THE EFFECTS OF THE FAMILY ON STUDENT ACHIEVEMENT: A COMPARATIVE STUDY OF TRADITIONAL AND NONTRADITIONAL FAMILIES

by

Melinda Bailey Fonteboa

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this quantitative, causal-comparative study was to test the interactive framework of social cognitive theory, attachment theory, and the theory of moral absolutism by comparing the academic achievement of over 200 high school seniors (as measured by the Georgia High School Graduation Test; GHSGT) based on the structures of their families. The independent variable of family structure was initially classified as either nontraditional or traditional. A nontraditional family was defined, for the purposes of this study, as any family that is not comprised in its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. A traditional family was defined as one that is comprised in all its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. This study was needed to further investigate ambiguous findings in the literature and to determine which subgroups of nontraditional families might moderate negative effects on student achievement. Therefore, nontraditional families were further categorized as either single-mother, single-father, blended, extended relative only, or other family types. Student achievement scores on the GHSGT were assessed with two different MANOVAs. Results indicated that there is no significant difference in the achievement scores of students from nontraditional families when compared to students from traditional families or when compared to one another.

Dedication

This work is dedicated to my family. First and foremost, it is dedicated to my parents, Jim and Chela Bailey, who encouraged me to start this program and literally provided me with food and shelter for four years while I worked through it. Thank you for your eternal love and support and for providing the most wonderful example of a Biblical family. Whether academic achievement is or is not associated with family structure, I have the most amazing family and I now have attained the highest level of educational achievement. I am truly blessed beyond measure.

Next, this work is dedicated to my husband, Kris Dakota Fonteboa, who has made countless sacrifices for this dissertation to become a reality. Thank you for cooking, for cleaning, for going to so many things without me, while I worked on this. Thank you most importantly, though, for taking a chance with me, for loving me, and for marrying me during the mist of all this!

I would like to also dedicate my work to my sisters, Mary Melissa Bailey Hall and Melody Margaret Bailey, who "played school" with me from an early age. Finally, I would like to dedicate my work to my grandparents, Roger and Farrell Starnes and Arnold and Margaret Bailey, for being Godly examples in my life; to my extended family; and to those we have lost along the way while I worked to accomplish this goal, Kylan Starnes Warren, Isaac Oliver Thomas, and Myra Crane Thomas.

Acknowledgements

First and foremost, I acknowledge Jesus Christ as my Lord and Savior. Proverbs 3:5-6 (NIV Study Bible) says, "Trust in the Lord with all your heart and lean not on your own understanding; in all your ways acknowledge Him, and He will make your paths straight." I know getting this doctoral degree was His path for me, because this level of educational attainment is not something I ever envisioned for myself.

I would like to acknowledge my committee, primarily Dr. Constance Pearson, for her continued support throughout this process. I would like to thank Dr. Reggie Kimball for encouraging me to "eat the elephant . . . one bite at a time!" I would like to thank Dr. Diane Vautrot for her words of wisdom and encouragement every day.

I would like to acknowledge the late Dr. Jill Jones for the impact she had on my dissertation and for reminding me to "run to the roar." I would like to acknowledge Mr. Adam Hathaway for granting me permission to collect the data for this study, after only knowing me a few months, and for providing me with an opportunity to expand my career by becoming a school administrator. I would like to acknowledge Dr. Barbara Ferguson and Mrs. Debbie Kohler for their profound impact on my career and Mrs. Linda Miller for her profound impact on my decision to become a teacher. I would like to acknowledge the Gilmer High School math department for their love and support, and finally, the students of the Class of 2012. I could not have completed this project without their data and without the continued inspiration of *all* the students I'm blessed to work with.

Table of Contents

List of Tables

List of Figures

CHAPTER ONE: INTRODUCTION

Proverbs 22:6 declares, “Train a child in the way he should go, and when he is old he will not turn from it” (NIV Study Bible). Indeed, abundant debate exists between individuals and cultures, past and present, regarding the way a child should be trained. However, debates on child rearing aside, one common thread across many different cultures throughout history is the notion of the family as the party responsible for training the child. Selimian (2010) claimed that the family is the first social influence in the life of a child. The concept of the traditional family is grounded in the theory of moral absolutism. Through the lens of moral absolutism, there are morally correct and incorrect behaviors (Hawley, 2008). For many cultures, the morally correct way to rear a child is through a family that is comprised of two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship (Chekki, 1996; Dhami & Sheikh, 2000; Hou & He, 2008; Selimian, 2010). Proverbs 22:6 illustrates the importance of family in the child rearing process for Christian culture, as Pirola, R. and Pirola, M. (2009) and Schreiber (2011) have attested to. The Biblical worldview of Christian culture guides the behaviors of Christians through the theory of moral absolutism (Sire, 2004). Biblical principles enacted in everyday life are an application of moral absolutism for Christian culture specifically.

The concept of family is prevalent throughout the Bible. As far back in history as the book of Genesis, human beings possessed a conceptualization of the biological family unit. According to Genesis 2:24, “For this reason a man will leave his father and mother and be united to his wife, and they will become one flesh” (NIV Study Bible). The

child's role in the family was highlighted by one of the Ten Commandments in Exodus 20:12, "Honor your father and your mother, so that you may live long in the land the Lord your God is giving you" (NIV Study Bible). In the New Testament, there is also evidence of mankind's understanding of family roles (Ephesians 6:1-4, NIV Study Bible). Overarching symbolism of family exists throughout the Bible (Bunge, Fretheim, & Gaventa, 2008). For example, the church is depicted as the bride of Christ and the body of believers as brothers and sisters, children of the living God (Carroll, 2001; Mackie, 2008). Focus on the Family (2009) suggested that the Biblical idea of family is part of an eternal order of existence. The Bible, when viewed as an historical artifact, demonstrates the long-time sociological practice of family structure.

The biological family is not strictly a Christian ideal. For example, the traditional family is also highly esteemed in Muslim culture (Dhami & Sheikh, 2000) and Hindu culture (Chekki, 1996). Familial systems direct much of the political state in Arabic cultures (Selimian, 2010). The importance of the traditional family is demonstrated through the notion of filial piety (Hou & He, 2008) in Chinese culture. Filial piety expresses the lifelong commitment children have to their parents and their families. Hou and He (2008) have noted the evidence of filial piety in Chinese literature; many moral fables of Chinese culture depict acts of heroism on the part of children for the benefit of their parents. Marks' (2004) qualitative study of Christian, Jewish, Mormon, and Muslim families highlighted the importance of traditional family connections in shaping the perspectives of school-aged children.

Though many cultures have viewed the traditional family as the integral component in child rearing, the modern world is experiencing new variations of the

family unit (Angel-Castillo & Torres-Herrera, 2008; Bianchi & Milkie, 2010). These newfound family units challenge the theory of moral absolutism as it relates to traditional families. As the structure of the family changes and evolves, new implications arise for children and for child rearing that generations of the past did not experience. This study focused on these new family structures and the associated educational implications for children. After some preliminary background information, this chapter establishes the problem statement, gives the purpose for the study, relates the significance of the study, states the research questions, proposes research hypotheses, defines potentially difficult or unusual terms, and finally presents an overview of the research itself.

Background

Modern times have ushered in a host of changes to the traditional construct of family. Angel-Castillo and Torres-Herrera (2008) described the "traditional post-war family model" (p. 405) as one in which children belonged to a nuclear, biparental household where the male adult was the financial provider and the female adult was the homemaker and primary childcare provider. Though this model was perpetuated in many cultures for a number of generations, it was challenged as a result of a number of cultural, political, and societal shifts in the United States during the twentieth century. The most notable of these shifts was the feminist movement, which Evans (2009) dated circa 1968 in the United States. This movement had a profound impact on long-held family norms. Not only did the women's rights movement of the latter twentieth century introduce more women into the workforce (Angel-Castillo & Torres-Herrera, 2008; Dindoffer, Reid, & Freed, 2011), it brought a number of other societal and political changes as well. Opposite sex cohabitation before marriage, or even as an alternative to marriage, became

more prolific as the average age of first marriages increased (Heuveline, Timberlake, & Furstenberg, 2003). Medical advancements in birth control, coupled with newfound "sexual freedom" (Evans, 2009, p. 332), challenged previous norms of sexuality. Such shifts in societal norms eventually led to public policy changes in the United States regarding abortion and gay and lesbian rights (Roe v. Wade, 1973; Bowers v. Hardwick, 1986). With the changing landscape of sexuality in the western hemisphere and sexuality's inextricable link to the family unit, late twentieth century America also saw more courts granting divorces than ever before. Amato and Booth (1997) attributed increased divorce rates to fewer "barriers to divorce" (p. 11). Donley and Wright (2008) concurred; even the public policies enacted in recent decades to promote marriage have been shown to have virtually no effect at curbing divorce rates (Donley & Wright, 2008). Overall, Amato and Booth suggested marriage was "a more difficult and less secure arrangement" (p. 13) than in previous decades. The collective effects of cultural, political, and societal changes altered family dynamics in a way not previously experienced.

