requirements.
- Full-Time Equivalent (FTE) – a metric used, among other things, to determine state funding allocated to a college. It is calculated in South Carolina by dividing the total credit hours by 15.
- Homeschool / home school - usually the home; where home schooling is performed.
- Homeschool graduate / home school graduate - a student whose high school diploma was awarded by a home school or by a home school organization regardless of how many years the student was homeschooled.
- Homeschooler / home schooler - the K12 student that is educated through homeschooling.
- Homeschooling / home schooling - the act of being educated in the home; usually by parents.
- Open door institution – a college that admits students regardless of academic qualifications.

- Student success – the degree to which a group of students performs (successfully or unsuccessfully) relative to a comparison group.
- Technical College - the equivalent of a comprehensive community college in the South Carolina Technical and Comprehensive Education system. These colleges offer certificates, diplomas, and associate degrees in technical fields and for students seeking to transfer to four-year universities.
- Traditionally educated students - K12 graduates that attended a government-run (public) school or a parochial school.

Assumptions

1. The researcher assumed that the data obtained on homeschoolers and their traditionally educated counterparts were representative of the population of homeschoolers in the service area of York Technical College. Homeschooled students who chose to matriculate into the college were self-selected. There was no way to know if that group was representative of the entire homeschooled population in the three-county service area of the college.

2. The researcher also assumed that the open door policy of the college and its willingness to admit homeschooled students, many of whom were in effect dual enrollment students, did not skew the results of this study. Burns and Lewis (2000) reported that dual enrollment courses taken on a college campus were viewed as positive experiences by the participants in their study. Specifically, those study participants expressed a desire to continue enrolling in such courses and displayed an academic independence that was attributed to the challenge of being enrolled in a college course. In addition, Bailey and Karp (2003) reviewed 45 articles and reports and claimed that most claimed positive benefits for such students in credit-based transition programs including

dual enrollment. Among the benefits cited was the ability of such programs to provide information that was useful to students about their readiness for the rigors of college.

The findings reported by Jenkins (1998) were interpreted to mean that dual enrollment students under 16-years-of-age performed as well as the homeschooled graduates in college courses. For these reasons, it was assumed that the results for the homeschooled students in this study were not skewed despite many of them having been dual-enrollment students, while the comparison group of traditionally educated followed a more traditional matriculation path.

Delimitations

1. The study was confined to York Technical College in South Carolina.
2. Participant preparation and responses of participants in the study might not have been representative of the preparation of students in other geographical areas, or of students electing to matriculate elsewhere.
3. The variables used to define student success in this study were identified based on their availability in the York College's database. It was recognized that they were not the only such measures that could have been used for such a comparative study. For example, York Technical College used the COMPASS placement tests to place incoming students into courses. Some schools use other placement tests or standardized tests such as the SAT and ACT to accomplish that task.
4. Due to inconsistencies in the way homeschooled students have coded upon admission to community and technical colleges, the population of students at York Technical College identified as homeschoolers might not have been representative of the homeschooled populations at other colleges.

Limitations

1. The participants of this study were drawn from the student population of York Technical College's service area. There was no evidence that they and their comparative group of traditionally educated students was representative of the entire state of South Carolina, or elsewhere.

2. Qualitative methods were used in Phase II of this study. It is possible that the interviewing techniques of the researcher were more or possibly less effective than persons seeking to replicate this study.

3. Not all readers will share the interpretations of the researcher.

4. The researcher homeschools his children and knows many homeschooling families in the community. Consequently, there is potential for bias to have been introduced in Phase II.

Significance of the Study

A study of the collegiate academic success of homeschooled students should prove useful to the professional academic community. Admission personnel working at postsecondary institutions are expected to welcome research-based information that reports on the relative success (or lack of success) of homeschooled students verses their traditionally educated peers. This could affect acceptance and recruitment policies for the colleges. Gray (1998) wrote:

A movement once reserved primarily for misanthropes, missionaries, and religious fundamentalists now embraces such a range of families that it has become a mainstream alternative to regular public or private education. In inner cities and rural farm towns all across the country, periodic tables hang on dining room walls, and multiplication tables are taped to the back of car seats for practice during field trips. Home-schoolers hold conventions at which hundreds of companies offer curriculum guides, textbooks, and support groups. (p. 21)

With homeschooling becoming more prevalent in the United States, it is a movement warranting critical examination. Studies to date (Gray, 1998; Jenkins, 1998;

Jones, 2002) on the collegiate success of homeschoolers have been limited to small population sizes and been limited in geographic scope and institution type. To this end, this study:

- 1) Continued the investigation into the collegiate academic achievements of homeschoolers: a vein of inquiry that has not been mined sufficiently.
- 2) Broadened the geographic scope of homeschooling research by examining students from a state, South Carolina, which has not been included in previous studies on the collegiate success of homeschoolers.
- 3) Provided scholarly information on homeschoolers' success at a community college.
- 4) Provided a platform for further critical study in this subject.
- 5) Fostered a forum for scholarly discussion on further research and the implications of this and related work.

In summary, the admission of homeschooled students into community colleges is on the rise (Chappell, 2007; Shek, 2001b). All of the outcomes from this study are important in helping to paint a more comprehensive picture of homeschooling outcomes. The activity reportedly has been successful for educating K12 students (Basham, 2001; Bauman, 2002; Rudner, 1999a, 1999b), and researchers expect the numbers of homeschoolers to continue to increase (*"1.1 million homeschooled"*, 2004; Basham, 2001; Bauman, 2002). The sequel is that postsecondary education can expect to receive more admission seeking applications from homeschooler students. Community colleges are most likely to be impacted because of their open enrollment policies and willingness to encourage students to matriculate while completing high school requirements.

The concepts of dual enrollment (high school and college credits) appears to be a particularly lucrative process for recruiting students and holds considerable attraction for those homeschooled. Determining the efficacy of homeschooling and allowing for the potential variability in depth and breadth of students' knowledge would seem to be critical pieces of information sought by admissions personnel at the postsecondary institutions. With open-admissions schools, such as York Technical College, the responsibility for prudence includes the judicious use of an institution's resources, maintenance of academic standards, and by no means of lesser importance is the obligation for ensuring that all matriculates are afforded the best learning opportunities. Thus, the question becomes whether homeschooled students and conventionally educated students enter the race equally, and are comparable in being able to benefit from the resources made available by an institution.

Summary

This chapter has presented the issue of whether home schooled students should be considered as having an equal footing with conventionally educated students who have matriculated through the K-12 system. cursory but relevant evidence was given to endorse the belief such students have at least comparable academic competencies, and that it was important for postsecondary institutions to approach admission decisions for such applicants armed with substantive data so both parties could benefit from a union.

The issues attendant to each of the two phases to this mixed method study were presented and followed by identification of assumptions, delimitations, and limitations as understood at the initiation of the investigation. A list of relevant definitions was included in this chapter and the significance for undertaking this work was provided. The next chapter is a review of selected and relevant literature that buttresses the issue of

home schooled students being of at least comparable competence to other students seeking admission into institutions of postsecondary learning.

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

The available literature has been interpreted to mean that an increasing number of homeschooled students are availing themselves of the opportunity to continue their education at community colleges (Chappell, 2007; Shek, 2001b) and that these colleges are embracing the homeschoolers in return (Shek, 2001a). The trend of increasing enrollment of homeschoolers also is evident at York Technical College despite the fact the college has paid little attention to that population and has done little toward recruitment.

Public school enrollment in the United States was expected to have reached an all-time high in 2008 ("Enrollment trends," n.d.), and by extrapolation it was reasonable to expect a concomitant increase in homeschooled students, particularly since the increase in homeschooled students has been more dramatic than would have been expected based exclusively on the projected increases in the total student population. The National Center for Education Statistics estimated a 29% increase in the number of homeschooled students between the years of 1999 and 2003 ("*1.1 million homeschooled*", 2004; Princiotta & Bielick, 2006). By contrast, the total enrollment in elementary and secondary schools (public and private) increased from 52,875,000 to 54,639,000 between 1999 and 2003, which was an increase of approximately 3.3% (Synder, Dillow, & Hoffman, 2009).

The organization of this chapter includes: historical perspective of homeschooling, status in 2008, reports of homeschoolers' academic accomplishments, and information on how such students fare in postsecondary environments.

A Brief Review of the History of Homeschooling

Historical Perspectives

There seems to be a belief that homeschooling was a recent arrival on the educational scene. This, however, was not the case (Farenga, 1999; Hill, 2000; Lines, 2000). The practice of homeschooling has a rich history in the United States (Carper, 2000; Nemer, 2002). It was the dominant means of education in colonial America. The family, and not the school, was “the most important educational agency” in the 17th and 18th centuries (Carper, 2000, p. 9). Opportunities for schooling outside the family became more commonplace in the latter 1700s; and by the beginning of the 19th century most White children attended a formal school for at least part of their education (Carper, 2000).

Compulsory schooling laws came into existence during the 19th century. The first of these laws was passed in Massachusetts in 1852, and by 1918 every state in the nation had joined suit (Nemer, 2002). The compulsory education that emerged during that time coincided with America’s transformation from a society with home as the center to one with corporation in the center (Cai, Reeve, & Robinson, 2002). The rise of compulsory attendance laws corresponded to the industrial revolution (Burkard & O’Keeffe, 2005). During that time, the role a state played in educating children increased and the role played by the parents decreased. Instead of each family determining the educational outcomes for their children, the outcomes were determined by local school systems, and sometimes markedly influenced by a central state authority. This democratization of the educational process was an important social force.

Burkhard and O’Keeffe (2005) discussed the primary outcome that compulsory attendance laws were meant to address. They included a belief that a strong system of schooling:

- Was vital to ensuring the nation’s economic health.
- Was essential to the development of children’s social skills allowing them to develop much needed skills in team work.
- Would serve as a mechanism by which the state could develop a common culture among the citizenry.
- Would provide a mechanism to protect children from the influence of cults.
- Would keep children from being exploited economically.

Schools played an integral role in the shaping of a young nation. By passing compulsory attendance laws, the states were able to encourage a more educated and informed population (Seelhoff, 2000a). That education of citizens was so important that some authors contended that it was the primary reason states established laws requiring compulsory schooling (Kaestle, 1983; Reich, 2002b). Passions for building the new republic ran high in the latter part of the 18th century. In a 1786 essay on common school education, Benjamin Rush, a Philadelphia physician and statesman, wrote the following:

In the education of youth, let the authority of our masters be as absolute as possible . . . By this mode of education we prepare our youth for the subordination of laws and thereby qualify them for becoming good citizens of the republic. I am satisfied that the most useful citizens have been formed from these youth who have never known or felt their own wills till they were one and twenty years of age. (Kaestle, 1983, p. 7)

Rush (1786) expressed his views more forcefully than some of his contemporaries, but the essence of the argument was the same: The founding fathers recognized that it was expedient and desirable to have a common educational framework

on which to build the republic (Kaestle, 1983; Lubienski, 2000; Reich, 2002a; Seelhoff, 2000a). Such a common educational framework became the primary means by which the citizenry of the United States was educated. The increase in mass education led to a sharp decrease in what would be recognized today as homeschooling. The change was due primarily to two factors: compulsory education laws and the shift from an agrarian to industrial economy.

Until the 1960s, homeschooling was practiced mainly out of necessity. Families that lived too far away from an established school, in many cases, had no other choice for educating their children; these families tended to provide the education themselves. For example, children who lived in rural areas were sometime as much as 100 miles away from the nearest school making homeschooling the only viable option. The 1960s was a time when local communities started to exert more control over the educational process and when there was a strong desire to move away from the bureaucratization of mass education (Church & Sedlak, 1976).

The Reemergence of Homeschooling

The 1960s was a decade of cultural revolution (Scruton, 1998). Powerful cultural forces transformed many institutions, and education was one of the affected institutions. During that decade, two separate movements emerged and challenged the control on education exercised by local and state government. Interestingly, these two movements emerged from the two ends of a philosophical continuum. Individuals at one end were interested in pedagogy and on the other end they were interested in ideology (Asimov, 1999; Basham, 2001; Isenberg, 2002). Van Galen's (1988) identification of the former as pedagogues and the later as ideologues, continues to be the taxonomic terminology of choice. This is important to note because the homeschooling movement has been

oversimplified and homogenized by some critics and in the popular press. As noted, the motivations to home school reside along a continuum and are not easily defined as is commonly thought.

The pedagogical strain usually is identified with the counter culture of the 1960s and was led by John Holt. Holt, a former 5th grade teacher, turned educational reformer with the publication of his books *How Children Fail* (1964) and *How Children Learn* (1967). Holt's reforms called for decentralizing schools and returning control of the educational process to parents and teachers. According to Lyman (1998a), Holt "was decrying the lack of humanity toward school children" (p. 5). In the words of Holt (1981, as cited in Lyman (1998),

[Y]ou will surely agree that if the government told you that on one hundred and eighty days of the year, for six or more hours a day, you had to be at a particular place, and there do whatever people told you to do, you would feel that this was a gross violation of your civil liberties. (p. 5)

Holt sought to reform the educational system from within its ranks throughout the 1960s, but eventually became dissatisfied with what he perceived to be a lack of interest in his reforms (Farenga, 1999; Lyman, 1998a, 1998b). By the late 1970s, Holt actively promoted ways to bypass the traditional educational system instead of trying to reform it. He did this by encouraging his followers to educate their children at home, which Holt concluded was the "most humane way to educate a child" (Lyman, 1998a, p. 5).

In 1977, Holt established a magazine titled "Growing Without Schooling" that he used to promote his ideas about homeschooling and to provide a means for discussing topics of interest to parents who had removed their children from school (Lyman, 1998a). This publication was the first to be specifically targeted to homeschoolers (Seelhoff, 2000a).

Holt's followers represented the majority of the homeschoolers throughout the 1970s (Basham, 2001). According to Lyman, "Holt, a humanist, became a cult figure of sorts to the wing of the homeschooling movement that drew together New Age devotees, ex-hippies, and homesteaders – the countercultural left" (1998a, p. 6). The adherents to Holt's approach to home education have been called unschoolers because of their *laissez faire* approach to education (Lyman, 1998a).

Raymond Moore, a contemporary of Holt, led the ideological strain of homeschoolers that emerged in the 1960s and 1970s. This group of homeschooling families homeschooled primarily because they wanted to instill their own social, political, and religious beliefs in their children (Van Galen, 1988). Moore and his wife Dorothy researched studies that addressed the effect institutionalized learning had on a child's development (Lyman, 1998a). The Moores relied on their backgrounds as researchers and practitioners to draw their own conclusions from the various studies. Raymond Moore earned an Ed. D. from the University of Southern California and Dorothy was a reading specialist and former elementary teacher. To augment their research, the Moores also consulted with experts in the areas of family development and educational research and "the Moores began to conclude that development problems, such as hyperactivity, nearsightedness, and dyslexia, were often the result of prematurely taxing a child's nervous system and mind with continuous academic tasks, like reading and writing" (Lyman, 1998a, p. 4). It was that conclusion that prompted the Moores to recommend that children not be exposed to a formal educational setting until between the ages of 8 and 12, depending on the maturity of the child. That recommendation was developed by the Moores in their books *Home Grown Kids* (1981) and *Home-spun Schools* (1982) (Basham, 2001; Lyman, 1998a).

The ideas promoted by Raymond and Dorothy Moore were promulgated to a receptive audience in the spring of 1980 when they were guests on “Focus on the Family,” a Christian radio show hosted by Dr. James Dobson. That show has been credited with catalyzing the explosive growth of homeschooling that followed in the Christian community. By the mid 1980s, most homeschooling families were Protestant Christians (Basham, 2001). “Focus on the Family” radio broadcasts continued to play a role in the promotion of homeschooling by continuing to rebroadcast the original show featuring the Moores and by featuring homeschooling families and championing homeschooling causes. In 2002, the broadcast was heard on radio stations reaching an estimated 220 million people in 107 countries (McManus, 2002). The broadcast’s expansive reach allowed it to play a vital role in the promulgation of the concepts related to homeschooling.

Despite the significant influence of Holt and the Moores and the growing popularity of homeschooling (Bunday, 2006), the practice was still illegal in many states. This meant that many parents who chose to homeschool their children were violating compulsory attendance laws. By 1993, the legal climate had shifted and homeschooling was legal in every state (Beato, 2005; Belfield, 2004). Even though legal, homeschooling families are subject to varying degrees of control exerted by the states. Since the current study was done in South Carolina, a brief history of homeschooling in South Carolina will follow.

History of Homeschooling in South Carolina

In 2007, South Carolina was characterized as a state that exerted a moderate level of regulation on homeschoolers (Ray, 2001). During the 2003-04 school year there were approximately 12,600 homeschoolers in the state, up from 6000 in 1998-99 (Smith, 2004). South Carolina was not always such a welcoming place for those interested in homeschooling their children.

The homeschooling movement in South Carolina was almost a decade slower to catch on than it was in other parts of the country due in part to a hostile legal environment (Tyler & Carper, 2000). Prior to the passage of legislation in April of 1992, families interested in homeschooling had to receive approval to do so through their local school district ("SCAIHS - history," n.d.), which could establish its own criteria that often varied dramatically from district to district (Tyler & Carper, 2000). Prior to 1980, only a handful of families homeschooled, but the number began to increase between the years of 1984-1988. By the end of this period, an estimated 500-600 children were homeschooled (Tyler & Carper, 2000). In 2008, the homeschooling movement was alive and well in South Carolina as evidenced by the fact that between the school year beginning in 1998 and the school year beginning in 2004, the number of homeschoolers more than doubled (from 6,000 to 12,600) (Smith, 2004).

The next section of this chapter provides an overview of homeschooling as it existed in 2008. The focus will be on homeschooling in the United States and augmented with information about homeschooling in South Carolina.

Overview of Homeschooling in the United States

Numbers of Homeschoolers

As reported in Chapter 1, homeschoolers comprise a growing percentage of the K-12 educational landscape in the United States. According to Reich, homeschoolers are “widely considered the fastest growing sector of K-12 schooling” (2005, p. 109). It is inherently difficult to put hard numbers on the movement because of many factors; but chiefly the lack of a consistent reporting mechanisms from state to state. There have been several attempts through the years to estimate the numbers of homeschoolers (Lines, 1999). As one might expect, there is not absolute agreement between the various estimates of the numbers of homeschoolers (Lines, 1999), but it is possible to draw out some salient facts from the various estimates: The prevalence of homeschooling is increasing and is likely to continue to do so for the foreseeable future (Arai, 1999).

In 1996, the accuracy for estimating the number of homeschoolers was improved with deployment of the National Household Education Surveys Programs (NHES). It allowed for a more consistent methodology to be used in the estimations of the prevalence of homeschooling in the United States (Bielick, et al., 2001). The NHES estimate of homeschoolers serves as the official estimates for the US Department of Education (Isenberg, 2007). The results from those surveys report that the number of homeschoolers has increased during every administration of the survey. See Table 2.1 for a summary of the increase in the number of homeschoolers as represented by the NHES data.