Historically, the number of marriages ending in divorce, the number of children being born to unmarried parents, and the number of adults electing to have children under nontraditional circumstances are all increasing (Bianchi & Milkie, 2010; U.S. Census Bureau, 2008; 2009a). Though some of the statistics appear to have stabilized in the past decade, the numbers are not declining. The collective effect of such societal shifts has produced many children from nontraditional families. For the purposes of this study, non-traditional families were defined by the researcher as those that are not comprised in their entirety by two biological parents (or adoptive parents from birth), one male and one

female, cohabitating in a marital relationship. According to the U.S. Census Bureau (2009b), there were an estimated 13.7 million single parent homes in the United States of America in 2008, containing approximately 21.8 million children under the age of 21. The number of children living with grandparents or other extended family members where neither parent was present was 2.6 million in 2004; the total number of children living in households of any kind where neither parent was present was over 2.8 million (U.S. Census Bureau, 2008).

Problem Statement

The problem is that an increased number of students are being raised in nontraditional families (Bianchi & Milkie, 2010; Vaughn, 2011) and it is unclear if these new family structures are influencing student achievement. Research regarding the effects of family structure on student achievement is ambiguous. The work of some researchers indicates students from nontraditional families are academically disadvantaged when compared to peers from traditional families (Angel-Castillo & Torres-Herrera, 2008; Bachman, Coley, & Chase-Lansdale, 2009; Hampden-Thompson, 2009; Jeynes, 1999, 2006; Uwaifo, 2008; Yara & Tunde-Yara, 2010). Yet, some critics debate, and even deny, the apparent existence of an achievement gap between students from nontraditional families and those from traditional families (Chiu & Ho, 2006; Marsh, 1990; Pong, 1997, 1998; Weisner & Garnier, 1992). They claim differences in achievement are not statistically significant, proposed differences can be attributed to other family variables, and differences are isolated to certain geographic locations. The difference in the ambiguous research findings may be explained by the various researchers' interpretations of social cognitive theory, attachment theory, and the theory

of moral absolutism. The research suggesting students from nontraditional families are academically disadvantaged is supported by social cognitive theory, attachment theory, and the theory of moral absolutism; the research suggesting there are no disadvantages associated with nontraditional family structure is not consistent with social cognitive theory, attachment theory, or the theory of moral absolutism. With these three theories guiding this study, the researcher examined the relationship between family structure and academic achievement to either confirm or refute indications in the literature. The goal was to test the theories of moral absolutism, attachment theory, and social cognitive theory as family structure is compared to student achievement.

Furthermore, part of the problem is that equal attention has not been given in the literature to different subgroups of students from nontraditional families. Subgroups such as students from single-mother families, students from single-father families, and students from blended families garner more attention than students living in extended relative only families and students from other families, such as those with homosexual parents (Raley, 2010; Soliz, 2008). Further study was needed to indicate which subgroups of nontraditional families might moderate negative effects on student achievement. Further investigations into various subgroups of nontraditional families could refine and articulate the arguments for and against the notion that students from nontraditional families are academically disadvantaged.

Ultimately, it is the duty of educators to empower all students to succeed. It is therefore quite problematic for educators when any subgroup of students might potentially be disadvantaged. When educators are teaching for student mastery of

rigorous academic standards, it can be challenging to achieve 100% success if a subgroup of students enters the classroom disadvantaged from the beginning.

Purpose Statement

The purpose of this quantitative, causal-comparative study was to test the interactive framework of social cognitive theory, attachment theory, and the theory of moral absolutism by comparing the family structure of students to their academic achievement, as measured on the Georgia High School Graduation Test (GHSGT) for approximately 200 high school seniors at a rural high school in North Georgia. The independent variable of family structure was initially defined as either non-traditional or traditional. A non-traditional family was defined for the purposes of this study as any family that is not comprised in its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. A traditional family was defined for the purposes of this study as one that is comprised in all its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. The study intended to either confirm or refute indications in the literature that an achievement gap exists. Furthermore, the study attempted to examine which scenarios might moderate negative effects on student achievement. As Pong (1998) suggested, single-mother families might be one type of non-traditional family in which student achievement remains high despite an overall achievement gap for all students from non-traditional families. Thus, non-traditional families were further categorized as either single-mother families, single-father families, blended families, extended relative only families, or others. These subcategories of students from nontraditional families were each compared with the group of students

from traditional families and were compared with each other. This extension of the study attempted to pinpoint specific family structures that suggest depressed student achievement. Therefore, the ultimate purpose of the study was to provide educators, parents, and students alike with information that could provide insights into the learning predispositions of certain students and guide instructional and support strategies that could lead to improved student achievement for any potentially disadvantaged students.

Significance of the Study

In light of increasing numbers of children from nontraditional families (Bianchi & Milkie, 2010; Vaughn, 2011) and higher scrutiny of student achievement, this study was very timely and relevant. The topic was worthy of investigation because the field of education needs constant and current information about why certain students fail to achieve academically. When researchers finally articulate the exhaustive list of student characteristics that advance academic achievement and the exhaustive list of student characteristics that inhibit academic achievement, then educators can take specific, purposeful actions to close achievement gaps and ensure that all students succeed. Though this study will not be able to mend broken homes or create perfect family relationships, it can provide insights to help teachers bridge academic gaps. In turn, this can empower struggling students from a particular subgroup to succeed in school.

The findings of this study primarily aid educators, parents, and students. The results have the potential to affect the practice of educators and the actions of parents. If educators know how to best meet the needs of a particular subgroup of students, they will not devote time and other increasingly limited resources to unproductive intervention strategies. The same is true for parents.

Beyond application to educators, parents, and students, the results of this study have the potential to impact the way in which all Americans view family structure. As Schreiber (2011) noted, certain family structures and economic situations require government assistance and policy interventions. Welfare programs and tax benefits for single-parent families are examples. Furthermore, economically disadvantaged students, as well as struggling learners, garner government aid for schools through Title I funding and aspects of the No Child Left Behind Act (NCLB, 2001). Family structure is closely associated with a variety of public policies and programs through its relationship to socioeconomic status (SES). Even if an individual is not an educator, a parent, or a student, simply being a citizen in the United States of America is reason enough to take interest in the results of this study. Citizens and legislators alike can consider the results of this study in voting and determining public policy regarding students from nontraditional families.

Research Questions

The study was guided by the following research questions:

Research Question One

Is there a statistically significant difference in the achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the linear combination of Georgia High School Graduation Test (GHSGT) subtests (including English/language arts, mathematics, science, and social studies)?

Research Question Two

Is there a statistically significant difference in the GHSGT subtests scores of high school seniors based on nontraditional family subgroups?

Research Hypotheses

Research Hypothesis One: H_1

High school seniors from nontraditional families will have statistically significant lower achievement scores when compared to the achievement scores of high school seniors from traditional families on the linear combination of GHSGT subtests.

Null Hypothesis One: $H_0$1a

There will be no statistically significant difference in the achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the linear combination of GHSGT subtests.

Null Hypothesis One: $H_0$1b

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the English/language arts GHSGT subtest.

Null Hypothesis One: $H_0$1c

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the mathematics GHSGT subtest.

Null Hypothesis One: $H_0$1d

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the science GHSGT subtest.

Null Hypothesis One: $H_0$1e

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the social studies GHSGT subtest.

Research Hypothesis Two: H_2

High school seniors from single-mother families will have statistically significant higher achievement scores when compared to high school seniors from single-father families, blended families, extended relative only families, and other nontraditional families on the linear combination of GHSGT subtests.

Null Hypothesis Two: $H_0$2a

There will be no statistically significant difference in the achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the linear combination of GHSGT subtests.

Null Hypothesis Two: $H_0$2b

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the English/language arts GHSGT subtest.

Null Hypothesis Two: $H_0$2c

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the mathematics GHSGT subtest.

Null Hypothesis Two: $H_0$2d

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the science GHSGT subtest.

Null Hypothesis Two: $H_0$2e

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the social studies GHSGT subtest.

Identification of Variables

Independent Variable

The independent variable in this study was family structure. Gall, M.D., Gall, and Borg (2007) claimed, "The critical feature of causal-comparative research is that the independent variable is measured in the form of categories" (p. 306). Therefore, the independent variable was categorized using the nominal scale of nontraditional family versus traditional family. Again, a nontraditional family was defined as any family that is not comprised in its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. A traditional family was defined as one that is comprised in all its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. Participants from nontraditional families were further categorized by one of the following: single-mother family, single-father family, blended family, extended relative only family, or other. The category entitled "other" included, but was not limited to,

families comprised of two adults, both of the same gender, cohabitating in a relationship (marital or pseudo-marital, depending on the laws of the state of residence).

Dependent Variable

The dependent variable in this study was student achievement data. Howell (2008) defined dependent variables as "those that are not under the experimenter's control – the data" (p. 22). Student achievement data from a standardized test were not characteristics that could be controlled by the researcher. The student achievement data used for the dependent variable in this study were standardized test scores on the spring 2011 administration of the GHSGT, measured in four areas: English/language arts, mathematics, science, and social studies. While pass/fail results were reported for the GHSGT, each student also received an individual numerical score in each of the five subject areas. The numerical scores were used for the purpose of data analysis.

Definitions

- Achievement gap – This study refers to an alleged achievement gap between students from nontraditional families and students from traditional families. According to Congero (2007), "The term 'achievement gap' refers to the observed disparity on a number of educational measures between the performance of groups of students, especially groups defined by gender, race/ethnicity, and socioeconomic status."
- Blended family – A blended family is defined as one that is comprised of two parents, one male and one female, cohabitating in a marital relationship, but one or more of the parents is not the biological parent of one or more children in the family. This term will also be referred to as a stepfamily.

- Extended relative only family – This family structure is defined as one in which neither biological parent resides in the home where their children live with extended relatives such as grandparents, aunts, or uncles.
- Family cohesion – Uruk, Sayger, and Cogdal (2007) defined family cohesion as the "emotional bonding" between family members (p. 52).
- Family resources – Family resources are resources that a family has access to including, but not limited to, financial means, emotional support, and social capital.
- High achievement – The following definition was conceptualized by Burney and Beilke (2008):

    > High achievement is defined as a level of performance that is higher than one would expect for students of the same age, grade, or experience. Specifically, proficiency is demonstrated by successfully mastering content (instructional) material beyond what is considered to be grade-level curriculum. (p. 300)

- Nontraditional family – A nontraditional family is defined as one that is not comprised in its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. This includes, but is not limited to, single-mother families, single-father families, families with one or more stepparents, families composed solely of extended family members living with children, and families with homosexual adult partners.

- Parental Education – Parental education refers to the highest level of formal education attained by a parent. This includes secondary (high school) education and postsecondary (college) education.
- Parental Involvement – Parental involvement is determined by the degree to which a parent participates in aspects of a child's life. This includes, but is not limited to, educational experiences.
- Parenting style – Parenting style is the set of beliefs, values, and actions primarily utilized during the child-rearing process.
- Single-mother family – A single-mother family is one in which a child resides for a majority of the time with the biological mother (or adoptive mother from birth).
- Single-father family – A single-father family is one in which a child resides for a majority of the time with the biological father (or adoptive father from birth).
- Traditional family – A traditional family is defined as one that is comprised in all its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship.
- Same-gendered parent family – Lubbe (2007) defined a same-gendered parent family as "a family constituted by two gay parents of the same gender (two females or two males) who are involved in an intimate and committed relationship" (p. 275).

Research Overview

This quantitative query was conducted using a causal-comparative design. The comparison of numerical test scores constituted the quantitative aspect of the study. The causal-comparative design was appropriate for the study because the study investigated

possible “cause-and-effect relationships” (Gall, M.D., Gall, & Borg, 2007, p. 306). A more rigorous design was not appropriate for the study due to the inability to manipulate the independent variable, family structure. Therefore, the potential effect of the independent variable of family structure (i.e., nontraditional families versus traditional families) on the dependent variable of student achievement was measured using a causal-comparative design.

Current family structure was reported by student participants, and student achievement was measured using the GHSGT as the sole instrument. A stratified random sample of slightly more than 200 twelfth grade students was selected from the target location. The sample of volunteers was stratified by family structure; students classified their family structure as one of the following: traditional, single-mother, single-father, blended, extended relative only, or other. The anonymity of student participants was protected through the removal of student names and identification numbers from data reports.

After assumption testing was conducted and descriptive statistics computed, two different MANOVAs were performed for data analysis. The first MANOVA compared the results of students from nontraditional families with those of students from traditional families on the four GHSGT subtests (English/language arts, mathematics, science, and social studies). The second MANOVA compared the results of the students from the nontraditional family subgroups (single-mother family, single-father family, blended family, extended relative only family, and other family) with one another as well as with those of students from traditional families on the four GHSGT subtests. Results and conclusions are contained in the chapters to follow.

CHAPTER TWO: LITERATURE REVIEW

Introduction

Student achievement is a timely topic in the world of education today. With initiatives such as the No Child Left Behind Act (NCLB, 2001) and the sweeping accountability reform movement, student achievement comes to the forefront of many of today's educational debates. It is therefore quite concerning to educators to encounter achievement gaps among student populations. This literature review examines the achievement gap that appears to exist between students from nontraditional families and students from traditional families. In reviewing literature on traditional and nontraditional families, support exists for the presence of an achievement gap (Angel-Castillo, & Torres-Herrera, 2008; Bachman, Coley, & Chase-Lansdale, 2009; Guidubaldi, Cleminshaw, Perry, Nastasi, & Lightel, 1986; Hampden-Thompson, 2009; Heuveline et al., 2003; Jeynes, 1999, 2006; McLanahan & Sandefur, 1994; National Center for Education Statistics, 1998; Uwaifo, 2008; Waldfogel, Craigie, & Brooks-Gunn, 2010; Xu, 2008; Yara & Tunde-Yara, 2010; Zill, Morrison, & Coiro, 1993; Zimiles & Lee, 1991). However, some studies offer alternative perspectives (Chiu & Ho, 2006; Marsh, 1990; Pong, 1997, 1998; Weisner & Garnier, 1992). Therefore, a thorough review of the literature is necessary to ground this research and to guide the study. After a brief discussion of the theoretical framework for the study, this chapter presents the related literature and concludes with a summary.

Theoretical Framework

Three common theoretical threads are apparent in the literature regarding family structure: social cognitive theory, attachment theory, and the theory of moral absolutism. Each of these theoretical frameworks provides conceptual underpinnings for the literature on family structure. A closer look at each theory provides greater understanding of the subsequent literature.

Social Cognitive Theory

The research on family structure is grounded in Bandura's (2002) social cognitive theory because the theory contends that human development is influenced, in part, by environmental agents. Family structure is an environmental agent that impacts human development and therefore student achievement. According to Santrock (1997), social cognitive theory is "the view of psychologists who emphasize behavior, environment, and cognition as the key factors in development" (p. 44). Family structure is an environmental factor that affects the development of students and, in turn, impacts student achievement.

Attachment Theory

Attachment theory was first conceptualized by John Bowlby and later refined by Mary Ainsworth (Bretherton, 1992). The theory contends that a strong emotional bond with at least one primary caregiver is crucial for healthy child development. Attention is given in much of the literature to the child's mother as the primary caregiver (Cavanagh & Huston, 2008). Attachment theory offers insights into the depressed academic achievement of students from some subgroups of nontraditional families. Further, it is consistent with Pong's (1998) platform that students from single-parent households in which the mother is present can still experience competitive academic achievement

levels.

Theory of Moral Absolutism

The final framework for this literature review is the theory of moral absolutism. This theory maintains that there are morally correct and incorrect actions (Hawley, 2008). Moral absolutism suggests that the morally correct way to raise a child is through a traditional family structure that is comprised by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. Moral absolutism coincides with the Biblical ideal of family and extends attachment theory to suggest that two parents are better than one. This theory also offers insights into the academic achievement of students based on family structure.

Interaction of Theories Within the Framework

The three theoretical frameworks discussed previously interact to inform the causal-comparative study of the effects of family structure on student achievement. The three theories are closely related and, together, they serve as the foundation for the association between family structure and student achievement. Figure 1 demonstrates the interaction among these aspects of child development. It is the interaction of the three conceptual frameworks that serves as the cornerstone for understanding child development and academic achievement as they relate to family structure. This study was designed to test the applicability of the conceptual framework model.

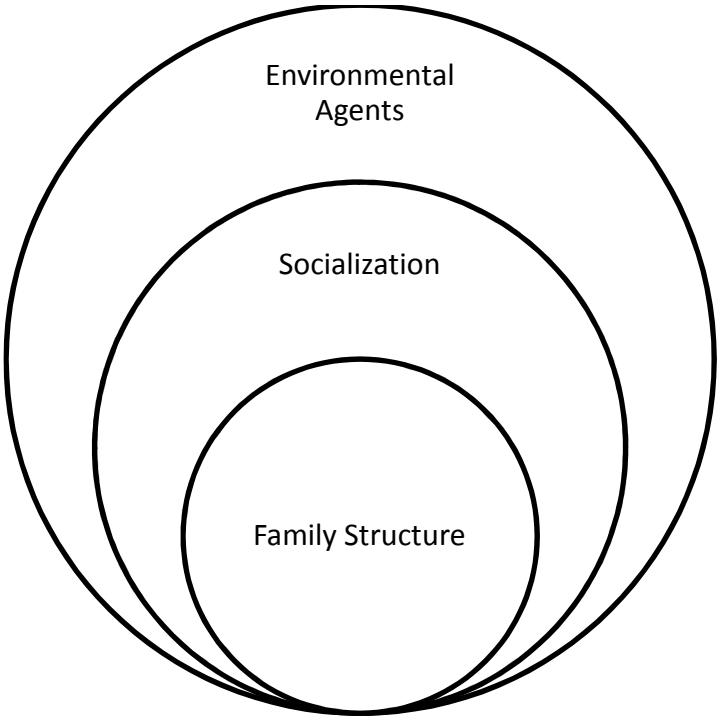

Figure 1. Aspects of Child Development

Related Literature

The Achievement Gap

Evidence in the literature for an achievement gap. Though school environment factors certainly influence student achievement, Firestone and Riehl (2005) suggested that individual student characteristics have the "strongest effects" (p. 15) on student achievement. Individual student characteristics include family structure and composition. Family demographics, therefore, can have a significant impact on student achievement. A student's family demographics could include a nontraditional family or a traditional family. Various studies have found evidence indicating an achievement gap exists between students from at least one subgroup of nontraditional families and students from traditional families (Angel-Castillo & Torres-Herrera, 2008; Bachman et al., 2009; Guidubaldi et al., 1986; Hampden-Thompson, 2009; McLanahan and Sandefur (1994);

National Center for Education Statistics, 1998; Uwaifo, 2008; Waldfogel et al., 2010; Yara & Tunde-Yara, 2010; Zill et al., 1993; Zimiles & Lee, 1991).