Table 2.1
NHES Estimates of the Number of Homeschoolers in the United States

Dataset	Estimated Number of Children Homeschooled in the United States	Percentage Growth	Percentage of the School-Aged Population	Source
1996 NHES	636,000	NA	1.4%	(Isenberg, 2007)
1999 NHES	850,000	33.6%	1.7%	(Bielick, et al., 2001)
2003 NHES	1,096,000	28.9%	2.2%	(Princiotta, Bielick, & Chapman, 2004)
2007 NHES	1,508,000	37.6%	2.9%	(Bielick, 2008)

To get a better picture of the increasing numbers of homeschoolers, an examination of the homeschooling data prior to 1996 is important. Patricia Lines (1999) made several estimates of the numbers of homeschoolers through the years and has compiled estimates from various sources to get a better picture of the growth of homeschooling from the early 1980s to the mid 1990s. Table 2.2 is a summary of the information Lines presented in her article and represents data gathered from state education agencies. It is important to keep in mind, however, that this data is an extrapolation from data sets and is probably not as accurate as the NHES data, but it does offer some context to the years preceding the availability of the NHES data.

Table 2.2
A Summary of the Growth of Homeschooling as Presented by Lines (1999)

Year	Estimated Number of Homeschoolers in the United States	*Estimate of Percentage Growth
Late 70s early 80s	10,000 – 15,000	NA
Fall of 1983	60,000 – 125,000	640%
Fall of 1985	122,000 – 244,000	97.8%
Fall of 1988	150,000 – 300,000	23.0%
Fall of 1990	250,000 – 350,000	22.2%
Fall of 1995	700,000 – 750,000	164%

*Using the mean of the range as presented in the previous column.

Numbers of Homeschoolers in South Carolina

Lines (1999) used data obtained from South Carolina school districts and the private homeschool associations to estimate the number of homeschoolers in the state.

This data is combined with the data from the South Carolina Association of Independent Home Schools in Table 2.3.

Table 2.3
Estimates of the Number of Homeschoolers in South Carolina from 1990 – 2004

School Year	Estimates Number of Homeschoolers in South Carolina	Estimated Percentage Growth	Source
1990 – 1991	790	NA	(Lines, 1999)
1995 – 1996	4,284	442%	(Lines, 1999)
1997 – 1998	5,595	30.6%	(Lines, 1999)
1998 – 1999	6,000	7.2%	(Smith, 2004)
2003 – 2004	12,600	110%	(Smith, 2004)

The methodologies used to determine the estimated numbers of homeschoolers has varied, but it seems evident there has been a notable increase in homeschooling during the past 20-years (1988-2008). In fact, Belfield (2004) pointed out that if one assumed the estimate of 1.1 million homeschoolers (Princiotta, et al., 2004) was correct, there were more children being homeschooled in the United States than the combined numbers of children enrolled in charter schools and receiving vouchers.

There are complicating factors when one considers the numbers of homeschoolers. For example, comparing the numbers of homeschoolers to charter schools students can present a problem. Huerta (2003) pointed out that in some instances there are homeschools that are considered charter schools in certain states. Also, the fact that a student is homeschooled does not mean that there is no contact with educational agencies outside the home. For instance, homeschoolers were defined in the NEHS data set as students who obtained no more than 25 hours of instruction per week outside the home (Bielick, et al., 2001). In the dataset, only 18% of homeschoolers were enrolled in any school classes and the majority of these (12.6%) participated in school programs nine- hours or less (Bielick, et al., 2001). This blurring of the lines between different educational methodologies is likely to increase in the coming years if current trends toward the privatization of education persist (Huerta, 2003).

A factor that has not been sufficiently explored is the role that increased access to technology has in the ability of parents to homeschool their children. Computer and communications technology have made great strides in recent years. The relationship between this technological advancement and the homeschooling movement is not adequately understood. Andrade (2008) performed an exploratory study and engaged 27 parents who currently were or formerly had been homeschooling their children and

inquired how they used had used technology in their homeschooling activities. According to Andrade, “[P]articipants identified and discussed a range of social, political, economic, and cultural forces that they perceived coincidentally or distinctly influenced the growth of homeschooling.” (2008 p. 129)

The participants identified cultural influencers other than technology that played a role in the growth of homeschooling. Interestingly, in what Andrade (2008) termed an “unexpected finding” (p. 134), none of the participants reported that computer or communication technology influenced their decision to homeschool their children. Despite this finding, most participants in the study believed that access to modern computer and communication technologies had facilitated their ability to homeschool their children. As computer and communication technologies continue to evolve and further penetrate the fiber of society, it will be intriguing to follow the effects these changes have on homeschooling.

Characteristics of Homeschoolers

Through the studies done on homeschooling, a picture of the “typical” homeschooler has emerged; White, middle class, and religious. To an extent this is true, but the complexity of the picture has started to change (Bielick, et al., 2001; Welner & Welner, 1999). This section of the literature review explores the demographic picture of homeschooling and looks at trends.

Race

Data from the 2003 *Homeschooling the United States* report, provided by the National Center for Education Statistics, stated that approximately 77% of all homeschoolers were White. By comparison, approximately 61% of those enrolled in public schools (Princiotta & Bielick, 2006) were White. Those findings were not

markedly different from the 1999 NCES report; 75% of all homeschoolers and 63% of public school enrollees were White (Bielick, et al., 2001). The data also reported that 9% of homeschoolers were Black and 5% were Hispanic. The percentages of these students was smaller than the percentages (16% and 17% respectively) participating in public schools (Princiotta & Bielick, 2006).

Rudner (1999a) studied the population of 20,760 homeschoolers who used testing services provided by Bob Jones University, a fundamental Christian college in South Carolina. Rudner reported that 94% of homeschoolers in his study were White, 0.8% was Black, and 0.2% was Hispanic. Rudner's report was interesting, but its representation of the demographics of homeschoolers was somewhat misleading (Kaseman & Kaseman, 1999; McDowell, Sanchez, & Jones, 2000; Welner & Welner, 1999). Homeschooling has drawn participants from a broad cultural and religious spectrum, and many would not use a college like Bob Jones as a source of testing materials. Welner and Welner (1999) pointed out that by failing to acknowledge that fact Rudner's study should be viewed as incomplete.

Table 2.4 summarizes the racial demographics as presented by Rudner (1999) and compares it to data from the 1994 Current Population Survey and the 1996, 1999, and 2003 National Household Education Surveys. The national data sets support Rudner's critics and allow for believing that there is a more diverse makeup for the homeschooling movement.

Table 2.4
Racial Makeup of Homeschooled Students

White	Black	Hispanic	Other	Source
94.0%	0.8%	0.2%	5.0%	(Rudner, 1999a)
91.9%	2.8%	4.4%	0.8%	1994 Current Population Survey (Bauman, 2002; Henke, Kaufman, Broughman, & Chandler, 2000)
86.8%	2.2%	8.0%	3.1%	1996 National Household Education Survey (Bauman, 2002; Henke, et al., 2000)
75.3%	9.9%	9.1%	5.8%	1999 National Household Education Survey (Bielick, et al., 2001)
77.0%	9.4%	5.3%	8.3%	2003 National Household Education Survey (Princiotta & Bielick, 2006)

As McDowell, et. al. (2000, p. 125) pointed out, “[I]t is evident that the participation of ethnic groups within the home schooling community is highly disproportionate to the larger society.” Despite that fact, reports have been interpreted to mean that Caucasians views of whether to homeschool in the future were more negative than for African American and other races (McDowell, et al., 2000). If accurate, such information could mean that the percentage of Whites engaged in homeschooling might continue to increase but at a decremental rate when compared to other races.

Changing geopolitical and sociological climates can affect how homeschooling is perceived and the degree to which certain cultural groups embrace it. For instance, after the September 11, 2001 terrorist attacks, more Islamic parents considered homeschooling as a viable option for their families. Homeschooling was viewed by those parents as a

means for shielding their children from any anti-Islamic bias in public schools and to protect them from extremist views that might be found in Islamic private schools (Stern, 2003).

Family Income

The income of homeschooling families is comparable to the income from non-homeschooling families (Belfield, 2002a; Bielick, et al., 2001; Princiotta & Bielick, 2006). Rudner (1999a) reported that homeschooling families earned more than their counterparts, but his data is controversial. Families with higher incomes are more likely to be able to afford private schools thereby giving them more educational options. Families with lower incomes are not as able to afford having one parent opt out of the workforce to homeschool the children (Belfield, 2004; Gaumont, 2002). A conclusion extrapolated from the existing body of research was that homeschooling families usually were middle-class and not more affluent than the parents of traditional students.

Per student expenditures related for homeschooled students is difficult to determine, but a 1995 survey of the readers of a homeschooling magazine reported spending an average of \$3197 per year on homeschooling. This total included curriculum, software, field trips, and other assorted items ("Homefires," n.d.). Rudner (1999a) placed the median amount spent per child on educational material at \$400. Even with the acknowledged differences between these two amounts, proponents point to homeschooling as a relative bargain (Basham, Merrifield, & Hepburn, 2007) when compared to the national average per student expenditure of \$6508 in 1998-99 school year ("Fast facts," n.d.). These numbers only tell part of the story and do not consider the opportunity costs incurred by the homeschooling family: An example might be the

income that the homeschooling parent forgoes in order to stay home and school their children.

Parent's Education

The average homeschooling parent tends to be more educated (Bauman, 2002; Belfield, 2002b) with 47.4% of them having at least an earned Bachelor's Degree. In contrast, 33.0% of non-homeschooling parents hold at least a Bachelor's Degree (Bielick, et al., 2001). Isenberg (2002) reported that homeschooling parents with higher levels of educational achievement were more likely to engage in homeschooling for a shorter duration than the lesser educated parents. That phenomenon could be due to those parents having greater access to lucrative job offers that pull them away from homeschooling (Belfield, 2004).

Religion

In popular media accounts, homeschoolers generally are thought to be more religious than their traditionally educated counterparts. This is largely based on conclusions drawn from the 1998 Rudner study. Kaseman and Kaseman (1999) correctly pointed out that since Bob Jones University is a religiously affiliated institution, persons availing themselves of its services likely were disproportionately representative of a Protestant denomination. Welner and Welner (1999) argued that Rudner did a disservice to the homeschooling movement with his narrow description of the religious preferences of homeschoolers, and they wrote:

Although many homeschoolers remain white and middle-class, the recent upsurge in homeschooling has drawn people from all ethnic and class groups. Ideologically, parents who homeschool represent a similarly broad cross-section of American society. While in its recent resurgence homeschooling began as a trend among fundamentalist Christians with primarily religious motivations, homeschoolers now represent a wide array of values and political mores. (p.3)

Supporting their contention, Belfied (2004) examined data from 6033 self-identified homeschooled students who took the SAT in 2001. It was reported that these students were less likely than their public school counterparts to indicate an adherence to any religious faith; homeschoolers claiming adherence to any religious faith was 41.80% versus 52.51% for those from public schools.

Reasons for Homeschooling

Just as there is much diversity in the demographics of homeschoolers, there is also diversity in the reasons that parents cite for making the decision to homeschool. They can be delineated into two categories, first described by the sociologist Van Galen (1985) as ideologues and pedagogues. Ideologues choose to homeschool children mainly for religious reasons. Those parents school their children at home in order to interpret all subjects through the lens of their particular ideology. Pedagogues, on the other hand, choose to homeschool their children because they believe they can provide a better educational experience than the child can obtain at the local school.

Van Galens' (1988) taxonomical nomenclature probably is over simplistic and understates the true diversity of ideas that lead a parent to homeschool, but it is still useful as one seeks to understand the broad framework around which modern homeschooling is positioned. The reasons for homeschooling can be better visualized as a continuum rather than a dichotomy. In other words, parents often give multiple reasons for homeschooling rather than listing purely pedagogical or ideological reasons.

In the early days of the movement's resurgence most homeschooling was done for pedagogical reasons. Parents of those children were members of a countercultural contingent that tended to remove their children from the government run schools because they believed that they could do a better job of educating their children than the

establishment could (Lyman, 1998a). By the mid 1980s the tide had shifted and the ideologues were the dominant group of homeschoolers (Lyman, 1998a). McEntire (2005) reported that the most common factor in the ideologue movement of that era was a religious one. However, such an assertion has been called into question by the Belfield (2002a) study discussed earlier.

Isenberg (2007) claimed that the best sources of information available for determining why parents choose to homeschool were found in the National Household Education Surveys (NHES). The 1996, 1999, and 2003 NHES instruments revealed consistency in the reasons given by parents for choosing to homeschool their children even though the instruments were slightly different from year to year. The top three reasons for homeschooling in 1996 and 1999 were “to give the child a better education at home,” “religious reasons,” and “poor learning environment at school” (Isenberg, 2007, p. 399). The top three reasons in 2006 were “concern about environment of other schools,” “dissatisfaction with academic instruction at other schools,” and “to provide religious and moral instruction” (Princiotta & Bielick, 2006, p. 13). In 2008, Bielick reported the top three reasons were the same as in the previous survey.

Isenberg (2007) pointed out there was considerable ambiguity for each of the major reasons given for homeschooling. In an effort to get a more complete picture behind the motivations to homeschool, Isenberg (2007) combined survey responses into similar categories defined as religious, educational, and special needs. The researcher found that a “plurality” of children were homeschooled for educational reasons, a “significant minority” for religious reasons, and approximately “1 in 7” because of the behavioral problems or special needs reasons (Isenberg, 2007, p. 400). This was viewed

to mean that Van Galen's (1988) pedagogue versus ideologue dichotomy still was a useful summary of the major motivations for homeschooling.

Legal Considerations Associated with Homeschooling

Since 1993 homeschooling has been legal in all 50 states (Bailey & Karp, 2003; Bauman, 2001). In 1980 the practice was illegal in 30 states (Bauman, 2001). In practice, each state has its own regulations that govern homeschooling, but the Home School Legal Defense Association has classified states into several categories for comparison purposes. Ten states have no regulations and do not require that parents inform the state that they are homeschooling their children. Fourteen states are low regulations states and only require that parents notify the state that they are homeschooling their children. Fifteen states have moderate regulations and require that parents notify the state that they are homeschooling their children and require the parents to send the state reports on their child's academic progress. The remaining eleven states have high regulations and require parents to notify the state that they are homeschooling their children, notify the state of the academic progress of their children, and meet other requirements such as using only state approved curriculum (Basham, 2001; Beato, 2005).

Legal Foundations

Homeschooling has never been addressed specifically by the United States Supreme Court (Gray, 1998), but its legal foundations have been established with respect to the rights of parents in the education of their children. Four cases are often cited as significantly limiting the reach of compulsory attendance laws. They are Meyer v. Nebraska (1923), Pierce v. Society of Sisters (1925), Farrington v. Tokushige (1927), and Wisconsin v. Yoder (1972).

In *Myer v. Nebraska* (1923), the United States Supreme Court overturned the conviction of a parochial school teacher who had been convicted of violating a state law that forbade the teaching of any language other than English before a student had successfully passed the 8th grade. The Court cited the Due Process Clause of the Fourteenth Amendment of the United States Constitution as the basis for its decision. Specifically, the Court found that the Nebraska restriction violated the right of parents to due process liberty interest. The Court found that Nebraska state law arbitrarily and unreasonably interfered with the natural duty of parents to educate their children (Klicka, 2003).

The Court again relied on the Due Process Clause of the Fourteenth Amendment in *Pierce v. Society of Sisters* (1925). In this case, the Court overturned the Compulsory Education Act of Oregon. This statute had as its primary goal the elimination of parochial schools. Klicka (2003) summarized the Courts assertions this way:

The Supreme Court uses strong language in asserting that children are *not* “the mere creature of the State.” The holding in *Pierce*, therefore, preserves diversity of process of education by forbidding the State to standardize the education of children through forcing them to only accept instruction from public schools.

In *Farrington v. Tokushige* (1927), the Court overruled a Hawaii statute placing unreasonable regulations on private schools. The legislation would have given the state so much control over private schools that they would have effectively been destroyed (Klicka, 2003) or become largely indistinguishable from public schools (Gray, 1998). In the words of Klicka, “The parents’ right to impart instruction clearly takes precedence over the state’s regulatory interests *unless* the public safety is endangered” (2003, p. 2).

In *Wisconsin v. Yoder* (1972), the Court ruled in favor of an Amish family who sought to remove their child from school after the eighth grade in order to school the

child at home. Again, the Court reaffirmed its commitment to the rights of parents to direct the educational endeavors of their children.

In addition to the aforementioned cases, the United States Supreme Court has ruled on many cases that protect parent's right from government infringement in the way they raise and educate their children. Klicka (2003) summarized fifteen cases in which the Court supported parent's rights as fundamental. The culminating case reviewed in this list is the case of *Troxel v. Granville* (2000). In the majority opinion delivered in this case, the Court reviewed many previous instances in which it has affirmed the rights of parents with respect to their children. Justice O'Connor, who penned the majority opinion, wrote, "In light of this extensive precedent, it cannot now be doubted that the Due Process Clause of the Fourteenth Amendment protects the fundamental right of parents to make decisions concerning the care, custody, and control of their children".

Legal Issues in South Carolina

According to Tyler and Carper (2000), the history of homeschooling in South Carolina can be divided into four periods. They are Pre-1984, 1984 to 1988, 1988 to 1992, and 1992 to present. Prior to 1984, homeschooling in South Carolina went largely unnoticed. It was a time when homeschooling existed but the numbers of homeschoolers were small and their activities did not attract the attention of the educational establishment. During that time, the substantial equivalence law was used when parents wanted to homeschool their children (Tyler & Carper, 2000, p. 33); parents had to demonstrate to their local school district's satisfaction that the family's homeschooling education plan was substantially equivalent to the plan of the school district ("Homeschooling in SC," n.d.). The boards of the local school districts were the final

arbiters of whether a family could homeschool their children, and there was little consistency between the various districts. Commonly, local school districts required a complicated application process and an evaluation visit to a home where the homeschooling would take place (Tyler & Carper, 2000), with the result being considerable ambiguity between and among school districts.

Between the years of 1984 and 1988, the number of homeschoolers increased. The number of homeschooling families in 1984 was estimated to be numbered in the dozens. By 1987, an estimated 500-600 children were being homeschooled in the state (Tyler & Carper, 2000). Parents started to form groups through which homeschooling families could be mutually supportive of one another. With the growing support units local school districts became hesitant to deny the request of parents, especially those who were part of a homeschool organization. Notably, the districts were favorable to homeschooling requests of parents who enlisted the help of the Home School Legal Defense Association ("Homeschooling in SC," n.d.).

During the 1984-1988 period of time, the South Carolina State Department of Education began to push legislation requiring homeschooling parents to hold a Bachelor's Degree; or to make a passing grade on the Education Entrance Exam (EEE) ("Homeschooling in SC," n.d.). The EEE was designed for education majors who sought to teach in the South Carolina public schools. The EEE rider was vigorously fought by the homeschooling community (Tyler & Carper, 2000). Homeschooling parents were opposed to the EEE requirement because the test was designed to be used for the evaluation of those holding a Bachelor's Degree in education. Homeschooling parents argued that the test had not been shown to be valid for certifying homeschooling parents. The fact that the test was only offered three times per year also created difficulties for

those who wished to homeschool their children (Tyler & Carper, 2000). Despite the issues with the EEE, the law was still a victory for homeschoolers. It provided an avenue for parents that did not exist previously: If parents passed the EEE then they met the requirements of the law. For the first time school districts were required to approve the requests of these parent to homeschool their children ("Homeschooling in SC," n.d.). The subjectivity of the various South Carolina school districts was negated.

The South Carolina equivalency provision gave a legal means by which parents could homeschool their children. But the outcome was that that an "unprecedented numbers of homeschoolers were denied approval by their local school board" (Tyler & Carper, 2000, p. 42). Non-degreed families that had been homeschooling their children no longer were able to do so unless the homeschooling parent was able to pass the EEE. The full force of the law did not take effect until July of 1989, and it was during the years of 1988 to 1992 that homeschool supporters sought alternative means to legally homeschool in South Carolina.

The freedom from the government oversight that that homeschooling families sought ultimately was won. It was due to the concerted efforts put forward by a coalition of homeschooling parents, representatives from the Home School Legal Defense Association (HSLDA), and nationally known homeschooling experts.

The first major victory came when the HSLDA filed a class action lawsuit on behalf of 369 families who wanted to homeschool their children. The thrust of the lawsuit was that South Carolina had no valid information that showed the EEE was an appropriate instrument to test homeschool instructors (Tyler & Carper, 2000). Ultimately, the South Carolina Supreme Court ruled, in *Lawrence et. al. v. South Carolina State*

Board of Education, 412 S.E.2d 394 (1991) that the EEE was invalid and that it should not be used as a criterion for approving or denying permission to homeschool.

At approximately the same time, the homeschooling supporters had success on another front. The South Carolina Code of Laws required students to attend a public or private school approved by the State Board of Education, the South Carolina Independent Schools' Association (SCISA), or some similar organization. The homeschooling advocates took advantage of the last phrase to establish the South Carolina Association of Independent Home Schools (SCAIHS). That organization was patterned similarly to the SCISA, since it was an organization that already was approved and familiar to the South Carolina State Board of Education and the South Carolina Legislature (Tyler & Carper, 2000). The use of the some similar organization phrase opened the door to further discussions with state representatives.

Two events moved South Carolina toward becoming generally more accepting of the homeschooling community. The first was a change in the leadership of the South Carolina State Board of Education and the second was a favorable ruling in *Lawrence et. al. v. South Carolina State Board of Education* (1991). The leadership change at the State Board of Education saw new State Superintendent Barbara Neilson "made it clear that she did not view the home schoolers as 'the enemy' (Tyler & Carper, 2000 p. 44). This more accommodating attitude combined with the Lawrence ruling removed the most significant barriers to the future acceptance of homeschooling.

In 1996, another option for homeschooling families to legally homeschool was adopted by the South Carolina legislature, which brought the number of permissible routes to homeschooling up to three. There are several regulations that must be met for

each option, but in essence, the three legal routes to homeschooling are outlined in the following paragraphs.

With the approval of the local school district's board of trustees, parents may school their children at home. If the following requirements are met, the application to homeschool must be approved. The requirements are:

- The parent must possess at least a high school diploma, GED, or have earned a baccalaureate degree.
- The instructional day must be at least four and one-half hours per day for 180 days on the year.
- The curriculum includes the subjects of reading, writing, math, science, and social studies. These subjects should be expanded to include composition and literature in grades 7-12.
- The parents must present an acceptable method of record keeping. This must include a lesson plan book with the subjects taught and the instructional activities used. They must also keep a portfolio containing artifacts of their child's work along with academic evaluations. Pulling from these materials, the parent must send a semiannual progress report to the school district.
- The student must have access to library facilities.
- The student must participate in the annual statewide testing programs and must participate in the Basic Skills Assessment Program.
- The parent must release the school district from any liability related to the education of their children.

The second method for legally homeschooling in South Carolina is for the parents to become members of the South Carolina Association of Independent Home Schools (SCAIHS). With that option parents are exempt from all the requirements contained in the first option except that the parent must possess a high school diploma or GED, the instructional year must be 180 days, and the curriculum must include the same subjects as listed above.

The third option for homeschooling parents is to become a member of a homeschooling association with no fewer than 50 members. Under that option, the parents are subject to the following requirements:

- Parents must possess a high school diploma or a GED.
- The instructional year must be at least 180 days.
- The curriculum includes the required subjects listed above.
- The educational records maintained include a record of the subjects taught, the instructional activities used, a portfolio of the students work, and a semiannual progress report.

South Carolina's history with respect to the legality of homeschooling largely tracks the movement's history in the United States. Homeschooling in South Carolina (like in many other states) was illegal at the beginning, then legal but with very hard-to-meet requirements, and then legal with requirements that did not place too heavy a burden on parents. Notably, the requirements placed on homeschooling families differ from state to state. The HSLDA continually monitors state and national laws that might threaten homeschooling and makes these threats known to its membership.

Academic Success of Homeschooled Students

The following paragraphs present an overview of the K-12 academic success of homeschoolers. That is followed by a review of pertinent studies related to the academic achievements of homeschoolers who have matriculated into institutions of higher education.

K-12 Achievement

Most of the studies examining the academic effectiveness of homeschooling have been descriptive (Ray, 2000), claiming that homeschooled students compare favorably to their traditionally-educated counterparts. In the words of Lines (1995) “Virtually all the data show that the group of home-schooled children who are tested is above average” (p.3). Wartes went even further writing, “I have been unable to find even one study that has produced below average mean scores on a homeschooling population” (1988, p. 50).

Lines (1995) cautioned that the data does not reveal whether or not the same child would perform better or worse in an alternate setting, and the lack of controls is a major limitation of most research on homeschooling. Other concerns are small sample size and the ability of homeschool families to decide if their child should be tested. The ability to opt out of studies could serve to overstate the performance of the homeschooling population, since parents might be less likely to allow their children to be tested if they believed their children would not compare favorably to other children in the studies. Typically, volitional participants are considered to be less representative of a population. Lines (1995) pointed out that the academic achievement data from homeschooled children was similar to what researchers have come to expect of children in private schools and generally more favorable when compared to public school peers.

Rudner's (1999a) work is the largest and perhaps the most often cited study related to the K-12 academic achievement of homeschooled students. Accordingly, it has received the most public criticism. The findings and limitation of that work make it a good representative of the pros and cons of the existing body of research. For these reasons, it is discussed in more detail.

For a fee, Bob Jones University Press Testing and Evaluation Services provides a service through which it provides homeschooling families the opportunity to test their children with the Iowa Test of Basic Skills (ITBS) for grades K-8 and the Tests of Achievement (TAP) for grade 9-12. In the spring of 1998, 39,607 homeschool students were tested through this service. The parents of these students were asked to complete a questionnaire. The number of usable surveys was 20,760 from 11,930 families. These achievement tests and surveys were analyzed by Rudner (1999a). The analysis of questionnaires provided interesting information related to the demographics of homeschoolers and their families, but the focus of this discussion is Rudner's (1999a) analysis related to achievement.

Rudner used 1995 national norms of public and private school students to make the comparisons in his study. The major achievement related findings were:

- Approximately 1 in 4 homeschoolers were enrolled one or more grades above their age level.
- The median achievement test scores for homeschoolers in every subtest were in the 70th to 80th percentile.
- On average, homeschooled students in grades 1 to 4 performed one grade level above their age level peers.

- Students who were homeschooled their whole academic career had higher test scores than students who had also attended other educational programs.
- There were no significant achievement differences by gender among the homeschoolers.

With respect to these and other findings, Rudner (1999a) reported that his analysis was conservative. He wrote, “As a result, we have probably underestimated home school performance” (Rudner, 1999a, p. 28).

Criticisms of Rudner’s (1999) research come from academe and from within the homeschooling community. Welner and Welner (1999) provided an example of the academic criticisms of Rudner’s 1999 study, and Kaseman and Kaseman (1999) represented the criticisms from within the homeschooling community.

The main criticisms offered by Welner and Welner (1999) related to the ability to generalize the data from Rudner (1999a). They contended that Rudner should have included stronger cautions related to the conclusions he drew from his data. The authors noted that Rudner’s conclusions were drawn from data on a non-random sample that represented “anywhere from 1.28% to 2.8% of the homeschooling population” (1999, p. 2). They also contended that since the study population was drawn from families that had been associated with Bob Jones University, a fundamentalist Christian institution, the inferences drawn from the data were likely to be unreliable across the diverse activity of homeschooling (1999).

In an article for “Home Education Magazine,” Larry and Susan Kaseman (1999) called Rudner’s (1999a) study “embarrassing and dangerous.” The authors went on to write:

The findings of [Rudner's] study cannot be used to make accurate statements about homeschoolers in general. Citing this study will support those who want to require that homeschoolers take state-mandated tests and will force homeschoolers to become more like the conventional schools. Therefore, we should not use this study ourselves and should be prepared to correct those who use it. (p. 11)

There is a dearth of solid, research-based findings on the K-12 academic success of homeschooled students in the recent literature. This researcher has viewed a number of older studies including Rakestraw (1988), Wartes (1988), Richman, Girtten, & Snyder (1990), and Ray (1990). The findings from all of these researchers were interpreted to mean that the K-12 academic performance of homeschoolers compared favorably to that of their traditionally educated counterparts.

Collegiate Achievement of Homeschoolers

Few studies have addressed the collegiate academic achievement of homeschool graduates. The following paragraphs review relevant literature starting with 1993, the time homeschooling became legal in all 50 states, and when the numbers of homeschoolers began to climb.

Mexcur (1993) compared the academic achievement of 145 public school, 454 conventional Christian school, 23 accelerated Christian education, and 10 homeschool graduates at three Christian universities in Florida, Michigan, and South Carolina during the 1991-1992 academic year. The researcher compared ACT subtest and composite scores, first and second semester collegiate English grades, and overall GPAs for the freshman year of college.

Based upon ANOVA results, the only measure showing a statistically favorable difference for the homeschool graduates was the first semester English grades $F(3, 628) = 3.628$. $p < .05$. The researcher then used the post hoc Scheffé' test of multiple

comparisons and the less conservative Fisher PLSD test to determine which groups were significantly different from the others. The homeschool graduates' English grades in the first semester were found to be statistically higher than the scores for the public school graduates. This difference was found to be significant at the .05 level using the Fisher PLSD. In addition, the English grades for the homeschool graduates were the highest of any of the groups included in the study although none of the other comparisons proved to be significant.

Mexcur's (1993) research was performed with a sample of 632 students, but it must be pointed out that the small sample size of homeschool graduates examined in this study might not have been representative of homeschooled graduates in general. Also, since the study was performed on data obtained from only Christian universities, caution needs to be exercised with regard to generalizing Mexcur's (1993) findings to other populations of homeschool graduates. The next study in this literature review should be interpreted with the same cautions in mind.

Oliveira (1994) examined the differences in critical thinking skills among 789 first time freshman who had been graduated from public schools ($N=195$), Christian schools ($N=486$), Accelerated Christian Education programs ($N=50$), and homeschools ($N=58$). The researcher used the California Critical Thinking Skills Test (CCTST), a 34 item multiple-choice exam designed for postsecondary students. Oliveira (1994) found no statistically significant differences among the groups with respect to overall score on the CCTST exam or between the groups with respect to the sub-scales of the test. That finding was viewed to mean that the previous educational experiences of students did not affect their ability to think critically as measured with the CCTST. The findings should be interpreted carefully due to the limitations of Oliveira's (1994) methodology.

Specifically, the number of students in each comparison group was unbalanced. A more balanced number of participants in the various groups may have yielded different results. The researcher also did not attempt to control for other variables that could have influenced the findings; e.g. curriculum, teacher experience, and academic achievement of participating students.

Galloway (1995) examined the aptitude for college and achievement in English from a sample of 60 graduates from public schools, 60 from homeschools, and 60 from conventional private schools. Competency in the required college-level English course was measured using grades on a major writing assignment, multiple-choice tests, quizzes, and a course final exam. There were no statistically significant findings in measures from the English course, but the researcher did find statistical significance between the homeschool graduates and the conventional private school graduates on the ACT English subtest.

Galloway (1995) used multivariate analysis of variance test (MANOVA) comparisons to identify significance between the three groups ($F 4.22, df 2, 177, p = .02$) and used a Tukey HSD Multiple Comparison to reveal that the significant difference was between the homeschooled students ($X = 24.73$) and the private school students ($X = 22.43$).

The remaining studies reviewed in this chapter were primarily from secular colleges and universities. Despite the fact some of those studies suffer from some of the same issues (e.g. small sample sizes and questionable ability to generalize findings), they seemed to be in accord with the findings from the earlier reported studies.

Jenkins (1998) compared the academic performance of homeschooled students and non-homeschooled students. The researcher used the 1996 HEP Higher Education

Directory to identify public community/junior colleges for inclusion in the study.

Requests for transcripts were sent to 63 colleges in Texas. The results were 101 transcripts of homeschooled students who were first time freshman and had earned academic credit. The academic performance of those students, as measured by GPAs, was compared to a group of 36 non-homeschooled students from whom the researcher was able to gather data. Jenkins (1998) found that the homeschooled students had higher GPAs ($M = 3.17$, $SD = .873$) and a larger standard deviation than did the non-homeschooled students ($M = 2.48$, $SD = .290$). A t-test was performed on the data and the result was statistically significant at the .01 alpha level.

Jenkins (1998) separated the students into cohorts based on whether they were attending full-time or part-time, and again compared their GPAs. It was determined that both the full-time and part-time homeschoolers scored significantly higher than did the non-homeschoolers. The mean GPAs for 49 full-time homeschooled persons was 3.06 ($SD = .993$) and 2.56 ($SD = .238$) for 18 full-time non-homeschooled. The mean GPAs for the 52 part-time homeschooled persons was 3.27 ($SD = .736$) and 2.40 ($SD = .320$) for the 18 non-homeschooled students. Using t tests the data was determined to be statistically significant at the .01 level of confidence.

Additionally, Jenkins (1998) considered the differences between homeschoolers and the non-homeschoolers when they were segregated based on the ages of the students. There were three age groups (under 16, 16-17, and 18 plus). In each of the age groups, t tests were used and it was determined that homeschooled students scored significantly higher (.01 level) than did the comparison group of non-homeschooler. There were no statistically significant differences between the scores of full-time and part-time students in either group. Interestingly, even though t tests revealed no significant differences

between the GPAs of the various age groups of homeschoolers, the “under 16” group had the highest mean GPA.

Jenkins (1998) also compared the homeschoolers to the non-homeschoolers on the Texas Academic Skills Program (TASP). Mean TASP scores that were available for 57 homeschoolers were compared to the mean scores of the general population of Texas community college students for each of the test subsections (reading, writing, mathematics). The data was only available in aggregate form so the researcher compared the TASP scores of the homeschoolers to the aggregate mean scores for all Texas community colleges students. Homeschooled students ($M = 265, SD = 19.987$) performed better than did the non-homeschooled students ($M = 242, SD = 7.496$) on the reading and math portions of the exam: ($M = 249, SD = 24.976$) verses ($M = 233, SD = 7.736$) respectively. Those mean differences were statistically significant at the .01 level. There was no appreciable difference found between the homeschooled students ($M = 236, SD = 37.859$) and the non-homeschooled students ($M = 233, SD 5.177$) on the writing portion of the TASP.

With respect to the academic performance of homeschooled students, Jenkins (1998) concluded, “[B]ased on the performance of the home schooled students, their preparation for college has been as good or better than that of the overall freshman population at the community college” (p. 143). Those conclusions, however, must be interpreted carefully. First, the study used transcripts from 101 homeschooled students to draw conclusions and make comparisons to the total population of the community colleges in Texas. There was not an attempt to control for demographic variables other than age so generalizing the conclusions to a larger group of homeschooled students might not be warranted.

Gray (1998) compared the academic achievement of the homeschoolers (N=56) to that of “traditional students” (N=44) using data from a public university, a private university, and a private college. Traditional students “had completed all of their high school education in either a public school or a conventional private school and had taken a freshman English class during their first quarter” (p. 44). The author reported that homeschooled students scored higher than did traditional students on the verbal (541 vs. 529) and math (547 vs. 537) sections of the SAT, but the differences were not statistically significant.

Inferences drawn from Gray’s (1998) findings should be viewed with caution for several reasons. First, there were no statistically significant findings. Furthermore, the analyses were performed on data from a small number of participants who were self-selected.

Jones (2002) compared the academic performance of randomly selected homeschooled students (N=55) and traditional (N=53) high school graduates in Colorado using data obtained from the Colorado Commission of Higher Education. The participants were drawn from first-time freshmen at the four-year colleges and universities in the state. The comparison criteria were: GPA, retention, ACT test scores, and credit hours earned in the first year of college. No significant difference at the .05 alpha level was found, but the homeschooled students had higher mean scores on every comparison.

Interestingly, the results reported above were obtained with two-tailed analyses. Jones and a coauthor in a later publication discussed these results in more detail. Jones and Gloeckner (2004, p. 19) wrote,

The ACT Composite, Mathematics, and Science subtests scores of home school graduates approached statistical significance compared to the same scores for traditional graduates. Because the previous research did not support home school graduates consistently out-performing their traditional high school peers, the researchers did not predict that home school graduates would have performed better than traditional high school graduates. If the researchers would have expected this difference and tested the variables as a one-tailed test, homeschool graduates would have scored statistically higher than their peers on the ACT Composite, Mathematics, and Science subtests scores.

Ashford (2005) examined standardized test scores (College Placement (CPT) and SAT) and grade point averages from 50 homeschooled and 50 public school graduates enrolled at Brevard College, a public community college in Florida. The only comparison yielding a statistically significant difference was on the mean CPT sentence skills score $t(73) = 2.23$, $p = .029$. Homeschooled students had a mean score of 93.06 ($SD = 17.81$) and public school students had a mean score of 83.33 ($SD = 19.55$).

Five homeschooled students had taken the SAT. The mean scores of those students were compared to scores of the 20 public school students who had SAT scores to determine if there was significance in the two groups (Ashford, 2005). With respect to the SAT mathematics scores, there was no statistical difference in the mean scores of the homeschooled students ($M = 486$, $SD = 25.10$) and the public school students ($M = 512$, $SD = 71.66$), $t(23) = -.80$, $p = .43$. With respect to the SAT verbal scores, Ashford (2005) determined that the mean scores of the homeschooled students ($M = 562$, $SD = 44.38$) were significantly higher than the scores for the public school students ($M = 493$, $SD = 54.51$), $t(23) = 2.59$, $p = .016$. Because of the discrepancy in the number of homeschooled students (5) and public school students (20) with SAT scores, this data must be interpreted carefully.