Hampden-Thompson's (2009) comparative international study revealed a literacy achievement gap between teenagers from two-parent households and teenagers from single-mother households. The gap was significant in 12 countries, with the greatest gap occurring in the United States. The National Center for Education Statistics (1998) purported an achievement gap in classroom grades across elementary, middle, and high school between students from single-parent households where only one parent was involved in the child's schooling and students from two-parent households where both parents were involved in the child's schooling. Guidubaldi et al. (1986) found an achievement gap in elementary school students between those from traditional families and those from families of divorce, with the most prominent gap in achievement existing between male students from those two categories. Similarly, Waldfogel et al. (2010) reported an achievement gap between students specifically from single-mother families and students from traditional families. According to Angel-Castillo and Torres-Herrera (2008), school dropout rates for Hispanic students were almost doubled in students from single-parent families or blended families as compared to students from two-parent families. Zill et al. (1993) concurred with their longitudinal data, reporting 18-22 year old Americans from families of divorce were twice as likely to have dropped out of high school as their peers from traditional families, even after the researchers controlled for race, parental education, and other child and family factors. Zimiles and Lee (1991) magnified the gap by stating, "Students from stepfamilies and single-parent families are almost three times as likely to drop out as their counterparts from intact families (7% vs.

20%)" (p. 316). International research supports the existence of an achievement gap between students from single-parent families and students from two-parent families in Nigeria (Uwaifo, 2008; Yara & Tunde-Yara, 2010). Research also supports the presence of an achievement gap between students from single-mother families and students from traditional families among low-income adolescents (Bachman et al., 2009). McLanahan and Sandefur (1994) devoted a decade worth of research to the topic and their results indicated an achievement gap exists between students from single-parent households and students from two-parent households.

Not only does the literature indicate an achievement gap exists for students from nontraditional families, research suggests an achievement gap exists for schools with high concentrations of students from nontraditional families. Collectively, lower reading and mathematics scores were linked to schools with high populations of single-parent homes when compared to schools with less than 25% of student homes being single-parent homes (Pong, 1997; 1998). Pong (1998) referred to this phenomenon as the "school compositional effect" (p. 23). Individual demographics aside, attending a secondary school with a high concentration of students from nontraditional families places a student at a higher risk of experiencing academic difficulties in the areas of reading and mathematics (Pong, 1998).

Much attention is given in the literature to traditional families that become nontraditional families and the effects of the change on children. This focus is on children that have not always been classified as members of nontraditional families since conception. Whether changes in family structure are one-time or reoccurring, the change from traditional to nontraditional inherently creates family instability. Jeynes (2006)

described the two contradicting perspectives that exist in the field of family instability as the "Transition School of Thought" and the "Resiliency School of Thought" (p. 78-79). The Transition School of Thought maintains that family transitions such as parental divorce, parental remarriage, and parental death create difficult transition situations for children that have negative academic and psychological implications. Yet, the Resiliency School of Thought purports children are resilient and family transitions therefore do not produce long-term, significant effects on academic or psychological health. Interestingly, Jeynes' meta-analysis of 61 quantitative studies has provided support for the Transition School of Thought. Not only did the meta-analysis suggest an association between family transitions and an achievement gap for students from nontraditional families compared to students from traditional families, the study implied the achievement gap widens for students from nontraditional families with each additional family transition beyond the first. Other research supports Jeynes' work (Cavanagh & Huston, 2008; Magnuson & Berger, 2009; Waldfogel et al., 2010). Cavanagh and Huston (2008) stated, "Those who experience one family transition are at a greater risk of experiencing subsequent transitions and their concomitant stresses" (p. 1259). Furthermore, their findings and the findings of others suggested that the academic and psychological effects of family instability are long-lasting throughout later childhood stages, adolescence, and even adulthood (Cavanagh & Huston, 2008; Guidubaldi et al., 1986; Zill et al., 1993).

Evidence in the literature refuting an achievement gap. Despite the abundance of literature supporting the existence of an achievement gap between students from nontraditional families and students from traditional families, some studies have produced contradictory results. Some studies have claimed that the achievement

differences are not significant (Marsh, 1990; Weisner & Garnier, 1992), some studies added that weak methodologies tend to "overestimate" (Amato & Keith, 1991, p. 36) the effects on children from some nontraditional families, and some studies pointed out that an achievement gap is not apparent everywhere around the world (Chiu & Ho, 2006). This opposing view on students from nontraditional families compared to students from traditional families, though not as well-supported, is presented to provide an unbiased picture of the effects of the family on student achievement. The presence of this contradictory body of literature suggests that future research is necessary in order to investigate if an achievement gap actually exists between students from nontraditional families and students from traditional families.

In a 12 year longitudinal study, Weisner and Garnier (1992) claimed that there was no significant difference in the school performance of students from "nonconventional families" (p. 605) and their peers from conventional families. Weisner and Garnier claimed no significant difference existed even after controlling for child WISC-R, gender, and family SES. The researchers suggested the stability of a family's status coupled with the family's commitment to their chosen lifestyle (be it nontraditional or traditional) are the greatest indicators of student achievement. In short, Weisner and Garnier's research indicated that the structure of the family is not as influential on student achievement as stability and commitment are. Though the results are contradictory to much of Jeynes' (2006) work on traditional and nontraditional families, the implications about family stability are consistent with Jeynes' (2006) "Transition School of Thought" (p. 78).

Similarly, Marsh's (1990) work suggested family dynamics have more to do with predicting academic success for students than family structure does. In a longitudinal study of high school students from sophomore to senior years, Marsh (1990) compared students from stable traditional families to students from stable blended families and students from stable single-parent families. The results showed no significant relationship between family structure and student achievement or behaviors, even after controlling for sex, race, religion, SES, academic ability, school type, and community type. These findings are similar to Weisner and Garnier's (1992) position that family stability is a greater indicator of student achievement than actual family structure itself. However, although the study was a longitudinal study by design, it did not investigate any data prior to students' sophomore year of high school. Even if the results were not statistically significant at the high school level, there may have been more to the picture on family structure and student achievement than the scope of the study was able to investigate.

On another note, Pong (1997; 1998) acknowledged an achievement gap did exist between students from single-parent families and students from two-parent families; however, Pong (1997; 1998) claimed the achievement gap could be entirely accounted for by social capital and economic status. This argument in the literature suggests no causal relationship exists between family structure and student achievement. Rather, social capital and economic status, collectively referred to as SES, are the true predictors of academic success.

The meta-analysis performed by Amato and Keith (1991) has added yet another dimension to the debate. Though their meta-analysis offered support for the existence of

an achievement gap, Amato and Keith noted, “These results suggest that the implications of parental divorce for children’s well-being have become less pronounced since the 1950s and 1960s” (p. 34). Further, the meta-analysis claimed the negative effects of parental divorce are weaker in the United States than in other countries studied. Other researchers agreed (Chiu & Ho, 2006). Therefore, even if recent research suggests an achievement gap exists between students from nontraditional families and students from traditional families, the gap may be narrowing over time.

International research indicates that even if an achievement gap exists between students from nontraditional families and students from traditional families in the United States, the gap is not evident everywhere across the globe (Chiu & Ho, 2006), as Amato and Keith (1991) suggested. In a study of 4,405 15-year old students from Hong Kong, results showed no significant difference between the reading, mathematics, and science scores of students from single-parent families and those of students from traditional families. Furthermore, the differences found between students living with no parents and students living in traditional families in the areas of reading, mathematics, and science could be eliminated by controlling for family involvement and investment. Chiu and Ho (2006) suggested the apparent differences in achievement between students from Hong Kong and students from the United States could be attributed to differences in culture, the higher socioeconomic standings of single parents in Hong Kong, the prevalence of extended family networks in Hong Kong, and equal school funding policies for students in Hong Kong. If an achievement gap is not present in other areas of the world and the gap could potentially be narrowing in the United States, perhaps the gap could become insignificant altogether in the near future.

Also noteworthy is the fact that even if an achievement gap exists to some degree currently, there are certainly students from nontraditional families who bridge the gap. The literature presented cases in which students from nontraditional families do experience academic success (Guidubaldi et al., 1986; Uwaifo, 2008). This prompts investigation into various characteristics of nontraditional families. What ensures some students from nontraditional families experience academic success if others do not? Is there a particular type of nontraditional family that is associated with higher rates of academic achievement? An examination of five different subgroups of the nontraditional family follows.

Subgroups of Students from Nontraditional Families

Single-mother families. One of the most frequently studied subgroups of students from nontraditional families is the subgroup of students from single-mother families. The literature shows that students from single-mother families tend to underperform academically when compared to counterparts from traditional families (Amato & Keith, 1991; Bachman et al., 2009; Guidubaldi et al., 1986; Hampden-Thompson, 2009; McLanahan & Sandefur, 1994; Waldfogel et al., 2010). Research suggests that being from a single-mother family presents pronounced academic challenges for male students, although the achievement gap between students from single-mother families and students from traditional families is apparent for both sexes (Zimiles & Lee, 1991). Being the largest subgroup of nontraditional families (Heuveline et al., 2003), single-mother families warrant much attention.

Hampden-Thompson's (2009) international research on student literacy compared students from two-parent households with students from single-mother families only.