Clemente (2006) examined the SAT scores of homeschool, public school, and private school graduates who subsequently attended one of seven nondenominational

Christian colleges. The colleges were located in the South, on each coast, and in the Midwest. The researcher gathered data sets from the colleges and obtained a usable sample of 222 homeschool (SAT mean = 1128.33); 1,792 public school (SAT mean = 1039.47); and 945 private school (SAT mean = 1054.17) students. A Kruskal-Wallis test was used to establish that the mean rank of the total SAT scores of the homeschooled students was higher than the mean rank of either the public school or private school students, $X^2 = 40.155$ (2, $N = 2959$), $p = .000$. The researcher used another nonparametric test (Mann-Whitney) to confirm her results.

The conclusions from the 2006 Clemente study must be interpreted cautiously since the data was drawn only from Christian colleges. Although the sample size was larger than some other studies reviewed in this chapter, it was not clear to what extent the study results might be extrapolated to homeschoolers who attend secular colleges and universities. The author contended that the “study would have been greatly enhanced were some type of triangulation of variables utilized, (e.g., grade point average, SAT scores, and one other academic indicator) . . .” (Clemente, 2006, p. 44).

Inferences from Previous Studies on Academic Achievement

There is no clear evidence that homeschooled students outperform or are outperformed by their traditionally educated peers once they reach college. The selected and available literature reviewed supported the belief that homeschooled students were at least as well prepared for collegiate activities as their peers (Ashford, 2005; Clemente, 2006; Gray, 1998; Jenkins, 1998; Jones, 2002; Jones & Gloeckner, 2004; Mexcur, 1993; Oliveira, 1994). The next section of the literature review focuses on criticisms of homeschooling not related to the students’ academic achievements.

Critics of Homeschooling

As the number of students being homeschooled has increased, the public's opinion of the activity has become more positive. Rose and Gallup (2001) reported that in 1985 only 16% of respondents in the annual Phi Delta Kappa / Gallup poll of the public's opinions of public schools said that homeschooling was a good idea. Each time the question has been asked in subsequent polls, the favorable percentage increased: in 1995, the percentage was 28%; in 1997, the percentage was 36%; and in 2001, the percentage was 41% (Rose & Gallup, 2001). Colleges have experienced increased applications from homeschoolers; especially community colleges (Shek, 2001a, 2001b).

Ray (2004) reported that 74% of adults aged 18 – 24 who had been homeschooled later attended a college compared to 46% of the general population who have some college education. Ray also contended that homeschoolers have a higher rate of admission to selective colleges than do non-homeschoolers. If this contention is true, it could be argued that the increased acceptance rates of homeschoolers into institutions of higher education can be seen as higher education's acceptance of the homeschooling option as viable.

Stevens (2003) contended that the extent to which a movement became normalized was a measure of its acceptance in a culture.

As striking as the numerical growth, however harder to measure, has been the extent to which home education has become a taken-for-granted feature of the US culture. The normalization of homeschooling is the accomplishment of a vital social movement that has, in its successes, changed the meaning of its own cause. What was once countercultural has become a generally acceptable educational choice. (p. 96)

Stevens also wrote about homeschooling as a social movement in his the book, *Kingdom of Children* (2001). He discussed how homeschooling differed from the

common perceptions that existed about the movement and the view that some sociologists and social commentators tend to take of homeschooling. The criticisms of homeschooling typically are not espoused because of a failure to educate students appropriately; even critics generally recognize that homeschoolers tend to perform as well academically as students from other educational backgrounds. Instead, criticism tend to focus on the departure from social norms that homeschooling represents.

For example, as families move their children out of public schools to school them at home, it negatively affects the social diversity of the public school system (Apple, 2000). In the words of Arai, “In short, most of the concerns about homeschooling and objections to homeschooling are worries about whether homeschooling children will grow up to be good citizens” (1999, p. 2).

Some critics refer to homeschooling as fanaticism and contend that the movement should not be allowed to continue (Rockney, 2002). One of the critics, David Blacker wrote:

... a democratic society, in order to remain and produce itself as such, has a compelling interest in securing at least a minimal set of civic virtues in its citizens. Foremost among these, particularly under conditions of pluralism, such as those that obtain in the contemporary United States, is a minimal level of tolerance for worldviews and cultural practices different from one’s own. Tolerance, in turn, presupposes an ability to grasp that there may be (and in fact is) a heterogeneity of reasonable value commitments held by one’s fellow citizens. . . (1998, p. 242).

Summary

This literature addressed the historical and legal contexts within which homeschooling prospered, it examined the demographics of homeschooling families and estimates of the number of homeschoolers, and it reviewed available and relevant literature on what researchers know about the academic achievement of the students who

were educated at home. It has also been used to highlight some existing gaps in the literature and to point to areas where a further study is needed. To this end, this study provided further information on the collegiate academic achievement of homeschooled students and furthers our understanding of this increasingly popular educational option.

CHAPTER 3: RESEARCH DESIGN

Introduction

This study used a mixed methods design, a research methodology allowing for the collection and analysis of both quantitative and qualitative data. According to Creswell (2003), this methodology is appropriate when neither the quantitative data nor the qualitative data alone are sufficient to fully illuminate the questions asked by the researcher. In this study, the relative measures of success from homeschooled students verses their traditionally educated peers were sufficiently complex that both data types were deemed necessary to draw conclusions and make inferences.

Creswell (2003) discussed three considerations that needed to be addressed when planning a mixed method study: implementation, priority, and integration. Implementation is the consideration of whether the data from the two phases will be collected concurrently or sequentially. During sequential data collection, either of the types of data can be collected first. The second consideration is that of priority. This refers to which phase will be given the emphasis or greater weight in the study. The final consideration is one of integration, which occurs when a researcher connects data from both phases of the research. According to Creswell (2003), those connections could occur during data collection, data analysis, or interpretation.

Another possible point of connection was in the development of the qualitative data collection protocols, grounded in the results from the first, quantitative phase. Doing so in the second phase of the study allowed for a more in-depth investigation of those findings (Ivankova, et al., 2006, p. 11).

Mixed Methods Sequential Explanatory Design

Creswell (2003) identified the four major types of mixed methods designs as triangulation, embedded, explanatory, and exploratory. This study used the mixed methods sequential explanatory design, which is the most popular mixed method design in educational research and the most straightforward (Creswell, 2003), because it further explains the findings of a study that is primarily quantitative. In this two-phase methodology the quantitative data and qualitative data are used sequentially with the quantitative data generally being given the emphasis. With this methodology, the quantitative data can be used to identify participant characteristics that allow for purposeful sampling in the qualitative phase (Plano Clark, Creswell, Green, & Shope, 2008). A graphic representation of the procedure for the mixed methods sequential explanatory design for this study is presented below in Figure 3.1.

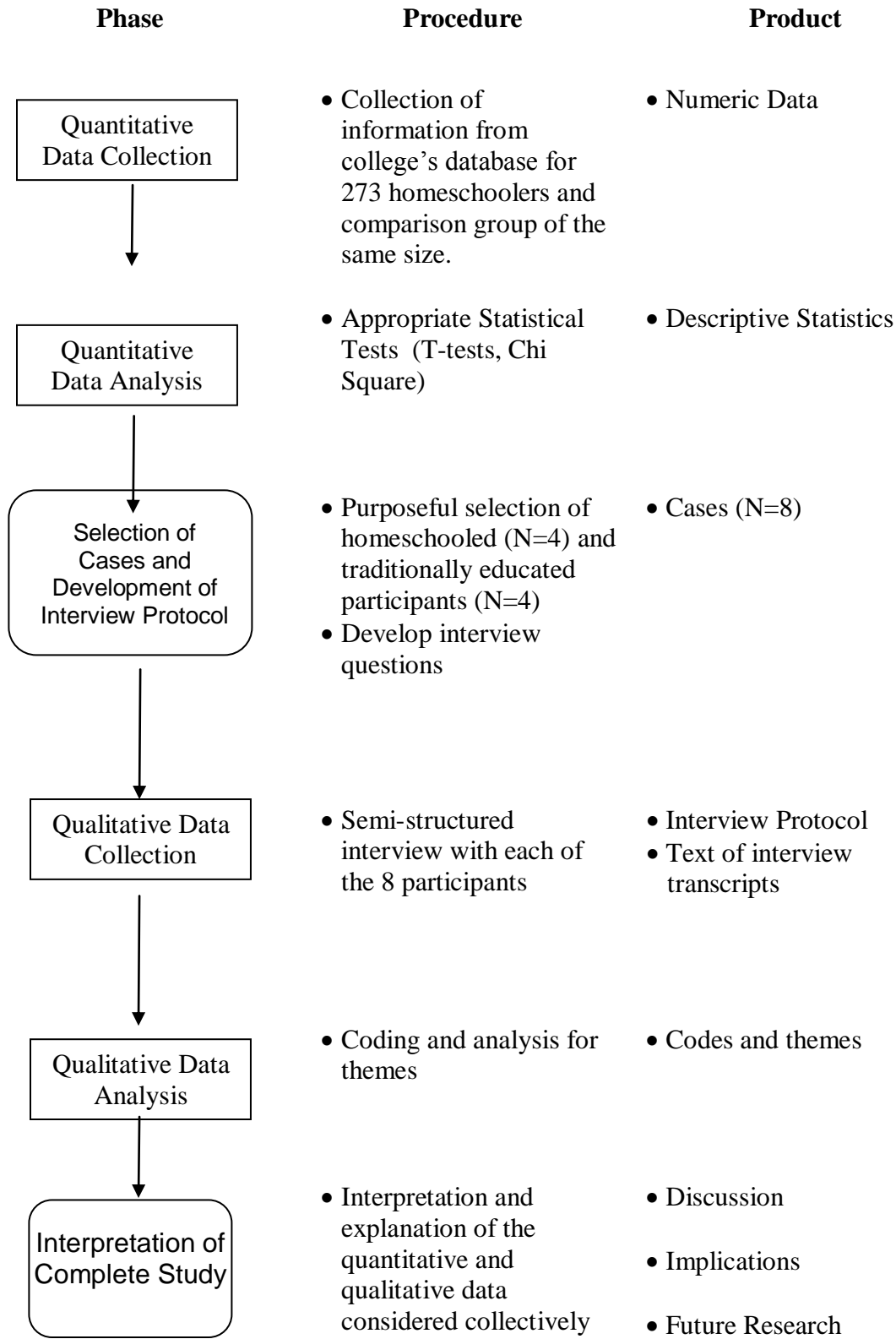
The mixed methods sequential explanatory methodology offers a researcher distinct advantages and disadvantages (Plano Clark, et al., 2008). The advantages include:

1. The two distinct phases make the project more manageable since the researcher is collecting only one type of data at a time.
2. The reporting of the study is simplified because each phase can be reported in different sections of the written report.

Disadvantages of the methodology include:

1. The two sequential phases of research can require longer to implement than other methods.

Figure 1 - Visual Model for Mixed-Methods Sequential Explanatory Design Process



2. This method also can be more difficult to have approved through the Institutional Review Board because the researcher is only able to describe tentative participants and data collection strategies for the qualitative phase.

Research Permission and Ethical Consideration

Ethical consideration for each phase of this research study was in compliance with regulations of the Institutional Review Board of the University of Nebraska-Lincoln. The appropriate forms were filed and permissions obtained before the research was initiated. The researcher obtained permission from the Executive Vice President of Academic Affairs / Chief Academic Officer of York Technical College (Appendix A) and also submitted a human research request to the University and was given permission to initiate the research (Appendix B).

Mixed Methods Explanatory Design Applied to this Study

In this study, the researcher gave the quantitative phase priority and it was completed first. In that initial phase, the researcher secured data drawn from the student information database at York Technical College. Perusal of that information led to the conclusion there had been 273 homeschooled students enrolled in the college between the summer of 2001 and the fall of 2008.

Phase I - Sample Selection

The traditionally educated comparison group of 273 students was selected from all the traditionally educated students in the college's student information database. The researcher first determined the number of homeschooled students who were under 18 (N=87), 18 to 22 (N=160), and above 22 (N=26). Then the total population of traditionally educated students was parsed into the same age groups. A random number generator was used to select the sample to serve as the comparison group of traditionally

educated students. Pearson chi-square tests were used to determine whether the samples were representative of the populations from which they were selected. The demographic variables used were gender, race, and whether the student was a resident of York Technical College's service area. The results of these comparisons are presented in Chapter 4.

Once it was determined that the comparison group of traditionally educated students were representative of the total population, these students were compared to the homeschooled students using the same demographic variables using the Pearson chi-square test. This analysis was used to determine whether the demographic composition of the sample of traditional students was comparable to that of the homeschooled students. The results of these comparisons are presented in Chapter 4.

Phase I - Achievement Data Analyses

The t test for independent measures was performed with the quantitative data obtained from the students' transcripts and placement scores. This test was appropriate since the study compared means between the two populations included in this study (Gravetter & Wallnau, 2000). The t tests included comparisons of COMPASS scores (writing, algebra, and reading), first semester collegiate GPA, collegiate math GPA, collegiate science GPA, collegiate English composition GPA, and collegiate overall GPA.

Phase II Sample Selection

After Phase I was completed, the researcher used the information obtained to select potential participants for the qualitative phase of this study. The participants were selected to provide depth and context to the findings from the quantitative phase of this study. Participants were selected from the enrolled student body of homeschooled and

traditionally educated students at York Technical College. The researcher identified a pool of potential participants and made telephone calls to potential participants in order to solicit their participation in the study using a recruitment script (Appendix A).

If a student agreed to participate, a mutually agreeable time was arranged to meet on the York Technical College campus for the interview. Interviews were held in conference rooms or a private office to minimize interruptions. At the interview, the researcher provided an overview of the study, reviewed the informed consent form (Appendix B), and secured the participant's signature. Each participant was also asked if they would allow the researcher to make an audio recording of the interview. All participants agreed to the recording, and a digital audio recorder was used for each interview.

Semi-structured Interview

The semi-structured interview was designed to be non-threatening and conversational. The questions were designed to allow the researcher to elicit responses related to each of the quantitative areas of study. The same basic set of questions was asked of each participant; but since the interview was semi-structured, follow up questions were asked to clarify points and assertions made by the participants. The questions asked of each participant were:

1. Describe your educational history prior to enrolling at York Technical College. How were you educated? Public school / private school/ homeschool? Length of time for each methodology? If you were homeschooled, describe the curriculum that you used.
2. How did the education you received prior to attending York Technical College prepare you or fail to prepare you for your course work at the college?
3. In your opinion, does the collegiate grade point average earned at York Technical College accurately reflect how prepared you were for college courses? Why or why not?

4. What aspect of your college courses were you most prepared for?
5. What aspect of your college courses were you least prepared for?
6. How well did your educational history prepare you for the college placement (COMPASS) exam? Did you feel more/less prepared for any part (writing, algebra, reading) of the exam? Explain.
7. If you have taken math courses at the college, how well did your educational history prepare you for these courses?
8. If you have taken science courses at the college, how well did your educational history prepare you for these courses?
9. If you have taken English courses at the college, how well did your educational history prepare you for these courses?
10. Considering your personal educational history, what, if anything, could have been done to better prepare you for your college courses?

At the end of the interview, the researcher thanked the participants for their time and gave them a \$10 gift card to a local restaurant. He also asked permission to follow up with additional questions should they arise when the interviews were transcribed.

The digital recordings made of each interview facilitated the creation of transcripts, which the researcher transcribed personally within a few days after each interview. The digital recording files were uploaded to the researcher's private home computer located in his home study and were transcribed using transcription software, a transcriptionist's pedal control device, and an audio headset. The combination of the transcription hardware and software provided complete control of the playback of the audio file. The audio could be manipulated in a number of ways allowing the researcher to make an accurate transcription of the interview. Once the transcription was completed, the researcher replayed the audio file, read along with the transcript, and corrected errors as necessary.

Coding and Theme Identification

Transcripts were analyzed using a grounded theory approach, which is characterized by "the constant comparison of data with emerging categories and

theoretical sampling of different groups to maximize the similarities and the differences of information (Creswell, 2003). Using this approach, analysis occurred so that specific set of observations recorded in the interview transcripts ultimately gave way to a pattern that best represented the observations (Braun & Clarke, 2006) . Open coding was used to create codes based on the transcript data. Memo writing was used to document possible points of connection. Axial coding was employed and facilitated using an electronic spreadsheet software, which allowed the researcher to have a high degree of control over how codes were combined and sorted. Ultimately, themes emerged from the transcript data and represented the major findings of the qualitative portion of the research (Creswell, 2003). More specificity related to the qualitative analysis are included in Chapter 4.

Verification Procedures

Creswell (2003) discussed eight strategies that are used to validate qualitative research. Three of these were used in this study: triangulation, member checking, and the clarification of the bias the researcher brought to the study. Triangulation occurred as the information obtained from the participant interviews was analyzed in light of the quantitative results from Phase 1. Codes and themes that were identified through the semi-structured interviews were triangulated against the quantitative data from this study, previous findings identified through the literature search, and the experiences of the researcher.

Another verification strategy was member-checking. The participants were sent an electronic copy of their interview transcript to allow them to make any clarifications or corrections of fact deemed necessary. Lastly, the researcher acknowledged he entered the study with certain biases, which he further clarified as the role of the researcher in the

next section. Creswell (2003, p. 196) contended that this validation method of clarifying the bias of the researcher, “. . . creates an open and honest narrative that will resonate well with readers.”

Role of the Researcher

In the quantitative phase of this study, the researcher analyzed existing data using appropriate statistical analyses and interpreted the results based on the accepted levels of statistical significance appropriate to the tests used. In the qualitative phase, the researcher played a more personal role in the data collection. This was due to the interactions that took place between the research and the study participants. The researcher also acknowledged that he homeschooled his own children and knows many homeschooling families in the community.

The researcher also served as a faculty member, advisor, and administrator at York Technical College and had personal knowledge of some of the participants in this study. Clearly, there was a potential to introduce bias. However, the priority of this study was given to the quantitative phase and the qualitative phase was used to further explain or interpret any differences that might be found in quantitative phase. Accordingly, the potential for bias to affect the outcomes of this study was mitigated. Furthermore, the researcher's academic advisor audited the research methods, findings, and conclusions.

The next chapter (Results) addresses the research questions by first presenting demographic information and then data for the quantitative findings. The second phase, qualitative, follows, and it then is merged into the quantitative information. The null hypotheses and alternate hypotheses for the quantitative questions addressed in this study were:

1. Null: There is no statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students.

2. Null: There is no statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students.

3. Null: There is no statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated students.

4. Null: There is no statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students.

5. Null: There is no statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated students.

6. Null: There is no statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students.

7. Null: There is no statistically significant difference between the mean collegiate English composition GPA of homeschooled students and that of traditionally educated students.

Alternate: There is a statistically significant difference between the mean collegiate English composition GPA of homeschooled students and that of traditionally educated students.

8. Null: There is no statistically significant difference between the overall collegiate GPA for homeschooled students verses that of traditionally educated students.

Alternate: There is a statistically significant difference between the overall collegiate GPA for homeschooled students verses that of traditionally educated students.

CHAPTER 4: RESULTS

The purpose of this study was to determine whether students who had been homeschooled differed in their academic achievement as measured by COMPASS placement scores and collegiate grade points averages when compared to students who had a more traditional educational background.

Phase I

The participants for this study were drawn from the total credit student population of York Technical College between the summer of 2001 and the fall of 2008. From that population, 273 students were identified in the college's database as having "homeschool" listed as the school from which they matriculated. The comparison group of traditionally educated students was identified using normative group equivalence. The number of participants from each group is shown in Table 4.1. For all statistical analyses, an alpha of .05 was used to determine significance.

Table 4.1
Number of Homeschooled and Traditionally Educated Participants

Type of Schooling	Sample Size
Homeschooled	273
Traditionally educated	273
Total	546

Because the homeschooled population was composed of graduates and students who were dually enrolled in their homeschool and the college, this population was subdivided into the following age groups: under 18, 18 to 22, and over 22. Those age groups also were used to divide the population of the traditionally educated students.

Subsequently, a random sample of students was identified to form the comparison group. In each group, ages were determined by calculating the age of the students upon the start date of their first semester of enrollment at the college. Ages were rounded to the nearest year for all participants. For instance, a participant 17 years, 5 months, and 15 days old was recorded as a 17-year-old, but a participant who was 17 years, 5 months, and 16 days old had their age rounded up to the 18 years. Table 4.2 shows the number of participants from each of the age groups that were included in this study.

Table 4.2
Number of Homeschooled and Traditionally Educated Participants from Each Age Group

Age Group	Homeschooled	Traditionally educated
Under 18	87	87
18 to 22	160	160
Above 22	26	26
Total	273	273

Demographic Comparisons of Traditionally Educated Sample and Populations

To determine if the traditionally educated samples were equivalent to the population of traditionally educated students, chi-square analyses were performed on the demographic variables of race, gender, and whether or not they were from the college's three-county service area for each of the age groups.

Demographic Comparisons for Under-18 Age Group

To determine if there was a statistically significant difference in gender between the sample of traditionally educated students in the under-18 group and that of the entire

under-18 population, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in gender composition, $X^2(1, N = 2268) = .29, p = .593$. The results are reported in Table 4.3 and suggest the gender composition was comparable between the sample and the population.

Table 4.3
Chi-square Comparisons for Under 18 Traditionally Educated Samples and Population

Demographic Variable	Traditional Sample	Traditional Population	X^2	p
Female	49	1291	0.29	0.593
Male	38	890		
White	66	1736	0.71	0.398
Minority	21	445		
In service area	87	2156	1.01	0.315
Out of service area	0	25		

To determine if there was a statistically significant difference in race between the sample of traditionally educated students in the under-18 group and that of the entire under-18 population, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in race composition, $X^2(1, N = 2268) = .71, p = .398$. The results are reported in Table 4.3 and were understood to mean the race composition was comparable between the sample and the population.

To determine if there was a statistically significant difference in proportion of students from within and outside of the college's service area between the sample of traditionally educated students in the under-18 group and that of the entire under-18 population, a 2x2 chi-square analysis was calculated. The result showed no statistically

significant difference in composition for this variable, $X^2(1, N = 2268) = 1.01, p = .315$.

The results are reported in Table 4.3 and were interpreted to mean the sample and the population was comparable for this variable.

Demographic Comparisons for 18-22 Age Group

To determine if there was a statistically significant difference in gender between the sample of traditionally educated students in the 18-22 sample and that of the entire 18-22 population, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in gender composition, $X^2(1, N = 11,639) = 1.90, p = .168$. The results are reported in Table 4.4 and viewed to mean the gender composition was comparable between the sample and the population.

Table 4.4

Chi-square Comparisons for 18 to 22 Traditionally Educated Sample and Population

Demographic Variable	Traditional Sample	Traditional Population	X^2	p
Female	83	6578	1.90	0.1680
Male	77	4901		
White	110	8287	0.96	0.327
Minority	48	3049		
In service area	150	10,857	0.04	0.841
Out of area	8	623		

Note: Totals do not match in every comparison due to missing demographic data in the database.

To determine if there was a statistically significant difference in race between the sample of traditionally educated students in the 18-22 sample and that of the entire 18-22 population, a 2x2 chi-square analysis was calculated. The result showed no statistically

significant difference in race composition, $X^2(1, N = 11,494) = .96, p = .327$. The results are reported in Table 4.4 and were understood to mean the race composition was comparable between the sample and the population.

To determine if there was a statistically significant difference in proportion of students from within and outside of the college's service area between the sample of traditionally educated students in the 18-22 sample and that of the entire 18-22 population, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in composition for this variable, $X^2(1, N = 11,638) = .04, p = .841$. The results are reported in Table 4.4 and mean the sample and the population was comparable for this variable.

Demographic Comparisons for Over-22 Age Group

To determine if there was a statistically significant difference in gender between the sample of traditionally educated students in the over 22 sample and that of the entire over 22 population, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in gender composition, $X^2(1, N = 11,842) = 1.01, p = .315$. The results are reported in Table 4.5 and understood to mean that suggest the gender composition was comparable between the sample and the population.

Table 4.5
Chi-square Comparisons for Over 22 Traditionally Educated Sample and Population

Demographic Variable	Traditional Sample	Traditional Population	X^2	p
Female	15	7914	1.01	0.315
Male	11	3902		
White	16	7514	0.09	0.760
Minority	10	4152		
In service area	26	11,168	1.44	0.231
Out of area	0	617		

Note: Totals do not match in every comparison due to missing demographic data in the database.

To determine if there was a statistically significant difference in race between the sample of traditionally educated students in the over-22 group and that of the entire over-22 population, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in race composition, $X^2(1, N = 11,692) = .09, p = .760$. The results are reported in Table 4.5 and mean the race composition was comparable between the sample and the population.

To determine if there was a statistically significant difference in proportion of students from within and outside of the college's service area between the sample of traditionally educated students in the over-22 group and that of the entire over-22 population, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in composition for this variable, $X^2(1, N = 11,811) = 1.44, p = .231$. The results are reported in Table 4.5 and viewed as meaning that the sample and the population were comparable for this variable.

Demographic Comparison of Homeschoolers and Traditional Sample

The data analysis allowed for believing that the samples of the traditionally educated students were not statistically different from the native populations they represented. Consequently, the samples were used to compare with the homeschoolers to determine if any differences existed. To make these determinations, chi-square analyses were performed on the demographic variables of race, gender, and whether or not they were from the college's three-county service area for each of the age groups. Each of the variables was analyzed for each age group.

Demographic Comparisons for Under-18 Age Group

To determine if there was a statistically significant difference in gender between the homeschooled population and the traditional sample in the under-18 age group, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in gender composition, $X^2(1, N = 174) = .00, p = 1.00$. The results are reported in Table 4.6 and interpreted to mean the gender composition did not differ between the homeschoolers and the traditionally educated sample.

Table 4.6
Chi-square Comparisons for Under 18 Homeschooled vs. traditionally Educated Sample

Demographic Variable	Homeschooled	Traditionally educated	X ²	p
Female	49	49	0.00	1.000
Male	38	38		
White	81	66	14.98	< .0001
Minority	3	21		
In service area	86	87	1.01	0.316
Out of area	1	0		

To determine if there was a statistically significant difference in race between the homeschoolers and the traditional sample in the under-18 age group, a 2x2 chi-square analysis was calculated. The result showed a statistically significant difference in race composition, $X^2(1, N = 171) = 14.98, p < .0001$. The results are reported in Table 4.6 and mean there was statistical significance in the race composition of the homeschoolers verses the traditionally educated sample. This was consistent with previous findings and led to believing that White children were more likely to be homeschooled than their minority counterparts (Bauman, 2002; Bielick, et al., 2001; Henke, et al., 2000; Princiotta & Bielick, 2006; Rudner, 1999b).

To determine if there was a statistically significant difference in proportion of students from within and outside of the college's service area between the homeschoolers and the traditional sample in the under-18 age group, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in composition for this variable, $X^2(1, N = 174) = 1.01, p = .316$. The results are reported in Table 4.6 and

mean the variable did not differ between the homeschoolers and the traditionally educated sample.

Demographic Comparisons for 18-22 Age Group

To determine if there was a statistically significant difference in gender between the homeschoolers and the traditional sample in the 18 to 22 age group, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in gender composition, $X^2(1, N = 320) = 2.86, p = .091$. The results are reported in Table 4.7 and were viewed to mean the gender composition did not differ between the homeschoolers and the traditionally educated sample.

Table 4.7

Chi-square Comparisons for 18 to 22 Homeschooled vs. traditionally Educated Sample

Demographic Variable	Homeschooled	Traditionally educated	X^2	p
Female	98	83	2.86	0.091
Male	62	77		
White	147	110	26.92	0.0001
Minority	12	48		
In service area	152	150	0.08	0.782
Out of area	7	8		

To determine if there was a statistically significant difference in race between the homeschoolers and the traditional sample in the 18 to 22 age group, a 2x2 chi-square analysis was calculated. The result showed a statistically significant difference in race composition, $X^2(1, N = 317) = 26.92, p < .0001$. The results are reported in Table 4.7 and mean there was statistical significance in the race composition of the homeschoolers

verses the traditionally educated sample. Again, this result was consistent with the available literature on homeschooling.

To determine if there was a statistically significant difference in proportion of students from within and outside of the college's service area between the homeschoolers and the traditional sample in the 18 to 22 age group, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in composition for this variable, $X^2(1, N = 317) = .08, p = .782$. The results are reported in Table 4.7 and understood to mean the variable did not differ between the homeschoolers and the traditionally educated sample.

Demographic Comparisons for Over-22 Age Group

To determine if there was a statistically significant difference in gender between the homeschoolers and the traditional sample in the over 22 age group, a 2x2 chi-square analysis was calculated. The result showed no statistically significant difference in gender composition, $X^2(1, N = 52) = .33, p = .569$. The results are reported in Table 4.8 and interpreted to mean the gender composition did not differ between the homeschoolers and the traditionally educated sample.

Table 4.8
Chi-square Comparisons for Over 22 Homeschooled vs. traditionally Educated Sample

Demographic Variable	Homeschooled	Traditionally educated	X ²	p
Female	17	15	0.33	0.569
Male	9	11		
White	20	5	2.09	0.148
Minority	16	10		
In service area	23	26	3.18	0.074
Out of area	3	0		

To determine if there was a statistically significant difference in race between the homeschoolers and the traditional sample in the over 22 age group, a 2x2 chi-square analysis was calculated. The result showed a statistically significant difference in race composition, $X^2(1, N = 51) = 2.09, p = .148$. The results are reported in Table 4.8 and race composition did not differ between the homeschoolers and the traditionally educated sample. This was the only age group for which a statistically significant difference was not detected with regard to race.

Phase I - Research Question Analyses

The following analyses address the Phase I research questions. For each of the analyses involving the COMPASS scores, the highest score achieved by students was used in the calculations. The York Technical College policy encouraged all students to take the COMPASS for proper course placement, but the college did accept ACT and SAT scores for this purpose, if a student had taken these tests. The policy also allowed students to take one immediate retests (for a fee) if they were not happy with their scores.

After this retest, a mandatory six-month wait was required before a subsequent retest could be taken.

In the analyses involving course grades, all earned grades for courses were included. The following quality points were used to calculate the mean GPAs: A=4; B=3; C=2; D=1; F and WF= 0. The “WF” is a punitive grade assigned at the instructor’s discretion if the student was withdrawn after midterm and not making satisfactory progress in the course. Since the “WF” is a punitive grade, those grades were included in the grade point calculations. A grade of “W” was non-punitive and assigned if a student was withdrawn before midterm or at the instructor’s discretion after midterm. Since this “W” is not punitive, those grades were excluded from the grade points calculations.

Question 1 Null

There is no statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students.

A t test was performed to determine if there was a statistically significant difference between the mean scores of the homeschooled students and the traditionally educated students as measured on the writing portion of the COMPASS placement test. For this analysis, the homeschooled sample consisted of n=223 students and the traditionally educated sample consisted of n=130 students. In this and all subsequent analyses related to the COMPASS scores, the highest score on file for a student was the one used for the calculations contained in this study.

The mean score for the homeschooled students was 78.9 and the mean for the traditionally educated students was 63.9, $t(351) = 5.53$, $p < 0.0001$. The results are reported in Table 4.9 and interpreted to mean that homeschoolers in this study performed better than did the traditionally educated students on the writing portion of the COMPASS placement tests. The null hypothesis was rejected and the alternate was

accepted. Thus, there is a statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students.

Table 4.9
Comparisons of Mean COMPASS Scores for Homeschooled and traditionally Educated Students

COMPASS Test	Homeschooled scores	Traditionally educated scores	t statistic	<i>P</i> (2 tailed)
COMPASS writing	78.9	63.9	5.53	<0.0001
COMPASS pre-algebra	54.0	47.9	2.60	0.0096
COMPASS algebra	43.7	39.6	1.01	0.3143
COMPASS college algebra	53.6	62.8	-1.13	0.2701
COMPASS reading	84.9	79.1	3.96	<0.0001

Question 2 Null

There is no statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students?

A t test was performed to determine if there was a statistically significant difference between the mean scores of the homeschooled students and the traditionally educated students as measured on the mathematics portions of the COMPASS placement test. The COMPASS mathematics portion challenged students with a variety of questions in an effort to place the student into the correct course level. There were five subject areas (pre-algebra, algebra, college algebra, geometry, and trigonometry) and students answered progressively more advanced questions until they reached the extent of their

knowledge in mathematics. Most York Technical College students placed into math courses below the level required for transfer to senior institutions and were placed into the correct courses with pre-algebra or algebra scores. The analyses included an examination of the pre-algebra, algebra, and college algebra scores although it should be noted that there were only 25 homeschooled students and four traditionally educated students with a college algebra score. No students achieved geometry or trigonometry scores.

Pre-algebra

For the pre-algebra score analysis, the homeschooled sample consisted of $n=222$ students and the traditionally educated sample consisted of $n=145$ students. The mean score for the homeschooled students was 54.0 and the mean for the traditionally educated students was 47.9, $t(365) = 2.60$, $p < 0.0096$. The results are reported in Table 4.9. For this subtest, the null hypothesis was rejected and the alternate hypothesis was accepted. Thus, there is a statistically significant difference between the mean COMPASS pre-algebra score of homeschooled students and that of traditionally educated students.

Algebra

For the algebra score analysis, the homeschooled sample consisted of $n=103$ students and the traditionally educated sample consisted of $n=43$ students. The mean score for the homeschooled students was 43.7 and the mean for the traditionally educated students was 39.6, $t(144) = 1.01$, $p < 0.3143$. The results are reported in Table 4.9 and understood to mean that higher mean score achieved by the homeschooled students was not statistically significant. For this subtest, the null hypothesis was rejected.

College algebra

For the algebra score analysis, the homeschooled sample consisted of $n=20$ students and the traditionally educated sample consisted of $n=4$ students. The mean score for the homeschooled students was 53.6 and the mean for the traditionally educated students was 62.8, $t(22) = -1.13$, $p < 0.2701$. The results are reported in Table 4.9 and mean that the lower mean score achieved by the homeschooled students was not statistically significant. For this subtest, the null hypothesis was rejected. The inferences drawn from this data must be interpreted with caution considering the small number of students who had achieved scores on the college algebra portion of the COMPASS.

Question 3 Null

There is no statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated student.

A t test was performed to determine if there was a statistically significant difference between the mean scores of the homeschooled students and the traditionally educated students as measured on the reading portion of the COMPASS placement test. For this analysis, the homeschooled sample consisted of $n=225$ students and the traditionally educated sample consisted of $n=130$ students. The mean score for the homeschooled students was 84.9 and the mean for the traditionally educated students was 79.1, $t(353) = 3.96$, $p < 0.0001$. The results are reported in Table 4.9 and interpreted to mean that the null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated students.

Question 4 Null

There is no statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students.

A t test was performed to determine if there was a statistically significant difference between the mean first semester collegiate grade point averages of the

homeschooled students and the traditionally educated students. For this analysis, the homeschooled sample consisted of $n=740$ student course grades and the traditionally educated sample consisted of $n=569$. All course grades in all credit courses at the degree level were considered in this analysis: Developmental courses and other courses below the degree level were excluded. The mean GPA for the homeschooled students was 3.01 and the mean for the traditionally educated students was 2.74, $t(1307) = 4.08$, $p < 0.0001$. The results are reported in Table 4.10 and interpreted to mean that the null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students.

Table 4.10
Comparisons of Grades for Homeschooled and Traditionally Educated Students

Grade Comparison	Homeschooled mean grade	Traditionally educated mean grade	t statistic	<i>P</i> (2 tailed)
1 st semester	3.01	2.74	4.08	<0.0001
Collegiate math	2.99	2.30	5.62	<0.0001
Collegiate science	2.80	2.05	4.03	<0.0001
Collegiate English composition	2.87	2.44	3.60	0.0004
Collegiate overall	2.99	2.67	8.13	<0.0001

Question 5 Null

There is no statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated student.

A t test was performed to determine if there was a statistically significant difference between the mean collegiate math grade point averages of the homeschooled students and the traditionally educated students. For this analysis, the homeschooled sample consisted of n=265 student course grades and the traditionally educated sample consisted of n=156. The mean score for the homeschooled students was 2.99 and the mean for the traditionally educated students was 2.30, $t(174) = 5.62$, $p < 0.0001$. The results are reported in Table 4.10 and interpreted to mean that the null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated students.

Question 6 Null

There is no statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students.

A t test was performed to determine if there was a statistically significant difference between the mean collegiate science grade point averages of the homeschooled students and the traditionally educated students. For this analysis, the homeschooled sample consisted of n=93 student course grades and the traditionally educated sample consisted of n=83. The mean score for the homeschooled students was 2.80 and the mean for the traditionally educated students was 2.05, $t(174) = 4.03$, $p < 0.0001$. The results are reported in Table 4.10 and interpreted to mean that the null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students.

Question 7 Null

There is no statistically significant difference between the mean collegiate English composition GPA of homeschooled students and that of traditionally educated students.

A t test was performed to determine if there was a statistically significant difference between the mean collegiate English composition grade point averages of the homeschooled students and the traditionally educated students. For this analysis, the homeschooled sample consisted of n=228 student course grades and the traditionally educated sample consisted of n=123. The mean score for the homeschooled students was 2.87 and the mean for the traditionally educated students was 2.44, $t(349) = 3.60$, $p < 0.0004$. The results are reported in Table 4.10 and interpreted to mean that the null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate English GPA of homeschooled students and that of traditionally educated students.