Hampden-Thompson (2009) said, “These results indicate a pattern of underachievement for children who live with their mother only” (p. 520). Magnuson and Berger (2009) reported students from single-mother families in middle childhood experience depressed scores in both reading and mathematics when compared to students from traditional families in the same age category. Furthermore, Amato and Keith (1991) suggested custodial single-parent mothers may “underestimate” (p. 33) their children’s problems in general. Perhaps the underachievement is perpetual in students from single-mother families due to lack of parental attention to the issue or parental inability to admit the severity of problems.

In general, single-mother families tend to have fewer books in the home, less parental education, and lower incomes than two-parent families (Hampden-Thompson, 2009; McLanahan & Sandefur, 1994). Noteworthy here is the literature that suggested parental separation (including cases of divorce) is more frequently the reason for single-mother families than birth to a single mother (Heuveline et al., 2003). Assuming Jeynes’ (2006) “Transition School of Thought” (p. 78), students from single-mother families have more likely than not experienced the stressors associated with at least one family transition.

As in the overall debate, an opposing view exists regarding students from single-mother families. Pong (1998) said, “Once other family background factors are controlled, however, there is no evidence that living in single-mother families negatively affects children’s achievement” (p. 36). Likewise, Marsh (1990) specifically reported neither male students nor female students from single-mother families show significantly lower academic test scores than students from two-parent families. Thus, even though

the majority of the research suggests students from single-mother families are disadvantaged academically when compared to their counterparts from traditional families, critics have challenged the claim. Further research is needed to compare the achievement scores of specific subgroups of students from nontraditional families to one another and to students from traditional families as well.

Single-father families. Similar to students from single-mother families, students from single-father families tend to exhibit academic underperformance when compared to students from traditional families (Amato & Keith, 1991; Guidubaldi et al., 1986). Interestingly, Zimiles and Lee's (1991) work suggested females fare worse academically than males do in single-father families. Along with lower academic achievement, students from single-father families were linked in the literature to poorer access to health care as well (Leininger & Ziol-Guest, 2008). Interestingly, these results were consistent regardless of the single-father family's poverty status. Students from single-father families were also associated with higher risks of drug and alcohol use when compared to traditional families and even single-mother families (Jenkins & Zunguze, 1998). Although such indicators associated with single-father families were not directly linked to academic achievement, they may have had indirect effects on students' readiness levels for learning.

Overall, there is substantially less research present in the field on single-father families than on single-mother families. However, a critic with an opposing viewpoint still remains. Again, as with students from single-mother families, Marsh (1990) specifically investigated students from single-father families. Marsh's results showed no significant difference in the academic achievement of students from single-father families

when compared to students from traditional families, as long as the single-father families were stable. This one piece of research suggests single-father families are not associated with negative effects on student achievement; however, no other recent, scholarly work can be found in the literature to confirm Marsh's findings. Once again, though, the presence of contradictory findings establishes the need for further research. The dearth of literature on single-father families, specifically, calls for further research to investigate this subgroup (in addition to single-mother families) when comparing students from nontraditional families to those from traditional homes.

Of all research on single families, it appears that families in which a spouse has passed away tend to fare the best (Amato & Keith, 1991; Angel-Castillo & Torres-Herrera, 2008). Angel-Castillo and Torres-Herrera (2008) explain,

> It seems that there is a lack of conflict and more stability, the widow or widower manages to handle all decisions and becomes the head of the family and the only one that makes decisions as to the children's education, lifestyle, behavior, etc. (p. 406)

Perhaps children who experience the death of a parent can more easily accept the single-parent situation because they realize that the death was beyond their control. Children with living parents have more trouble accepting a single-parent situation due to feelings of rejection (Angel-Castillo & Torres-Herrera, 2008). Yet again, though, this position on the stability of situations involving the death of a parent lends credence to Jeynes' (2006) Transition School of Thought. Family situations with greater stability have fewer negative implications than family scenarios marked by transitions.

Blended families. Introducing a stepparent in the family model does not appear to lessen the effects associated with nontraditional families. Statistics have suggested students from blended families face the same academic achievement risks as children from other nontraditional families (Angel-Castillo & Torres-Herrera, 2008; Bachman et al., 2009; McLanahan & Sandefur, 1994; Zill et al., 1993). Even the added financial resources a stepparent can offer a family unit do not offset the inherent achievement risks associated with nontraditional families (Amato & Keith, 1991; Heuveline et al., 2003; Jeynes, 1999; Pong, 1997).

Being a member of a blended family may present unique academic challenges for female students. Zilimes and Lee's (1991) work showed that even though male students in general have a greater likelihood of dropping out of school, female students actually show a high propensity to drop out when they are members of stepfamilies. Perhaps this unique achievement challenge for females from blended families arises due to the sensitive dynamics of the father-daughter relationship some researchers presented (Nielsen, 2007).

Jeynes (2006) reported statistically significant results indicating lower academic achievement and depressed psychological well-being for students from blended families when compared to students from traditional families. Additionally, he found that blended families offer no advantages over single-parent families. Jeynes (2006) summarized the study with the following:

> The results of this meta-analysis establish two general findings. First, children from remarried families fared more poorly than children in intact families measured both in academic and psychological terms. Second, children from

> remarried families also did no better and often less well than children from divorced or widowed families whose custodial parent did not remarry. As one would expect, the differences between children in blended families and those in single-parent families were smaller than the gaps between students from blended and intact families. (p. 93)

From an attachment theory lens, perhaps the strong, secure attachments children develop with single-parents are threatened or diminished when a parent remarries, leading to a decline in overall well-being and academic achievement for students from single-parent families upon parental remarriage (Zimiles & Lee, 1991). Moreover, perhaps the areas where students from blended families fared less well than students from single-parent families could be explained with Jeynes' (2008) "Transition School of Thought" (p. 78). Though the research does not provide a conclusive causal relationship, perhaps further research on the transition theory might explain that the lower achievement in students from blended families is due to more transition exposures, as compared to students from single-parent families.

After a thorough investigation of the literature in the field on blended families, only one reliable resource could be found to support the view that children from blended families fare equally as well academically as students from traditional families. Chiu and Ho (2006) claimed there was no significant difference between the academic performance of students from blended families and students from traditional families. However, their work was performed in Hong Kong, where they claim no achievement gap exists and where cultural expectations for academic achievement vary from those in the United States. Not only does future research need to investigate the existence of an

achievement gap, it needs to also investigate students from blended families as compared to students from other subgroups of nontraditional families and traditional families.

Extended relative only families. In sharp contrast to blended families in which children may have more than two parents are extended relative only families in which children may have no parents. The extended relative only families include homes in which students live with grandparents, aunts, uncles, or other extended relatives that are biologically related to the child (or biologically related to the child's adoptive parent). Extended relative only families may arise due to a number of different scenarios, including parental abandonment, parental death, or parental incarceration.

Little research exists on the academic trends for students from extended relative only families in general. However, if the family structure is attributed to parental incarceration, the literature yields clear indications. Children whose parents are incarcerated tend to experience diminished school performance and increased behavior problems at school (Reed, D. & Reed, E., 1997).

A study by Soliz (2008) demonstrated the effectiveness of the relationship between a child and an extended family member (such as a grandparent) at filling the void left by a parent depends more on the nature of the relationship than the adult's position in family. Simply being a grandparent to a child does not guarantee that the adult will bridge any type of gaps left by the parent. The healthier the relationship between the child and the extended relative adult, the more effective the adult will be in a parenting role with the student (Soliz, 2008).

Research does exist indicating when family involvement and investment are controlled for, no significant difference exists between the academic success of students

living with no parents and the academic success of students living in traditional families (Chiu & Ho, 2006). The issue with those findings is that family involvement and investment are almost inextricably linked to the presence of biological or adoptive parents. Further research needs to include students from extended relative only families to gain greater insights into their academic performance.

Other families. A discussion on subgroups of students from nontraditional families would be incomplete if did not include the subgroup designated as "other." The *other* category includes any and all family structures not previously addressed with the subgroups of single-mother families, single-father families, blended families, or extended relative only families. This classification inherently includes any family structures the researcher has failed to consider; however, the most notable family structure included in this category is the family which is comprised of two adults, both of the same gender, cohabitating in a relationship (marital or pseudo-marital, depending on the laws of the state of residence).

As Lubbe (2007) noted, societal changes in the past 50 years have allowed for an increase in the same-gendered parent family structure. Not only have cultural practices and public policies become more tolerant of homosexuality in recent years, medical advances and the "sexual freedom" (Evans, 2009) present in the United States since the 1960s have made it easier for same-gendered couples to parent children. In light of increased numbers of families classified as same-gendered parent families, literature on this family structure is included in this review.

In a review of 15 cases, Raley (2010) reported, "There are no detrimental effects caused solely by a parent's sexual orientation" (p. 187). Rather, the quality of parent-

child relationships and secure parental attachments are more accurate predictors of child development. This lends additional credibility to the importance of attachment theory. Likewise, in a clinical case study, Stein, Perrin, and Potter (2004) stated the following:

> In summary, there is no credible scientific evidence that children whose parents are gay or lesbian are at a disadvantage in emotional, cognitive, or social functioning compared with children whose parents are heterosexual. There do seem to be some differences in their interpersonal skills and emotional expressiveness that may set them apart from some of their peers. Pervasive stigmatism of differentness may lead to social isolation, teasing, and discomfort. (p. 1465)

Thus, even though the limited research does not suggest an achievement gap exists between students from same-gendered parent families and students from traditional families, nonacademic factors such as socialization may affect the school experiences of students from same-gendered parent families more than their membership in those families. Further research on the academic achievement of students from same-gendered parent families is certainly needed.