Question 8 Null

There is no statistically significant difference between the mean collegiate overall GPA for homeschool students verses that of traditionally educated students.

A t test was performed to determine if there was a statistically significant difference between the mean collegiate grade point averages of the homeschooled students and the traditionally educated students. For this analysis, the homeschooled sample consisted of n=2118 student course grades and the traditionally educated sample consisted of n=1458. The mean score for the homeschooled students was 2.99 and the mean for the traditionally educated students was 2.66, $t(3574) = .8.13$, $p < 0.0001$. The results are reported in Table 4.10 and interpreted to mean that the null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate overall GPA of homeschooled students and that of traditionally educated students.

Phase II – Qualitative Results

Upon the completion of semi-structured interviews with homeschooled and traditionally educated study participants, the researcher reviewed the interview transcripts multiple times in search of themes that would add a deeper context and richness to the research presented in the quantitative section of this chapter. The grand tour question the researcher was attempting to address with the interviews was: Did your educational history prepare you for your studies at York Technical College? Each participant was interviewed using a semi-structured methodology in which the researcher asked a series of planned questions. Follow up questions were asked in order to clarify a participant's answer or to allow the researcher to delve deeper into a promising area of inquiry. Prior to interviewing the study participants, the interview protocol was refined through a series of short pilot interviews intended to refine the interview questions and to hone the approach used by the researcher.

The following descriptions of the participants will introduce basic characteristics of each. Participants are identified with a pseudonym and a general description

Homeschooled participants

Karen – a homeschooled student who moved to SC from another state prior to starting 1st grade. She attended first grade in a local school district within the service area of York Technical College. Halfway through her first grade year, her parents believed she were not being sufficiently challenged and decided to homeschool her. They decided to promote her to the 2nd grade upon initiating homeschooling. Karen continued to homeschool until she turned 16 at which time she matriculated at York Technical College. She was dually enrolled for one-year. She subsequently graduated from high school and continued her enrollment at the college where she enrolled in the college transfer curriculum.

Wendi – a homeschooled student who resided in the college’s service area since birth. She attended a local Christian school through the 3rd grade. At that point her parents removed her from the Christian school and began homeschooling her. According to Wendi, her mother had started to associate with other homeschooling mothers and this heavily influenced her decision to homeschool her children. Wendi never took a dual enrollment course and started attending York Technical College after she graduated from high school and enrolled in a technical curriculum.

Billy - a homeschooled student who began homeschooling when his father was stationed overseas while in the military. As a child in a military family, he moved to several states before finally relocating to the York Technical College service area. According to Billy, his parents decided to homeschool him because they were unimpressed with the academic rigor of a Christian school overseas. At the college, he enrolled in the college transfer curriculum.

Ann – a homeschooled student who was homeschooled through her complete K-12 experience until she enrolled at York Technical College as a 16-year-old. She resided in the college’s service area since birth. According to Ann, her mother decided to homeschool her older brother because she believed she could do “as good a job” as the local school district. Because her mother had made this decision before Ann and her younger sister started school, they never experienced a more traditional educational setting. At the college, Ann enrolled in a college transfer curriculum while she continued to be a dually enrolled student.

Traditionally educated participants

There was considerable diversity among the traditionally educated participants. This was in keeping with the characteristics of the student body at York Technical

College. None of these participants had availed themselves of the opportunity to take dual enrollment courses that the college routinely offers in the high schools they attended.

Tamera – a traditionally educated student who attended a school district in the York Technical College service area throughout her complete K-12 experience. In her senior year of high school, she was enrolled in the college prep curriculum. Four years elapsed between her completion of high school and when she matriculated at the college. In the intervening time, she earned a one-year diploma at a proprietary college in a nearby city and worked before she lost her job due to a layoff and she decided to continue her education. At the college, she enrolled in a technical curriculum.

Shane – a traditionally educated student who attended a school district in the York Technical College service area through his complete K-12 experience. He was enrolled in the college prep curriculum in his high school. In his senior year, personal circumstances required him to complete his high school studies in an alternative format. Three years elapsed between his completion of high school and when he matriculated at the college. In the intervening time, he worked. At the college, he enrolled in the college transfer curriculum.

Janie - a traditionally educated student who attended a school district in the York Technical College service area through her complete K-12 experience. In her senior year, she was enrolled in the college prep English course in her senior year. She was accepted to a university in South Carolina, but upon attending the orientation at the college, she decided to attend York Technical College instead. At the college, she enrolled in the college transfer curriculum.

Olivia – a traditionally educated student who attended school in another state through her 6th grade year. Her family moved to the York Technical College service area

at that point and she attended school in a local district. Olivia reported that she was an honor roll student through the 9th grade. During the 9th grade year, Olivia maintained her grades, but because of family issues she missed too many school days and she failed her grade. That outcome was repeated the following year, and she subsequently dropped out of school with only a 9th grade education. At the age of 22, Olivia completed her GED at a community college in a nearby city and began a job. As a requirement to maintain her new position, she had to attend a class at York Technical College. This reignited her love of learning and she subsequently enrolled in the college transfer curriculum.

Coding and Theme Identification

According to Ryan and Bernard (2003), discovering themes is at the heart of qualitative data analysis. Themes have been defined as “abstract, often fuzzy, constructs which investigators identify before, during, and after data collection.” (Ryan & Bernard, nd) This study used a compare and contrast methodology often used by grounded theorists. This type of analysis comes from a line-by-line reading and analysis of the interview transcripts and by continually asking the general question, “What is this about?” (Ryan & Bernard, nd)

Open Coding

During the line-by-line analysis of interview transcripts, the researcher used open coding to identify categories to associate with different portions of the transcripts. Open coding allowed for the transcript to be disaggregated based on the content of the information and “chunked” into meaningful segments (Creswell, 2003). The researcher combed through each transcript multiple times until a list of codes seemed complete. At that point in the data analysis, the codes were simply noted on the paper copies of the transcripts. Memos were also included in the margins of the transcripts as connections

between the codes and the grand tour question were considered. As a next phase, the concept of axial coding was employed.

Axial Coding

Axial coding is the process that a qualitative researcher uses to reorder codes and to make connections between the various codes. During this phase, the codes were entered into an electronic spreadsheet along with the corresponding textual data from the transcripts. This allowed the codes to be combined, refined, and sorted in various ways in an attempt to discover the essence of what the participants had communicated during interviews. This grounded theory approach was aided by the ability to manipulate the data, which was afforded by the spreadsheet software.

Aided by the ability to reorganize and move information easily in the electronic spreadsheet, the codes were refined into categories. This was done through the combination of similar codes. Once categories were identified, the researcher used these as organizational headings on the spreadsheet and continued to look for themes that might emerge from the analysis. According to Creswell (2003), these themes represent the major findings from a qualitative analysis. Through the aforementioned qualitative analyses, three themes emerged. These were “general preparation,” “math preparation,” and “social preparation.”

Qualitative Narrative

The following paragraphs present the identified themes through a narrative passage that illuminates the findings of this phase of the study. According to Creswell (2003) this is “the most popular approach” to reporting themes (p.194) . As such, these themes are being presented in such a way as to present comparisons and contrasts between the homeschooled students and their traditionally educated peers.

General Preparation

Each of the participants interviewed expressed the opinion that they had come to York Technical College largely ready for college level work. Every member of each group of participants expressed a belief that they were prepared for their academic pursuits at York Technical College. Some perspectives from each group are presented in the following paragraphs.

Perspectives from the Homeschooled

Each of the homeschooled participants asserted that they were prepared for their academic studies at York Technical College. Billy said,

Academically, I think it [homeschooling] prepared me. I would say I was definitely prepared to enter the college. I had no problem with the tests here, the curriculum, or the amount of school work I am required to do now as compared to what I did then. All of that, in my opinion, so far has been easier than what I did then.

The other three homeschooled participants also were equally sure that their level of academic preparation through homeschooling had prepared them well for the rigors of college. That was not the case before they started the college. All the homeschooled participants confessed to having been worried whether they were academically prepared for college-level work upon their matriculation. For instance, Ann said,

I was very apprehensive about what this would be like because I had never been - never in a classroom before. I felt like I would be the youngest one - by far - here. I had just turned 16. I was very apprehensive about it. What might happen? I was also kind of scared to think my teachers' views could be so different from mine. But, it worked out very well, and I had very good teachers. And I think being at home . . . I think my mom really prepared me well for the work load. That was another thing - another concern. You are coming to a college and wondering is there just going to be too much work? But, she definitely prepared me for the load of work I would have to carry. The reading for English never seemed like too

much. The math homework –although it was a lot – it never seemed like too much. So, I think she prepared me well for that.

The one area that the homeschooled students were especially confident of their preparation was the reading and writing portions of the COMPASS and the English composition courses. Ann was not surprised with what was required of her in the English placement or the courses she had taken. She said, “I had been doing English since 3rd grade and the whole way even though it gets repetitive and you add only a little more on each year. We always did grammar and English all the way up until I came here.” When the researcher asked Wendi if she has struggled at all making the transition from English study as a homeschooled student to college-level English study, she replied, “No. I am excellent with that.” At another point in the interview she said, “Papers were just a breeze for me.” She attributed her mastery of the subject to her mom “drilling” these skills into her.

When describing the curricula used by her family, Karen said,

In English we used several different things, but probably the most effective thing that we used was called *Wordly Wise*. It would take different words and give you their meaning and for a whole week you worked on learning words and at the end of the week it gave you a comprehensive reading that used all the words in it. Then you had a little sheet after that that made sure you comprehended the reading and the words used in it, and that really helped me in my reading. Now I write a lot and it helps me in my writing.

Billy also provided insight into how his parents approached his English preparation. He said,

We were required to read a lot of stuff, but not just to read it. We had to think about it and write about it, which I am sure they do in public school too. But also in my case, I enjoy the literature that was given so I read way more. I never played video games. I still don't have a video game system to this day. I have my own apartment and I have a TV, but I don't have cable. I have a library with over 500 books in my apartment. So, I don't know if I attribute that to homeschool or simply my personal preferences; but with me being homeschooled early on and having to read so much and being encouraged to read and to think critically, it

became part of a natural process. English classes here were a breeze. You are given something to read and then asked to write about it or talk about it. For me that is absolutely no problem whatsoever.

Perspective from the traditionally educated

The traditionally educated students also claimed to have been prepared for college once they started their studies. Much like the homeschooled students, several of these students also expressed some angst about entering college, but unlike the homeschooled students when discussing English, these participants did not as readily zone in on one particular area that they highlighted as being especially prepared for in college. Three of these students had enrolled in at least 1 college prep course while in high school, but these participants were more likely to talk about their preparation for college in terms of life experiences. For instance, when Olivia was asked about her educational preparation for college, she said,

It is a bit embarrassing. In a nutshell, I made it to 9th grade in high school. I was a straight A honors courses student. When I got through 9th grade the first time, I had missed 11 days so they failed me - even though I had As. And I repeated 9th grade the second time and once I missed 11 days I knew I was going to fail so I started skipping school. The 3rd time in the 9th grade I said I am done and I quit school.

Olivia received her GED at age 22 and enrolled in York Technical College shortly thereafter. Interestingly, she was the only participant from either group who had maintained a 4.0 average in all her college courses. At the time of the interview, she had completed more than 40 semester hours of college credit.

The other three traditionally educated students also brought considerable life changes into their discussions of their preparation for their college studies. For Tamera it was being laid off at her job and knowing that she needed to go back to school; for Shane it was personal struggles that he experienced in his junior and senior years of high school; for Janie it was the death of her father when she was a young high school student. Each

of those students was achieving success in their college studies and was preparing for their next steps academically: three of the students were preparing to transfer to a university and the fourth was approaching graduation in a technical program.

Researcher's summary

The similarity between the two sets of students was that they both tended to believe they were academically prepared for college level work. As highlighted in the previous paragraphs, the homeschooled students tended to attribute their success to study habits and preparation they picked up for their experiences as homeschooled students. Their success in college gave the impression of being formulaic. There was a great deal of similarity between the answers given by this group of participants. In contrast, the successes of the traditionally educated students were more individualistic as all of them had overcome personal struggles and losses in order to even attend the college. Thus, the traditionally educated relied more on life experiences in preparing them for college.

Math Preparation

In each group, there was considerable agreement with respect to one area in which the participants were not as prepared to do college level work. This area was mathematics. Some perspectives from each group are presented in the following paragraphs.

Perspectives from the Homeschooled

Each of the homeschooled participants told about their struggles with math. Each one of these students expressed that they had done well in the math courses they had taken at the college, but they had all started their studies of math below the college transfer level courses (Math 110 or higher) as shown on the math ladder for the college (Appendix E). This was not atypical of students at the college, but these participants

clearly believed that they possessed a deficit in that area. Ann cited her need to study math as a motivating factor for enrolling at the college at age 16. When discussing the COMPASS, Ann said,

I saw that my reading and English scores were very high – I think it was in the 90s. My math score, I barely got into the Math 150. I almost started in the lowest math classes. That was a big jump from all the other scores.

When asked if she has ever considered coming to York Technical College to study math as a dual enrollment student Wendi said, “I did but we decided to go ahead and stick with the homeschooling. I was considering taking math (laughs) because that is weak for my whole entire family.” At another point in the interview Wendi talked about how homeschooling prepared her for college math. She said,

It was bad. When I did the COMPASS test, I scored where I had to take the Math 150. And during the Math 150, I was just looking at it, and I was like, “What are they talking about?” (Laughs). I had to go and get the tutoring and everything like that. Still I was like, huh? (Laughs)

Karen also expressed that the desire to receive a better preparation in math was also largely responsible for why her mother wanted to enroll her at the college. Karen said,

I kind of struggled with math, which is one of the reasons my mom wanted to put me into York Tech, but I mean - still with the algebra - I scored a 86 or something which put me into [Math] 102. I spent a lot of time in the tutoring center, which really helped me. That was just another aspect of what I was used to.

When discussing the COMPASS, Billy discussed math as the only part he struggled with. He said,

When I talked to the advisor she said that had I scored one or two points higher, I could have opted out of Math 101, which is where most people start out. She said she could have given me that if I would have asked for it, but I might struggle. But, I just went ahead and did Math 101 for the algebra because I hadn't done it in a while.

Perspectives from the traditionally educated

Traditionally educated students also professed to have had more struggles with math than other areas of study. Those students were more likely to attribute poor mathematics scores on the COMPASS to the amount of time that had elapsed between their last math class and when they took the COMPASS. For example, Shane said,

I did worse on the Math part. The English and reading part I did fine on. I still read, but I am not sitting around doing math. So, I was terrible on the math part. If I had just gotten out of high school where I was learning some kind of math, I think I would have done fine on it.

Shane did have three-years between high school and enrollment at the college, but Janie matriculated the fall following her high school graduation shared Shane's position. She said, "I am not good taking tests and I didn't score right and that is why I was in remedial classes. I guess when I came from summer and took placement tests, you forget everything."

Tamera explained that she had always been weak in math and it had continued to manifest itself in her college studies. She summed up her high school math experience this way, "I don't know how I made it through geometry in high school. There is a god!"

Researcher's Summary

None of the eight participants for this phase of the study placed into the degree or college transfer level on the college's math ladder (Appendix E). Clearly, there was some degree of deficit in the subject area for each participant, but the causation was not clear. Chapter 5 includes discussion related to the lack of preparation in mathematics and draws from the quantitative and qualitative findings of this study.

Social preparation

Concepts related to social preparation occurred in all eight of the participants interviews. With the homeschooled students there were similarities in the social adjustments that each had to make when entering college. Issues related to social adjustment also were evident in the comments of the traditionally educated students. Some perspectives from each group are presented in the following paragraphs.

Perspectives from the Homeschooled

It was evident that the homeschooled students were familiar with one of the main criticisms of homeschooling: that it produced socially maladjusted students. For example, Ann worked this statement into her answer to a question, “One question I know you hear a lot is socially was I ready to come here? I would say definitely; being involved with the church and other homeschoolers and having to socialize with people outside my age group.” Billy also claimed to have been socially active before coming to the college. He said, “I was always very socially active whether it be in church or volunteering.” Wendi’s commented, “A lot of people think that homeschoolers are not social. But, we get together and do stuff so when I came to the college it was just like being with a bunch of homeschoolers but of course they are not.”

Despite those assertions, two of the homeschooled students acknowledged some difficulties making the transition from homeschooled student who was not accustomed to having a lot of other students around to a college student who was one among many. For instance, Ann’s homeschooling was mostly done in her bedroom. Her mother started the homeschooling day with Ann and her sibling in a family room and then Ann would spend the rest of the morning in her room completing her assignments. Her mother would visit

each bedroom in turn providing the help needed. Ann was not one of the participants who experienced a difficult transition, but she did express a little apprehension because she had not been in a classroom before.

Karen professed to have a little more trouble with the transition to college. She said,

I was kind of awkward socially when I first came to York Tech. That was really it. That was more me than homeschooling. I was always kind of a shy kid and I really didn't like to go out places - you know - be really sociable and stuff. I had friends. It wasn't like I was totally a social hermit or anything, but that was the one thing that if I could go back and be more sociable, I would.

Karen also said,

I was used to being most of the time at home or around my family and then in the afternoon I would go out with my friends or something. And then when I transitioned into college it was a little difficult for me for a little while. Probably the first month. Being around people constantly and constantly having people around me and then in the afternoon I would go home and be around a few people. That was a little difficult at first, but not too much.

Perspectives from the traditionally educated

These participants did not have the same social concerns as the homeschooled students when transitioning into college. The traditionally educated students were accustomed to being around people, and this was not an issue. Interestingly, however, social aspects arose in each of these interviews also. Statements related to social topics were not always stated as overtly as they were by the homeschooled students.

In the case of Olivia, her transition to the college was a liberating experience. In response to a question about aspects of college that she was least prepared for, she replied, "The social aspect and what to expect." She expounded on this in another part of the interview and added these thoughts:

I felt scared of the social aspects because of my experience in junior high and high school. I was shocked to find out that in the community college at least, there are no cliques, anybody will talk to you, and anybody will help you. There is a lot of give and take among the students. Hey, I will help you with math, do you mind helping me with biology? So, that was very nice. We are all grownups here; it is like going to work. It is no big deal and not anything scary.

Janie's enrollment was the result of not being a fit at the university she was accepted to. She learned this at the university's orientation and decided to come to York Technical College. She commented on her decision to attend the college and said,

I feel York Tech was a good school to start off at. It was small when I first started now it has grown. The classrooms you get more help and the teachers pay more attention to you. It is not like the universities where they don't care as much. Some teachers don't care if you come or don't come. It is like more one-on-one help. And you've got good advisors and good teachers.