Family Dimensions Affecting Student Achievement

Although discrepancies are present in the literature, the predominant body of knowledge concurs that an achievement gap does exist between students from nontraditional families and students from traditional families. This invites investigation into the characteristics of nontraditional families that might not be conducive to student success. What aspects of nontraditional families might impede student achievement? What is it that ensures some students from nontraditional families are successful when

the literature supports the premise that so many are not? In reviewing research on family indicators of student success, five recurrent themes emerged in the literature. Consistently, family cohesion, family resources, parental involvement, parenting styles, and parental education appear in the literature as indicators of student achievement. While there are no absolute, definitive associations between these five family characteristics and nontraditional families, the literature suggests it is the tendency of these characteristics to be concurrent with nontraditional families that evokes an achievement gap.

Family cohesion. First, family cohesion appears to be one of the indicators of student achievement. Family cohesion is defined as the "emotional bonding" between family members (Uruk, Sayger, & Cogdal, 2007, p. 52). Family cohesion is therefore distinct from family structure or family composition. Family cohesion could theoretically still be high when family members are not cohabitating in the same household. Likewise, family cohesion could theoretically be low for traditional families lacking strong emotional connections with one another. Thus, family cohesion is an independent family variable, and it appears to predict both psychosocial adjustment and academic success (Caplan, Henderson, C. Henderson, J., & Fleming, 2002; Georgiou, 1995; Pong, 1997). In general, the greater cohesiveness the family displays, the higher the academic achievement is for students.

There are discrepancies in the literature, however. In one study with gifted and talented students, Chan (2005) reported that family cohesion could not be directly linked to academic success for students. Despite conflicting arguments in the literature, family cohesion is at least indirectly linked to student achievement.

Family cohesion has been shown to be a significant predictor of self-perceived talent in students (Chan, 2005). Chan (2005) reported, "Students who perceived their family as more cohesive and their parents as having high expectations of them also perceived themselves as having more talents in academic skills, creativity, and leadership" (p. 219). In turn, student self-perceptions and self-concept play an influential role in student achievement. Student self-concept has been conclusively associated with student achievement (Olszewski-Kubilius and Turner, 2002; Rudasill & Callahan, 2008). Rudasill and Callahan (2008) stated, "In fact, researchers have concluded that self-concept may be as or more important to academic aspirations and achievement than intellectual ability" (p. 71). In another study, Uruk, Sayger, and Cogdal (2007) found high levels of family cohesion to be associated with lower levels of trauma symptoms and higher levels of psychological well-being in college-aged students. Thus, even though Chan's analyses in one study of family cohesion and academic achievement yielded inconclusive results, family cohesion has been shown to influence self-concept, trauma response, and psychological well-being. These individual dimensions of the human psyche affect student achievement. Therefore, high levels of family cohesion can indirectly enhance academic achievement.

Family resources. Next, family resources appear to be an indicator of student achievement. Again, family resources are distinct from family structure or family composition. Nontraditional families could certainly be rich in family resources; moreover, traditional families could be lacking in family resources. While this variable does include monetary assets, resources are not necessarily all economic in nature. Family resources can include financial means, emotional support, and social capital.

Robinson, Lanzi, Weinberg, Ramey, S., and Ramey, C. (2002) said, "Children identified as high achieving tend to come from homes that are relatively rich in resources – psychological and educational resources, socioeconomic resources and parental time" (p. 278). Chiu and Ho (2006) explained that additional resources provide students with an increased number of learning opportunities. In general, the more resources a family has to offer, the greater the indication of academic success for students.

Not only do such families tend to possess greater resources, they tend to have fewer children among whom to distribute those resources (Robinson et al., 2002; Xu, 2008). Even if resources are scarce, basic arithmetic computations prove each individual receives more when the divisor variable is smaller. Simply stated, fewer mouths to feed means each mouth gets more. Formally, this was referred to in the literature as the "resource-dilution hypothesis" (Xu, 2008, p. 415). It is unclear in the literature whether families rich in resources have greater resources because they tend to have fewer children or whether they have fewer children because they have greater resources. The researcher speculates that culture and SES may play a role in the debate, but further research is needed to confirm such speculations.

Emotional support is certainly a resource that families can provide regardless of family structure and financial status. Speirs Neumeister and Finch (2006) noted the positive effects this resource can produce on student success, while Mueller (2009) expressed the importance of emotional support in preventing depression. Emotional support can enhance student self-image and produce positive results on the student psyche. According to Maslow's hierarchy of needs (Huitt, 2007), when the emotional

needs of students are satisfactorily fulfilled, students can begin to progress into self-actualization levels of achievement.

Social capital generally refers to the resources of social networks that individuals, or in this case families, possess. Such social resources, while nonmonetary in nature, can certainly enhance student achievement. McLanahan and Sandefur (1994) claimed social capital can be equally as influential as financial capital in promoting success for children. Pong (1998) said the following:

> When parents are engaged in social networks, they act on behalf of and for the interests of their own families. They also benefit by receiving ongoing feedback on effective child-rearing strategies and information on the policies of their children's schools, teachers, and peers that may allow individual families to channel their resources effectively into their children's success in school. (pp. 25-26)

Perhaps the old adage applies: It takes a village to raise a child. Furthermore, the more involved the village is in the child-rearing process, the more success the child can experience academically. Parents with social capital can tap into these community resources and gain the support of the village to help raise the child.

In general, academically successful students tend to come from families that experience fewer challenges because of their arsenal of resources (Robinson et al., 2002). English tends to be the primary language spoken in these homes, facilitating academic success in America's English-dominant venues of instruction. Better health is associated with an abundance of resources, and higher employment rates have been shown to be associated with families that have a lot of resources (Robinson, et al, 2002). Fewer

incidents of depression tend to occur in students from homes with adequate resources because many protective factors are available to them (Mueller, 2009). Resources of all kinds create greater ease and diminish the threat that challenges can present to academic success.

These nonmonetary resources are not presented to underscore the influence of financial resources, though. Monetary resources certainly do impact student achievement as well (Guidubaldi et al., 1986). Burney and Beilke (2008) presented the notion that poverty may have the greatest impact on student achievement among all demographic variables. Hampden-Thompson (2009) cited "economic deprivation" (p. 514) as a barrier to academic success for students from single-mother families in particular. Though they claim it is not as influential as family conflict, Amato and Keith (1991) did note economic disadvantage as an important dimension to the well-being and academic achievement of children. At any rate, the cumulative impact of all family resources appears to be a significant factor in student achievement.

Parental involvement. Another factor in student achievement appears to be parental involvement. Once again, parental involvement is distinct from family structure and family composition. Since schooling is a compulsory part of life for children in the United States, high levels of parental involvement in a child's life connote parental involvement in a child's schooling as well. A wealth of research supports the academic benefits for students when parents are highly involved in their children's schooling (Desforges & Abouchaar, 2003; Hara & Burke, 1998; Pong, 1997; 1998). In short, parental involvement in a child's life is virtually synonymous with parental involvement

in a child's schooling. Thus, a high degree of parental involvement in a child's life is associated with achievement gains for those children (Chiu & Ho, 2006).

Parental involvement can be supplied by one parent or even by an extended family member. High parental involvement on the part of one parent or one relative is certainly more beneficial for a student than no parental involvement whatsoever. Research indicates parental involvement can moderate depressed achievement scores for students from single-parent families (Hampden-Thompson, 2009; Pong, 1998). However, the literature suggests a high degree of involvement from two parents has more impact on academic achievement than parental involvement from only one parent (Amato & Keith, 1991). Students from two-parent families have an advantage over students from single-parent families or extended relative only families because they oftentimes have greater accessibility to both parents simultaneously. Granted, it is possible for some children from divorced households to experience high levels of parental involvement with both parents. Perhaps this in part explains why some students from nontraditional families do not exhibit academic deficiencies when compared with peers from traditional families. Logistically, though, it is more difficult to obtain high levels of parental involvement from both parents when those parents are divorced.

It is the involvement of both biological parents (or both adoptive parents from birth) that is most advantageous for students' academic success. Research indicates stepparents do not compensate for the lack of involvement by a biological parent (McLanahan & Sandefur, 1994). In particular, the National Center for Education Statistics (1998) noted the highly effective impact of paternal involvement in their children's education. Meanwhile, Amato and Booth (1997) claimed modern-day fathers

are less involved in child-rearing than ever. Even amongst two-parent families, students maintain higher grade point averages in all grades of school when their fathers are involved in school life (National Center for Education Statistics, 1998). It is important to remain mindful that the parental involvement of one, or even both, parents can be low even in a two-parent family. The degree to which parents remain involved in their children's lives can be better understood by a glimpse into their parenting styles.

Parenting styles. Parenting styles themselves appear to be a distinct indicator of student achievement. Yet again, this family variable is discrete from family structure or family composition. Even in single-parent families, a parenting style can be determined. Parenting styles are not present or absent based on family structure or family composition. Parenting styles are a family characteristic separate from family structure or family composition.