Researcher's Summary

Comments related to social preparation were prevalent in each participant interview and were positive for the traditionally educated students as they matriculated into York Technical College. The primary purpose of this research was to examine the academic performance and college preparedness of homeschooled students verses their traditionally educated peers. It was surprising that social preparation was one of the themes that emerged from this research.

Chapter 5 integrates the major qualitative findings with the quantitative findings. That is followed by a summary of the contributions this study has made to the academic study of homeschooled students. Practical implications and recommendations for future research also are presented.

CHAPTER 5:

DISCUSSION

The organization of this study was informed by the studies of the academic achievement of homeschooled students that preceded it. As outlined in Chapter 2, the studies performed previously allowed for believing that homeschooled students performed at least as well as their traditionally educated peers (Ashford, 2005; Clemente, 2006; Gray, 1998; Jenkins, 1998; Jones, 2002; Jones & Gloeckner, 2004; Mexcur, 1993; Oliveira, 1994). The findings from this study added support to the findings of these earlier studies.

This study examined eight hypotheses and the results were interpreted to mean that for the populations of homeschooled students and traditionally educated students at York Technical College, the homeschooled students performed better on every measure except on the COMPASS scores for college algebra. In the quantitative analyses the differences in the scores achieved by the two populations reached statistical significance for the following comparisons: COMPASS writing, COMPASS pre-algebra, COMPASS reading, 1st semester collegiate GPA, collegiate math GPA, and overall collegiate GPA. The following sections outline the hypotheses and offers commentary on the results.

Question 1 Null

There is no statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students.

The null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean COMPASS writing score of homeschooled students and that of traditionally educated students. The mean COMPASS writing score for the homeschooled students was 78.9 and it was 63.9 for the traditionally educated students. This difference was statistically significant at the .05 level. No other

known studies have addressed differences in COMPASS test scores between populations of homeschooled and traditionally educated students. Jenkins (1998) performed a comparison of writing test scores students achieved on the Texas Academic Skills Program (TASP), a placement test that serves an analogous function to the COMPASS. Jenkin's (1998) study did not reveal a statistically significant difference between the two populations on that portion of the TASP. Ashford (2005) also performed a comparable analysis related to scores on the College Placement Test (CPT). In that analysis, homeschooled students achieved higher sentence skills scores that proved to be statistically significant.

In the qualitative portion of this study, the homeschooled students interviewed consistently expressed the belief that their homeschooling experiences prepared them with regard to grammar and writing. When questioned about her readiness of the COMPASS placement test Ann said, "Now that is something that made a big difference. I have been doing English since the 3rd grade and the whole way – even though it gets repetitive and you add only a little more each year – we always did grammar and English all the way up to I came here. "

The mean COMPASS writing scores for the homeschooled and traditionally educated populations were 78.9 and 63.9 respectively. Both of these scores were higher than the mean scores obtained from the national sample of students as reported on the test publisher's (ACT) homepage ("COMPASS Report," 2009). The company published data each year related to all tests taken in the nation for the year in question. The latest data for two-year colleges was segregated into a report for test takers aged 19 and under and one for 20 and above. National data on tests taken from September 1, 2007 to August 31, 2008 is summarized in Table 5.1, which also includes data from this study.

Table 5.1
COMPASS scores for study participants and national means

COMPASS portion	Homeschooled students from YTC	Traditionally educated students from YTC	National Mean (N) for ages 19 and under	National mean (N) for ages 20 and over
Writing	78.9	63.9	61.1 (311,809)	61.3 (258,705)
Pre-algebra	54.0	47.9	46.7 (251,010)	44.0 (266,714)
Algebra	43.7	39.6	34.88 (261,484)	29.31 (218,994)
College algebra	53.6	62.8	47.7 (43,958)	44.2 (19,450)
Reading	84.9	79.1	75.6 (335,450)	78.8 (285,159)

The mean scores for the study participants for each group from York Technical College were higher than the national mean for each test. This supported the belief that the scores for the traditionally educated students were not lower than what would be expected in comparable institutions. But it did not address whether the scores for the

homeschoolers was higher than would be expected of other homeschooled populations in other locales. No known data set contains national COMPASS scores for homeschooled students. Thus, it is not known how homeschooled students in other locales perform on the COMPASS.

Question 2 Null

There is no statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students.

The results of this study failed to reject this null hypothesis. Thus, there is no statistically significant difference between the mean COMPASS algebra score of homeschooled students and that of traditionally educated students. Table 5.1 compares the data from this study to the national data from ACT. Again, results from this study were consistent with results from other studies examining standardized placement tests. In this study, the higher mean score achieved by the homeschooled students was not statistically significant at the .05 level. This was consistent with Ashford (2005) who also identified a higher CPT algebra score for homeschooled students that also did not reach the level of statistical significance. Jenkins' 1998 study did identify statistical significance in the higher TASP scores attained by the homeschooled students on the mathematics portion of the exam.

Algebra scores at a certain level are necessary for a York Technical College student to be placed into college-transferable or degree level math courses (Appendix E). Thus, this COMPASS score was the initial focus of this study, but the researcher also included the pre-algebra and college algebra scores in order to get a truer picture of the readiness of the study populations to attempt college-level work in mathematics. The data meant that the higher mean score achieved by the homeschooled students on the pre-algebra portion was statistically significant while the higher mean score achieved by the

traditionally educated students on the college algebra portion was not statistically significant. The college algebra measure was the only one in which the traditionally educated students outscored their homeschooled peers.

The trend in the math scores showing the differential between the higher scores of homeschooled students on the pre-algebra and algebra portions being reduced and then reversed on the college algebra portion could be interpreted to mean that mathematics instruction for homeschoolers in advanced mathematics principles was not as strong as the instruction received in the lower level mathematics principles. This interpretation was in keeping with what the homeschooler reported in the qualitative interviews. Each of the homeschooled students recognized that math was an area of weakness. In fact, this perceived weakness was a major motivational factor for Ann and Karen attending York Technical College as dually enrolled students. Wendi also considered enrolling in a dual enrollment math course at the college. She said, “[We] decided to go ahead and stick with the homeschooling. I was considering taking math (laughs) because that is weak for my whole entire family.”

It is also important to point out that all eight of the interview participants expressed some weakness in the area of mathematics. Clearly, this phenomenon affected students regardless of their educational history. Several of the traditionally educated participants suggested that the math skills they possessed earlier were lost between the time they completed their last math course and the time they matriculated at York Technical College and took the COMPASS. That might have been a factor in the low placement scores, but it did not seem to be a satisfying answer. As this research was being written up, the Math Department faculty and others at York Technical College were working on realignment of the departmental offerings and the competencies taught

in each course. This was being done, in part, as a response to the increasing number of students who required remediation in mathematics upon beginning their study at the college.

Question 3 Null

There is no statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated student.

The null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean COMPASS reading score of homeschooled students and that of traditionally educated students. The mean COMPASS reading score for the homeschooled students was 84.9 and it was 79.1 for the traditionally educated students. This difference was statistically significant at the .05 level. Table 5.1 shows the mean scores for each group compared to national data. Jenkins (1998) also reported statistical significance for the higher scores achieved by homeschooled students on the reading portion of the TASP. Ashford (2005) reported higher, but non-significant, reading scores for the homeschooled students on the CPT.

That finding was not surprising given the number of comments the homeschooled students had about the preparation they received in the area of reading. It was evident to the researcher that the homeschooled students interviewed had not run into any difficulties with the reading assignments assigned as part of their college studies.

COMPASS and course placement

As commented on earlier, the purpose of the COMPASS is to allow colleges to place students into appropriate courses. The score differences between the populations represented in this study have been highlighted, but also worth noting is that if students were placed by the mean scores for their respective group; there would be a difference in the placement of homeschoolers and their traditionally educated peers.

The three course levels identified by York Technical College were development/non-degree level, degree level, and college transfer level. The development/non-degree level courses were offered in English, reading, and math and had the purpose of allowing students to build the skills necessary to be successful in the degree level courses. Degree level courses could meet degree requirement, but were not designed for transfer to senior institutions. College transfer-level courses also could meet degree requirements but had the potential for being transferred to many of the senior institutions in the state of South Carolina, and elsewhere.

There were no course placement differences for the homeschooled and traditionally educated students on the mean scores earned on any of the Math placement tests: The mean scores earned by both groups placed students at exactly the same level according to York Technical College's math placement ladder. That was not the case for scores on the writing and reading portions. On both of those assessments, the homeschoolers' mean score would have placed the students at the degree or college transfer levels and the traditionally educated students would have placed at the development/non-degree level. See Appendix E for the math and the English/reading ladders.

Questions 4 Null

There is no statistically significant difference between the mean first semester collegiate GPA of homeschooled students and that of traditionally educated students.

The null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate first semester GPA of homeschooled students and that of traditionally educated students. The mean first semester GPA for the homeschooled students was 3.01 and it was 2.74 for the traditionally educated students. This difference was statistically significant at the .05

level. There have been several other studies that have examined the GPA of homeschooled students versus traditionally educated counterparts (Gray, 1998; Jenkins, 1998; Jones, 2002); and in all of these, the homeschooled students earned higher first semester GPAs. Only Jenkins (1998) reported that this difference was statistically significant. Thus, the findings of this study were consistent with the reported literature.

Question 5 Null

There is no statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated student.

The null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate math GPA of homeschooled students and that of traditionally educated students. The mean GPA of 2.99 earned by the homeschooled students was statistically higher at the .05 level than the mean GPA of 2.30 earned by traditionally educated students. The researcher was not aware of any other studies that performed a similar examination of math grades. The findings were surprising given the relative parity between the two groups with respect to the COMPASS algebra and college algebra scores.

One possible explanation for the higher math grades for the homeschooled students was the skills study skills they brought from their homeschooling experiences. During interviews, Ann, Karen, and Billy discussed the ways they learned to work independently and to get accustomed to teaching themselves. Bill said, "From 10th grade to 12th grade I don't think I ever did anything else with mom except to have her give me a test when it was time for testing." Karen and Ann also discussed the role that tutoring played in their success with their collegiate math courses despite their relative low placement. Karen said, "I spent a lot of time in the tutoring center which really helped me. That was just another aspect of what I was used to."

Question 6 Null

There is no statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated student.

The null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate science GPA of homeschooled students and that of traditionally educated students. The mean GPA of 2.80 earned by the homeschooled students was statistically higher at the .05 level than the mean GPA of 2.05 earned by traditionally educated students. There were no comparable studies in the available literature that examined science grades. It was interesting to note that mean science GPAs were the lowest among the disciplines examined for each population. It was also noteworthy that the difference between the mean GPA earned by the homeschooled students and the traditionally educated students was greater than for any other disciplines examined.

A comparison of science grades between the two populations was included in this study for three reasons.

- 1) Since no other known study has compared the science achievement of homeschooled students to their traditionally educated peers, the inclusion of the comparison in this study advanced the study of the relative success of homeschooled students was advanced in a new direction.
- 2) The researcher was a biology faculty member at the York Technical College for many years and maintained a special interest in the lack of preparation that students commonly displayed when they entered a collegiate science classroom.
- 3) The researcher was a homeschooling father who had taught a science module to area homeschoolers. In that cooperative learning environment, the

researcher taught lessons with a group of mothers and even had the opportunity to teach junior high students how to dissect animals while he was being assisted by one of the local general surgeons who also homeschooled his children. That experience with cooperatives was the genesis of the questions related to how well such learning experiences might compare to the methodologies used to prepare the traditionally educated for higher learning. Interestingly, only one of the homeschooled participants reported participating in a course outside the home and it was a science course.

Question 7 Null

There is no statistically significant difference between the mean collegiate English composition GPA of homeschooled students and that of traditionally educated student.

The null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean English composition GPA of homeschooled students and that of traditionally educated students. The mean GPA of 2.87 earned by the homeschooled students was statistically significantly higher at the .05 level than the mean GPA of 2.44 earned by traditionally educated students. Two previous studies made similar comparisons of grades in English courses (Galloway, 1995; Mexcur, 1993). Only Mexcur (1993) reported results that homeschooled students scored higher than did their counterparts to the point of achieving statistical significance.

That result was consistent with other findings in this study. Specifically, the homeschooled students outperformed the traditionally educated students on the COMPASS placement test in writing, and during the interviews the students reported that they repeatedly engaged in activities that could be interpreted as preparation for a college composition course.

Question 8

There is no statistically significant difference between the mean collegiate overall GPA for homeschooled students verses that of traditionally educated students.

The null hypothesis was rejected and the alternate was accepted. Thus, there is a statistically significant difference between the mean collegiate overall GPA of homeschooled students and that of traditionally educated students. The mean GPA of 2.99 earned by the homeschooled students was statistically significantly higher at the .05 level than the mean GPA of 2.67 earned by traditionally educated students.

That finding was in keeping with other GPA comparisons reported in the literature. As mentioned earlier, several studies examined GPA of homeschooled students verses other student populations (Gray, 1998; Jenkins, 1998; Jones, 2002). The result in this study served to support these earlier findings in which Jenkins (1998) and Jones (2002) reported that the higher GPAs earned by homeschooled students were statistically significant.

Contributions to the literature on homeschooled students

As discussed in Chapter 2, prior to this study there were not many published studies related to the collegiate academic success of homeschooled students. This study supports earlier findings and extends the scope of research in this area. For instance, this study compared 273 homeschooled students who had enrolled at York Technical College to 273 of their traditionally educated peers. The number of homeschooled students in this study was larger than the populations of students included in the other studies that have examined the collegiate academic success of homeschooled students. Mexcur (1993) compared data for 632 participants of which 10 were homeschooled students; Oliveira (1994) had a total of 789 of which 58 were homeschooled; Galloway (1995) had a total of 120 of which 60 were homeschooled; Jenkins (1998) had a total of 137 of which 101

were homeschooled; Gray (1998) had a total of 100 of which 56 were homeschooled; Jones (1998) had a total of 108 of which 55 were homeschooled. Clemente (2006) came the closest to approaching the number of homeschooled students (222) included in this study, but it must be noted that these students were drawn from seven colleges.

In addition to the advantage of having a large number of homeschooled students, this study also made comparisons between this population and a sample of the traditionally educated students from York Technical College. These traditionally educated students were demographically matched as much as was possible. There were no statistically significant differences between the age or the county of residence of the study participants. There was a significant difference with respect to race except for students who were in the over 22 age group.

This study added to a body of existing literature in the examination of first semester GPAs, English composition grade, and collegiate overall GPAs. It also delved into territory that does not seem to have been broached. Specifically, this study examined COMPASS placement scores and collegiate math and science GPAs.

Since the COMPASS exam is nationally normed and used by many colleges across the country, is desirable that additional studies could be completed and published that will support or refute the findings of this study. By using a national test and similar methodologies, the relative effectiveness of homeschooling verses more traditional educational methodologies should come into a clearer focus.

Practical Implications

The NHES data shows that the number of homeschooled students has continued to grow with approximately 2.9% of school-aged children being homeschooled currently (Bielick, 2008). If this trend continues it can be expected that increasing numbers of

homeschooled students will matriculate into community colleges across the nation. The data from this study lead to the belief that these students can be successful participants in post-secondary education, and usually compete favorably when compared with traditionally educated students. Community college administrators should give consideration to using the information from this investigation to help shape policies regarding recruitment and admission of these students.

In fact, such post secondary institutions might be especially interested in recruiting students from this population given the interesting times in which this report was written. In 2008 and 2009, the United States was mired in an economic recession. Some economic indicators started to show signs of a recovery in late 2009 and early 2010. Unfortunately, even with the promise of a coming return of prosperity, the loss of tax revenues led to unprecedented changes in educational institutions at all levels of the educational spectrum. Public school districts and colleges had to make some difficult decisions based on fiduciary expediency rather pedagogical effectiveness.

Seemingly every day one could open the paper and read extraordinary headlines that would have been unthinkable in earlier times. For example, within days of each other the following headlines (or similar) appeared in newspapers and online news sources with days of one another: “Kansas City Wants to Close Half its Public Schools” (Hollingworth, 2010) and “Detroit Plan Would Close 45 Schools” (Saulny, 2010). School districts in the York Technical College service area are also being negatively impacted, and it is not uncommon to read the paper to see that staff working in public education was being furloughed, school sport teams were being eliminated, and in some cases people employed by school districts were losing their jobs.

How this changing educational landscape will affect homeschooling remains subject to discussion. One possibility is that the upheaval in public education and decreases in a family's discretionary income will drive more families to consider the homeschooling option over the more expensive option of private school. As parents make decisions on whether to homeschool their children and colleges determine whether to recruit or even admit these students, solid research is needed in order for these decisions to be data informed.

Implications for Parents

Parents who already homeschool their children as well as parents who are considering the homeschooling option could benefit from knowing the results reported in this study. It is the researcher's personal experience that parents who are considering homeschooling their children do not make the decision lightly. With this and similar studies, parents can be better equipped to make decisions for their children.

Some findings in this study might make homeschooling seem like a viable option, but there are areas for concern. For instance, the homeschooled student's thoughts related to their lack of preparation for college mathematics, as expressed by the homeschooled students, should likely give parents pause. The researcher would hope the research would trigger conversations among these same parents and others in their social networks to consider how they might work to bolster their children's readiness for college-level mathematics.

The theme of socialization issues also should be of interest to homeschooling parents. Stereotypical homeschooled students likely could be strong academically but weak socially. The students who were interviewed by the researcher certainly did not fit this description, yet they all (along with their traditionally educated peers) expressed

some concern over their preparedness for or adjustment to the social aspect of learning in college. Interestingly and probably correlated, the group of homeschooled interview participants had also not been highly active in the cooperative learning that many other homeschoolers routinely participated in. It was not clear that the angst these students expressed related to social issues would have been mitigated through some cooperative learning experiences, but it was something for homeschooled parents to be aware of and to potentially work into a family's homeschooling plan.

Implications for Community Colleges

York Technical College and other community colleges can also benefit from more information on the academic success of homeschooled students. As discussed earlier in this manuscript, the number of homeschooled students appears to be on an upward continuum. Likely it will lead to more of them taking courses at a community college after they graduate from high school or earn a high school equivalency and participate in dual enrollment opportunities. An increased understanding of homeschooled students might encourage post secondary institutions to devote increasing resources to recruitment of and support for homeschoolers. This increased understanding also could prompt colleges to revisit their policies related to admissions of these homeschooled students.

Recommendations for future research

This study, in part, was in response to recommendations of earlier studies that called for the expanding the geographic scope of the research being done on the academic preparation of homeschooled students. It is clear, however, this work is far from being completed. Thus, the following recommendations for future research are offered for consideration:

1) Future studies should continue to examine the degree to which homeschooled students are academically prepared for higher education. Homeschooling is occurring nationally, though it is more prevalent in some areas than others, and research can help to determine the preparedness of these students versus the traditionally educated in the geographic region. Future researchers are encouraged to triangulate their local data with a national placement exam like the COMPASS or aptitude tests like the SAT or ACT.