The parenting styles most frequently investigated with relation to student success are those within the framework set forth by Baumrind (1966). Baumrind (1966) presented three styles of parenting: authoritative, authoritarian, and permissive. Baumrind's (1966) framework was later amended to include neglectful (or sometimes referred to as uninvolved) parenting (Lamborn, Mounts, Steinburg, & Dornbusch, 1991).

First, authoritarian parents exhibit a high level of demand and a low level of responsiveness. These parents focus on controlling their children, including their behaviors and attitudes, and they demand respect and obedience to authority. Next, authoritative parents show high levels of demand and responsiveness. These parents monitor their children's behavior but do not necessarily punish them. They recognize their children's points of view when establishing rules, and they are supportive of their

children. Thirdly, permissive parents have a low level of demand and a high level of responsiveness. These parents demonstrate a warm and accepting attitude toward their children; however, they exhibit a lack of control in regards to their children's behavior (Baumrind, 1966). Finally, neglectful parents demonstrate low levels of demand and responsiveness. These parents do not offer their children any support or attention. They do not attempt to control their children's behaviors, but rather remain uninvolved in their children's lives. This final category of parenting was recognized by researchers Maccoby and Martin in the 1980s (Lamborn et al., 1991).

In general, parenting styles tend to determine the level of parent-child attachment or detachment. This impacts student behavior, including achievement orientation, according to Speirs Neumeister and Finch (2006). Therefore, patterns of student success emerge as the result of the parenting style present in the home. In general, authoritative and permissive parenting styles tend to be linked to secure attachment levels in children, and authoritarian and neglectful parenting styles are related to parental detachment. Speirs Neumeister and Finch (2006) presented a hypothetical model of the aforementioned parenting styles and present the following findings:

> Specifically, the first part of the model illustrates that authoritative and permissive parenting are associated with secure attachment, while authoritarian and uninvolved parenting are associated with insecure attachment. These results are consistent with the attachment literature summarized above indicating that a high level of responsiveness, as present in both an authoritative and permissive parenting style, is necessary for secure relationships to form: Parents who attend

to their children's needs and demonstrate warmth and affection are more likely to have securely attached children. (p. 247)

Specifically, the authoritative parenting style seems to have the greatest positive impact on student achievement (Dwairy, 2004; Speirs Neumeister & Finch, 2006; Weiss & Schwarz, 1996). These results have been verified cross-culturally with Dwairy's (2004) study of Arab students and Speirs Neumeister and Finch's (2006) study of students in the United States. The results appear to be consistent between the studies. Though the correlations between parenting styles and student achievement were not as strong in Weiss and Schwarz's (1996) study as in the work of Baumrind (1966) and others, Weiss and Schwarz's results still suggested depressed student achievement for students with authoritarian and unengaged (neglectful) parents. Guidubaldi et al. (1986) cautioned single-parents specifically against the use of authoritarian parenting in light of the clear results of their nationwide longitudinal study on divorced families. In general, Amato and Booth (1997) described authoritative parenting practices (where parental control and support is neither too overbearing nor too lenient) as having the best outcomes for child behavior. The wealth of literature on parenting styles demonstrates the validity of attachment theory in the field of educational research.

Parental education. Finally, parents who possess education at and beyond the secondary (high school) level seem to have a positive effect on the academic achievement of their students. This family dimension of education is necessarily distinct from family structure or family composition. In general, research connects academically successful students to parents with higher education levels (Dwairy, 2004; Robinson et al., 2002). Parents with high levels of education have the resources necessary to help their children

with homework and school assignments. Not only do they possess knowledge tools themselves, but they understand how to navigate the school culture. Hampden-Thompson (2008) noted educated parents are more likely to understand tracking systems and are able to negotiate with educators to determine the best academic opportunities for their children. In short, educated parents possess social capital in the educational arena, regardless of financial capital or even SES. Parents that possess an education can navigate the school culture with their children. The higher the degree of postsecondary education a parent has, the more longevity the parent offers in aiding the child.

Aside from the tangible benefits educated parents can offer their children in terms of schooling, parents who possess an education oftentimes instill in their children a value for education itself. They create a culture in the home environment where education is valued, and they often cultivate in their children a love for learning. Again, education can be valued in a family where parents are uneducated. Generally, though, a value for education tends to be higher in households where the parents are educated themselves. Unfortunately, literature indicates that single-mother families are less likely to have a parent with a complete postsecondary education than traditional two-parent families (McLanahan & Sandefur, 1994). Further research is needed regarding the education levels most closely associated with other subgroups of nontraditional families.

Summary

In conclusion, the predominant body of literature suggests an achievement gap does exist for students from nontraditional families when compared to students from traditional families. Critics argue the achievement gap is not statistically significant; it's moderated by other facets of family life such as family stability and

commitment or social capital and SES; and critics argue that this achievement gap is narrowing and that it is not present across the globe. Yet, despite these opposing viewpoints, the abundance of literature supporting the concept of an achievement gap outweighs the paucity of studies supporting the opposing view. The opposition viewpoint was presented to provide an unbiased, comprehensive review of the literature. Though it is overshadowed in the literature by support for the existence of an achievement gap between students from nontraditional families and students from traditional families, the opposition view demonstrates that additional research is needed to further investigate the issue.

Moreover, investigation into the academic achievement of students from various subgroups of nontraditional families proves equal attention has not been given to students from the varying nontraditional family subgroups. Different studies suggest that students from certain nontraditional family subgroups fare better academically when compared to students from other nontraditional subgroups, and when compared to students from traditional families. These inconsistencies demonstrate further research is needed to determine which subgroups of nontraditional families produce students with the highest academic achievement, and which produce children with the lowest academic achievement.

Finally, a look into family dimensions affecting student achievement reveals family cohesion, family resources, parental involvement, parenting styles, and parental education are the predominant family indicators linked to student achievement. Perhaps it is not family structure that indicates student achievement as much as it is the family

indicators of cohesion, resources, involvement, parenting style, and education. This would explain some of the discrepancies found in the literature.

CHAPTER THREE: METHODOLOGY

The literature reviewed in the previous chapter suggested an achievement gap potentially exists between students from nontraditional families and students from traditional families, though discrepancies are present. This study was designed to explore the extent to which students from nontraditional families exhibit lower achievement scores when compared to students from traditional families in a rural North Georgia community. Confirming or rejecting the literature's suggestion of an achievement gap will equip educators to better serve students from all types of family structures. By providing instruction differentiated to the needs of the learners and through additional support structures in the educational system, educators can work to close any potential achievement gaps that may exist for students from nontraditional families.

This chapter first details the study's research design. The research questions and hypotheses for the study are then presented. Participants, setting, instrumentation are discussed in detail. Finally, procedures and data analysis are presented to conclude the chapter.

Design

This study was executed using a quantitative causal-comparative research design. Groups were formed on the basis of the independent variable and then compared for differences on the dependent variable (Gall, M.D., Gall, & Borg, 2007). A nonexperimental design was inherently necessary for this study because no treatment was administered to subjects by the researcher. The researcher did not actively manipulate any variables, as would be characteristic of an experimental research design (Ary, Jacobs,

Razavieh, & Sorensen, 2006). Moreover, a causal-comparative design was most appropriate because the possible cause-and-effect relationship between family structure and student achievement was explored. The researcher observed the pre-existing characteristics of the chosen independent and dependent variables, which is the hallmark of an ex post facto design (Gall, M.D., Gall, and Borg, 2007). In short, the study investigated different groups determined by the independent variable and compared the effects of the groupings (Ary et al., 2006). For these reasons, a causal-comparative investigation was the proper design selection.

The units of analysis for this study were individuals from the twelfth grade at a school referred to as North Central High School. Approximately half of the individuals analyzed were from nontraditional families, and approximately half of the individuals analyzed were from traditional families**.** The individuals from nontraditional families were compared to the individuals from traditional families on the basis of the dependent variable (student achievement data).

The points of focus of this study included family structure and family composition characteristics. Beyond the family structure orientation of either nontraditional family or traditional family, the subgroupings within the category of nontraditional family were worthy of investigation. Therefore, when student volunteers for the study were initially screened for family structure orientation, students from nontraditional families were prompted to characterize their households as either single-mother family, single-father family, blended family, extended relative only family, or other. This additional point of focus on nontraditional families allowed additional data analyses to better determine if any family structures moderated the effects of nontraditional families on student

achievement. Finally, the student achievement data from the individuals participating in the study were a vital point of focus.

Research Questions and Hypotheses

The research investigation addressed the following research questions and research hypotheses:

Research Question One

Is there a statistically significant difference in the achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the linear combination of Georgia High School Graduation Test (GHSGT) subtests (including English/language arts, mathematics, science, and social studies)?

Research Hypothesis One: H_1

High school seniors from nontraditional families will have statistically significant lower achievement scores when compared to the achievement scores of high school seniors from traditional families on the linear combination of GHSGT subtests.

Null Hypothesis One: $H_0$1a

There will be no statistically significant difference in the achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the linear combination of GHSGT subtests.

Null Hypothesis One: $H_0$1b

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the English/language arts GHSGT subtest.

Null Hypothesis One: $H_0$1c

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the mathematics GHSGT subtest.

Null Hypothesis One: $H_0$1d

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the science GHSGT subtest.

Null Hypothesis One: $H_0$1e

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the social studies GHSGT subtest.