2) Longitudinal studies could be designed to measure the differences in academic preparation for college of homeschoolers that have been educated through the various methods and curricula available to homeschooling families. As discussed in Chapter 2, the homeschooling movement is diverse and parents homeschool their children for a variety of reasons and in a variety of ways. This study and the studies that preceded it in the literature do not sufficiently address the differences in how homeschoolers were educated. To this end, future research that would compare the academic preparedness of students from different homeschooling background would be extremely useful to parents and potentially to policy makers.

3) A number of community colleges have been using the *Community College Survey of Student Engagement (CCSSE)* for a number of years. Many of the same colleges recently have begun to use the *Survey of Entering Student Engagement (SENSE)*. Colleges are using the survey instruments to help them gauge how successfully they are engaging their student populations and how quickly they are connecting with their new students. It is conceivable that by disaggregating the results of these surveys a richer picture of homeschooled students could emerge. The information gleaned from this type of study would provide useful information about how to homeschooled students

engage in their collegiate experiences and how they compare to their traditionally educated peers in this regard.

4) Much of the research on the academic success of homeschooled students has come from data drawn from community colleges or Christian colleges. Additional studies that incorporate data from four-year public and private colleges and universities should be undertaken. This would continue to add to the increasingly rich understanding being developed around the success of homeschooled students.

5) York Technical College is a comprehensive community college offering programs in college transfer and various technical curricula. This study did not differentiate student success based on the curriculum in which the students were enrolled. Future studies could disaggregate student success measures based on curricula and compare homeschooled students to their traditionally educated peers.

Conclusions

The rich history of homeschooling, its explosive growth, and a growing body of research on the topic appears to point to a time when homeschooling graduates and dually enrolled homeschoolers will be even more prevalent than they were when this study was undertaken. It is the hope and desire of this researcher that the research presented herein will serve as fodder for additional studies that will add depth and substance to the study of homeschooling in the United States.

Chapter 6:

Summary

This mixed methods sequential explanatory study was an investigation of the collegiate academic success of homeschooled students at York Technical College verses their more traditionally educated peers. The population of homeschooled students at the college numbered 273 between the years of 2001 and 2008. This population was segregated into three age groups: under-18, 18-22, and over-22. The population of traditionally educated students was delineated in the same fashion. A random sample of the traditionally educated population was selected such that the number of traditionally educated students from each age group was equal to the number of homeschooled students in the corresponding group. Results of chi square analyses were interpreted to mean that the sample was representative of the traditionally educated population. Furthermore, chi square analyses of the demographics for the homeschooled population and the traditionally educated sample led to believing that the traditionally educated and homeschooled students were comparable with respect to gender and whether the student lived in or out of the service areas of the college. With respect to race, results were interpreted to mean that the homeschooled population was composed of a smaller proportion of minorities than the traditionally educated comparison group for the under-18 and 18-22 age groups, but not for the over-22 group. Available literature suggested that homeschooled students are more likely to be White than students educated in more traditional settings, which is in accord with the findings of this study,

Academic success measures used in this study were selected from those available in the student information database at York Technical College. The researcher used *t* tests to compare the mean scores for the homeschooled population and the traditionally

educated sample. The major findings from this phase of the study are summarized in the following bullet points:

- The mean COMPASS writing score earned by the homeschooled students (78.0) was higher than the score earned by the traditionally educated students (63.9). The difference was statistically significant at the .05 level.
- The mean COMPASS pre-algebra score earned by the homeschooled students (54.0) was higher than the score earned by the traditionally educated students (47.0). The difference was statistically significant at the .05 level.
- The mean COMPASS algebra score earned by the homeschooled students (43.7) was higher than the score earned by the traditionally educated students (39.6). The difference was not statistically significant at the .05 level.
- The mean COMPASS college algebra score earned by the traditionally educated students (62.8) was higher than the score earned by the homeschooled students (53.6). The difference was not statistically significant at the .05 level.
- The mean COMPASS reading score earned by the homeschooled students (84.9) was higher than the score earned by the traditionally educated students (79.1). The difference was statistically significant at the .05 level.
- The mean first semester collegiate GPA earned by the homeschooled students (3.01) was higher than that earned by the traditionally educated students (2.74). The difference was statistically significant at the .05 level.
- The mean collegiate math GPA earned by the homeschooled students (2.99) was higher than that earned by the traditionally educated students (2.30). The difference was statistically significant at the .05 level.

- The mean collegiate math GPA earned by the homeschooled students (2.99) was higher than that earned by the traditionally educated students (2.30). The difference was statistically significant at the .05 level.
- The mean collegiate science GPA earned by the homeschooled students (2.80) was higher than that earned by the traditionally educated students (2.05). The difference was statistically significant at the .05 level.
- The mean collegiate English composition GPA earned by the homeschooled students (2.87) was higher than that earned by the traditionally educated students (2.44). The difference was statistically significant at the .05 level.
- The mean overall collegiate GPA earned by the homeschooled students (2.99) was higher than that earned by the traditionally educated students (2.67). The difference was statistically significant at the .05 level.

The qualitative phase of this study involved the analysis of transcripts from semi-structured interviews from four homeschooled and four traditionally educated students. Three themes emerged from these interviews: These were “general preparation,” “math preparation,” and “social preparation.” All interview participants felt their educational histories had largely prepared them for the academic rigors of college courses. All of the participants were also in agreement as they referred to math as the academic area for which they were not as prepared to succeed. Homeschooled students, in particular, expressed the belief that they were not prepared for college level work in mathematics. For these homeschooled students, building competence in this discipline was a motivating factor for them attending York Technical College. Finally, social preparation was also a theme to emerge. Participants referred to the role social preparation played in

their adjustment to college-level work. The social preparation of homeschooled students was often referred to in the available literature: a fact the homeschooled students seemed to be aware of and sensitive to.

In summary, the population of homeschooled students at York Technical College compared favorably to their traditionally educated peers with respect to the measures of academic success used in this study. For this population of homeschooled students, their educational history of being homeschooled appears to have prepared them to be successful in their coursework at the college.

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Appendix A

Permission to Perform Research at York Technical College



GREG F. RUTHERFORD
PRESIDENT

February 19, 2010

Dear Jack,

Your request to use student data from York Technical College to perform quantitative analyses for your dissertation entitled *The Academic Success of Homeschooled Students in a SC Technical College* has been approved. Furthermore, you may use available student data to identify potential participants in the qualitative portion of your study.

This approval is granted with the following stipulations:

- 1) Data and findings are reported in an aggregate format so that no individual(s) will be identifiable.
- 2) Participants in the qualitative portion may opt out of the study at any time.
- 3) Data is kept secured at all times.
- 4) Student data is destroyed 1 year after completion of your dissertation.

Please let my office know if there are any journal publications or presentations that result from this study.

Regards,

A handwritten signature in cursive script that reads "Carolyn Stewart".

Carolyn Stewart, Ph. D.
Executive VP of Academic and Student Affairs

CC: Ms. MaryBeth Schwartz, Dir. of IE and Research

Appendix B

IRB Approval from University of Nebraska

Jack Bagwell

Subject: FW: NUgrant Message - Official Approval Letter for IRB project #9683



March 2, 2010

Jack Bagwell
Department of Educational Administration

Sheldon Stick
Department of Educational Administration
123 TEAC UNL 68588-0360

IRB Number: 2010039683EP
Project ID: 9683
Project Title: Academic Success of Homeschooled Students in a SC Technical College

Dear Jack:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

Your stamped and approved informed consent form has been uploaded to NUgrant (Informed_Consent_Form-Approved.pdf file). Please use this form to make copies to distribute to participants. If changes need to be made, please submit the revised informed consent form to the IRB for approval prior to using it.

Date of EP Review: 03/01/2010

You are authorized to implement this study as of the Date of Final Approval: 03/02/2010. This approval is Valid Until: 03/01/2011.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;

- Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

For projects which continue beyond one year from the starting date, the IRB will request continuing review and update of the research project. Your study will be due for continuing review as indicated above. The investigator must also advise the Board when this study is finished or discontinued by completing the enclosed Protocol Final Report form and returning it to the Institutional Review Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,
{Mario's Signature}
Mario Scalora, Ph.D.
Chair for the IRB



Appendix C

Telephone Recruitment Script

Semi-structured Interview Guiding Questions

TELEPHONE RECRUITMENT SCRIPT

My name is Jack Bagwell, an Associate VP for Academic Affairs at York Technical College and a doctoral student in the Department of Educational Administration at the University of Nebraska-Lincoln. I would like to invite you to participate in my research study to explore the academic success of homeschooled students who have been enrolled at York Technical College. You may participate if you are currently enrolled or have been previously enrolled in credit courses at the college.

As a participant, you will be asked to meet at a mutually agreeable location for a brief interview exploring your experiences and how your academic background prepared or failed to prepare you for your academic coursework at York Technical College. This interview should last approximately 1 to 1.5 hours.

There is no known benefit or risk associated with participation in this study. Participants will receive a \$10 gift certificate to a local restaurant in appreciation of their participation.

If you would like to participate in this research study, please indicate when you would be available for the interview and provide an email address where a meeting confirmation can be sent.

Do you have any questions now? If you have questions later, please contact me at 803-327-8021.

Guiding Questions for Semi-structured Interview

1. Describe your educational history prior to enrolling at York Technical College. How were you educated? Public school / private school/ homeschool? Length of time for each methodology? If you were homeschooled, describe the curriculum that you used.
2. How did the education you received prior to attending York Technical College prepare you or fail to prepare you for your course work at the college?
3. In your opinion, does the collegiate grade point average earned at York Technical College accurately reflect how prepared you were for college courses? Why or why not?
4. What aspect of your college courses were you most prepared for?
5. What aspect of your college courses were you least prepared for?
6. How well did your educational history prepare you for the college placement (COMPASS) exam? Did you feel more/less prepared for any part (writing, algebra, reading) of the exam? Explain.
7. If you have taken math courses at the college, how well did your educational history prepare you for these courses?
8. If you have taken science courses at the college, how well did your educational history prepare you for these courses?
9. If you have taken English courses at the college, how well did your educational history prepare you for these courses?
10. Considering your personal educational history, what, if anything, could have been done to better prepare you for your college courses?

Appendix D

Informed Consent Form

INFORMED CONSENT FORM

Identification of Project:

The Success of Homeschooled Students in a SC Technical College

Purpose of the Research:

This research project will compare the academic success of homeschooled students who have attended York Technical College to their traditionally educated peers. Select students will be interviewed to help the investigator add depth and understanding to the statistical data that will be gathered. You are invited to participate because you were identified as a homeschooler or were a member of a comparison group of traditionally educated students.

Procedures:

Participation in this study will require approximately 90 minutes of your time and will take place in a conference room located on the York Technical College campus. You will be interviewed by the investigator and the audio of the interview will be recorded with your permission. Your answers will be kept confidential and your responses will not be linked to you personally. You can refuse to answer any question or to stop the interview at any time. Withdrawing from the project will not result in any negative consequences for you. Data from this study will be destroyed 1 year from the completion date of the investigator's dissertation, which will allow the investigator time to prepare other scholarly presentations and publications.

Risks and/or Discomforts:

There are no known risks or discomforts associated with participating in this study.

Benefits:

There are no known benefits associated with participating in this study. Through your participation, the investigator will gain a richer understanding of the performance of community college students who have been homeschooled, which may benefit community college administrators as they formulate policies related to these students. This study could also benefit future homeschooled students and their parents as they contemplate the role community colleges might play in the student's education.

Confidentiality:

Any information obtained during this study which could identify you will be kept strictly confidential. The data will be stored in a locked file cabinet in the investigator's office and will only be seen by the investigator during the study. The information obtained in this study may be published in journals or presented at meetings but the data will be reported as aggregated data. The audio files will be deleted after they are transcribed.

Compensation:

You will receive a \$10 gift card to a local restaurant in return for your participation in this study.

Opportunity to Ask Questions:

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. You may call the investigators at the numbers listed below.

If you have questions about being a participant in a research study, or wish to report any concerns, please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965



Freedom to Withdraw:

Participation in this study is voluntary. You can refuse to participate or withdraw at any time without harming your relationship with the investigators, the University of Nebraska-Lincoln, York Technical College, or in any other way receive a penalty or loss of benefits to which you are otherwise entitled.

Consent:

You are voluntarily making a decision whether or not to participate in this research study. Your signature certifies that you have decided to participate having read and understood the information presented. You will be given a copy of this consent form to keep.

_____ Initial if you agree to be audio taped during the interview.

Signature of Participant:

Signature of Research Participant

Date

Name and Phone number of investigator(s)

*Jack Bagwell, Principal Investigator
Sheldon Stick, Ph.D., Secondary Investigator*

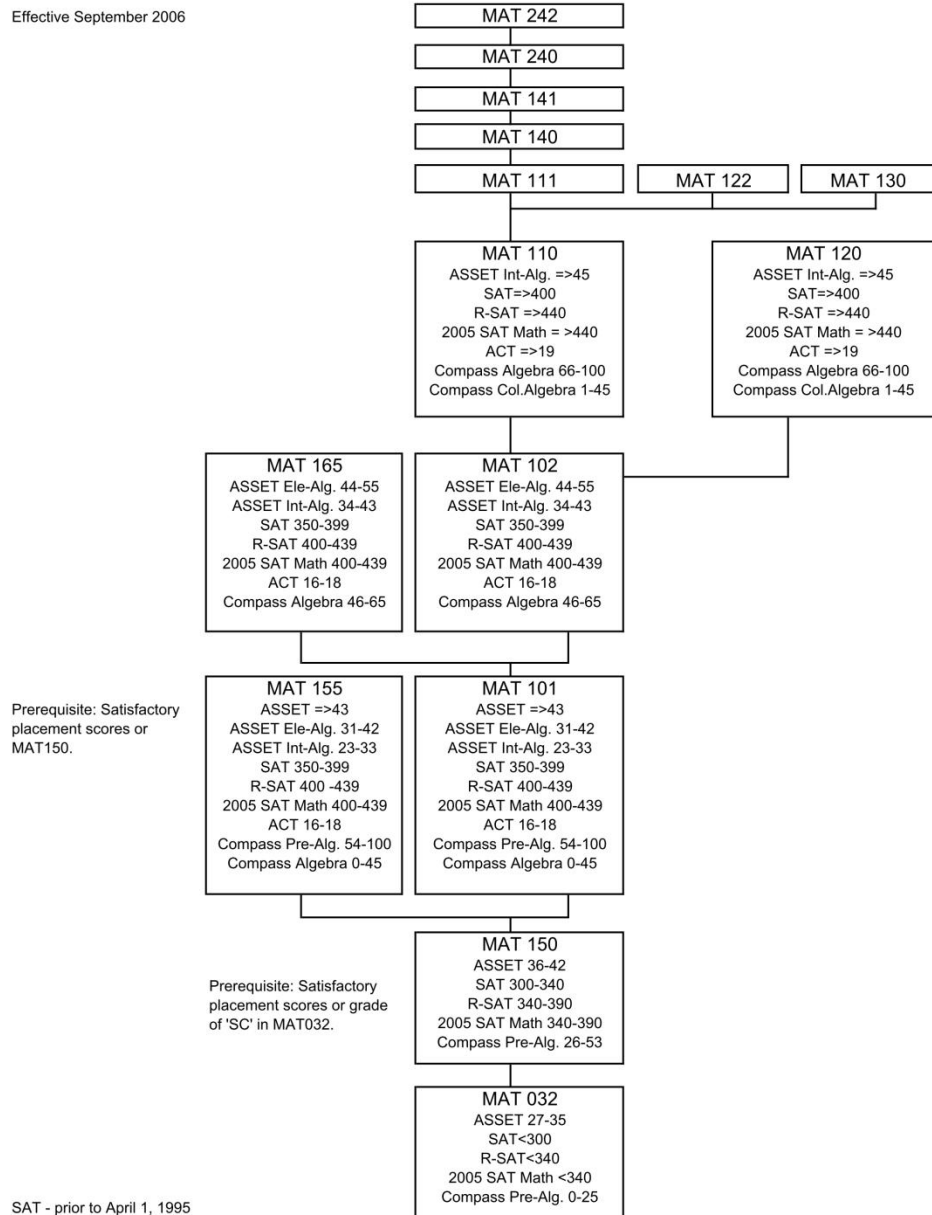
*Office: (803) 327-8021
Office (402) 472-0973*

Appendix E

York Technical College Course Placement Ladders

Math Ladder 2006

Effective September 2006



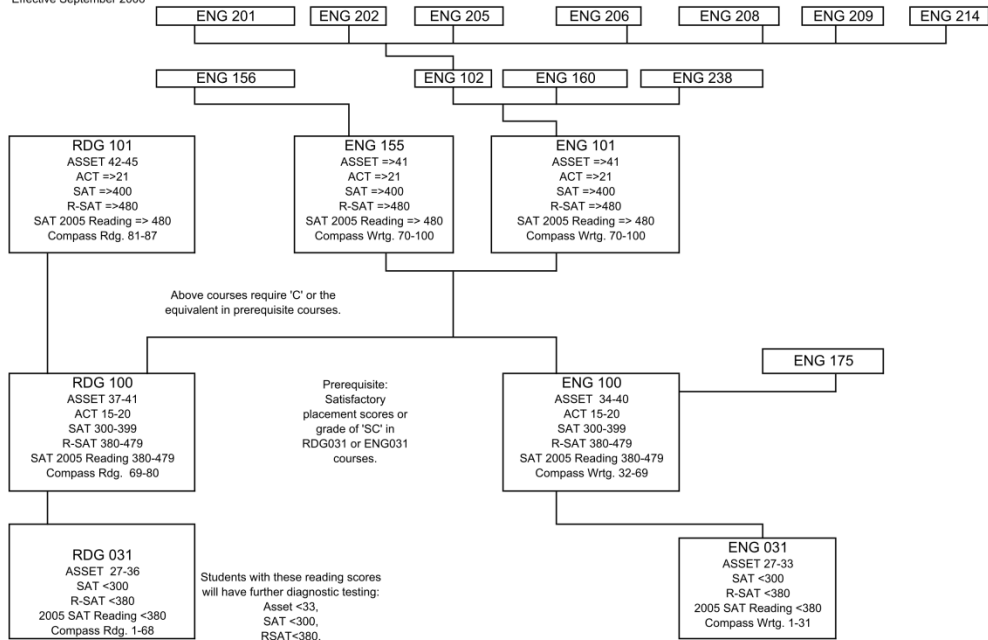
Prerequisite: Satisfactory placement scores or MAT150.

Prerequisite: Satisfactory placement scores or grade of 'SC' in MAT032.

SAT - prior to April 1, 1995
 R-SAT - recentered SAT scores between April 1, 1995 and March 1, 2005
 SAT 2005 - updated SAT after March 1, 2005

English / Reading Ladder 2006

Effective September 2006



SAT - prior to April 1, 1995
R-SAT - recentered SAT scores between April 1, 1995 and March 1, 2005
SAT 2005 - updated SAT after March 1, 2005