Research Question Two

Is there a statistically significant difference in the GHSGT subtests scores of high school seniors based on nontraditional family subgroups?

Research Hypothesis Two: H_2

High school seniors from single-mother families will have statistically significant higher achievement scores when compared to high school seniors from single-father families, blended families, extended relative only families, and other nontraditional families on the linear combination of GHSGT subtests.

Null Hypothesis Two: $H_0$2a

There will be no statistically significant difference in the achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the linear combination of GHSGT subtests.

Null Hypothesis Two: $H_0$2b

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the English/language arts GHSGT subtest.

Null Hypothesis Two: $H_0$2c

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the mathematics GHSGT subtest.

Null Hypothesis Two: $H_0$2d

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the science GHSGT subtest.

Null Hypothesis Two: $H_0$2e

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the social studies GHSGT subtest.

Participants

Participants for this study were selected from the population of North Central High School, a rural high school in North Georgia. At the time of data collection, the school population for grades 9-12 was approximately 1,200 students, with approximately 70 full-time certified teachers on staff. Approximately 90% of those students volunteered for the study after having sufficient time to consider the study and discuss the information with their parents. Due to the selected instrument for the study (GHSGT) and the fact that students were not eligible to take the test until the end of their junior year, only current seniors at the time of data collection were invited to participate. Given sufficient time to consider the study and discuss the information with parents, almost all seniors volunteered to participate.

The student body population at the target school was relatively homogeneous in composition. When this study was conducted, 52% of the overall population was male and 48% of the population was female. Approximately 80% of the student body population was Caucasian, with the second largest ethnic group being Hispanic at 17%. The remaining 3% of the student body was composed of Asian, African American, and Multi-Racial ethnicities. Similar to the student body, the faculty and staff was composed predominately of Caucasian adults, with the second largest subgroup of faculty and staff members being Hispanic.

The racial compositions of the staff and student body were a reflection of the community which the school serves. According to the United States Census Bureau (2012), the last census records taken in 2010 indicated that slightly more than 28,000 citizens maintained residency in the target county. Approximately 87% of that population was Caucasian, approximately 10% was Hispanic, and the remaining 3% was

a combination of all other ethnicities. The same source estimated that 5.6% of the total population in the county was foreign born (United States Census Bureau, 2012). While the rate of homeownership was higher in the county than it was in some other parts of the state, the median household income in the community was significantly lower than the state average, at only $36,741 as of 2010 (United States Census Bureau, 2012). This data serves as the underpinnings for why the target school was classified as a Title I school. Approximately 58% of the student body was served by the federal free and reduced meal program at the time the study was conducted. Statistics show that traditional families occur more frequently than nontraditional families within the zip code in which the school is located. According to Onboard Informatics (2010), there were 3,539 married couples with children and 915 single-parent households in the zip code in 2008. According to the University of Wisconsin Population Health Institute (2010), the percent of single-parent households in the county was 9% in 2010. No data was provided for other nontraditional households that are not single-parent households, such as children living with an extended family member. However, the data provides a snapshot of the demographics for the area.

Students who participated in the study were a representative sample of the student population at large, because the demographics for participants roughly reflected those of the student body population. Prior to outliers being removed from the data set ($N = 242$), 48% were male participants ($n = 116$) and 52% were female participants ($n = 126$). Exactly 92.1% of participants ($n = 223$) were Caucasian, 7.4% of participants ($n = 18$) were Hispanic, and less than 1% ($n = 1$) of participants were Asian, African American, or Multi-Racial in ethnicity.

Among the students from traditional families (n = 130) before outliers were removed, 50% (n = 65) were male and 50% (n = 65) were female. For this group, 89% of participants (n = 116) were Caucasian, while 11% (n = 14) were Hispanic. There were no other ethnicities present in the group of students from traditional families other than Caucasian and Hispanic. Overall, the demographics for the group of students from traditional families were comparable to those of the entire student sample before outliers were removed and comparable to the demographics for the community at large.

Similarly, the group of students from nontraditional families (n = 112), before outliers were removed, contained 46% (n = 51) males and 54% (n = 61) females. There were slightly fewer minorities in this group than in the traditional group; 95.5% (n = 107) were Caucasian, while 3.6% (n = 4) were Hispanic, and less than 1% were Asian, African American, or Multi-Racial. When data was further disaggregated into subgroups of nontraditional families, more variations in demographics were present. Before outliers were removed, the group of students from single-mother families (n = 32) consisted of 47% (n = 15) males and 53% (n = 17) females; approximately 94% (n = 30) were Caucasian, and about 6% (n = 2) were Hispanic. The group of students from single-father families (n = 15), before outliers were removed, had only 33% (n = 5) males and 67% (n = 10) females; this group was 100% Caucasian in ethnicity. The group of students from blended families (n = 35) were 51% (n = 18) males and 49% (n = 17) females; approximately 97% (n = 35) of this group was Caucasian, with approximately 3% (n = 1) being Hispanic. For the group of students from extended relative only families (n = 15), before outliers were removed, there was a breakdown of 47% (n = 7) males and 53% (n = 8) females; approximately 87% (n = 13) of students from this group

were Caucasian, while over 6% (n = 1) were Hispanic, and over 6% (n = 1) were Asian, African American, or Multi-Racial. Finally, for students from "other" families (n = 15), 40% (n = 6) were male and 60% (n = 9) were female; 100% of the students from this group were Caucasian. With the smaller size of the subgroups of students from nontraditional families, greater variation in demographics from the school population was observed in the subgroups. Nonetheless, demographics for the group of students from nontraditional families were still comparable to those of the entire student sample, before outliers were removed and comparable to the demographics for the community at large.

The sample taken from the population was a stratified random sample of convenience for the researcher. Gall, M.D., Gall, and Borg (2007) explained that in a stratified random sample, groups of participants are formed within the population by identifying subgroups based on one or more characteristics; then, a random sample is drawn from the members of each subgroup. The sample for this study was stratified because participants within the population of twelfth grade students at the target location were placed in subgroups based on the characteristic of family structure. The sample for the study was also a sample of convenience because the population of twelfth grade students was easily accessible for the researcher (Gall, M.D., Gall, & Borg, 2007), who was employed as a teacher at the target school during the time of data collection. A sample of slightly more than 200 students from grade twelve was desired for the study. Approximately one-half of the student sample selected was from nontraditional families, and approximately one-half of the student sample selected was from traditional families**.** A sample size of (N = 242) students was selected, because it was as large of a sample as the population of twelfth grade students at the target location would allow. The

researcher chose to use the largest sample the population would allow in order to maximize power and minimize estimation error; in general, the larger a sample is, the more accurately the statistics will indicate the population parameters (VanVoorhis & Morgan, 2007). Again, the target population was limited to twelfth graders because students take the GHSGT in the late spring during the eleventh grade school year. Since the GHSGT was the instrument selected to measure student achievement, current twelfth graders were the only students with usable data available on the selected instrument.

Due to the study being limited to only twelfth graders and due to the comparable demographics of each of the groups in the study, the research design minimized the selection threat to validity in this study through homogeneous selection. Age and exposure to content curriculum were controlled for in this way. Since all participants for the study were sampled from a group of students in the same grade, at the same school, with similar demographics, who had taken the same core academic courses, the researcher controlled for potential preexisting differences between groups. As the review of the literature revealed, SES can influence student achievement (Pong, 1997; 1998). The researcher controlled for SES in this study through homogeneous selection of groups. With the majority of students in the school population receiving free or reduced meals, the selection of participants from this one school increased the likelihood that participants in each of the groups were comparable on SES measures. As Ary et al. (2006) pointed out, one disadvantage of homogeneous selection of groups is that it limits the generalizability of findings. This is discussed further in Chapter Five.

The researcher selected the sample by first requesting volunteer participants from all students in grade twelve. A Consent to Participate form (Appendix A) was given to

students that volunteered to participate, requesting information on present family structure and providing consent to release achievement scores. On this form, students indicated their present family structure as either nontraditional family or traditional family. Furthermore, if the participant was from a nontraditional family, the participant was prompted to classify the nontraditional family on the nominal scale of single-mother family, single-father family, blended family, extended relative only family, or other. The form required both the written consent of the parent or guardian and the written assent of the student, if under eighteen years of age, to release standardized test scores to the researcher for the purpose of the study, with the understanding that student data would be kept anonymous. If the student was eighteen years of age or older, the form only required the written consent of the student to release standardized test scores to the researcher for the purpose of the study, still with the understanding that student data would be kept anonymous. Consent to Participate forms were collected after the students were given an appropriate amount of time to respond, and volunteers were stratified into one of the following groups: students from nontraditional families or students from traditional families. The researcher selected more than 100 students from nontraditional families and more than 100 students from traditional families in case participants had to be excluded for any reason. Transfer students or special needs students might have had unusable data, and the researcher would not know that until after sample selection when the school registrar retrieved achievement scores. Thus, slightly larger samples than intended were selected for each group to allow for possible attrition.

Setting

All participants in the study attended school at the selected school site, North

Central High School. Again, North Central High was classified as a Title I school, which is determined by the population of students receiving free or reduced meals. At the time this study was conducted, approximately 58% of the student body qualified to receive free or reduced meals. This is an important demographic to note, because some poverty indicators can influence variables like academic achievement (Payne, 2003). For example, student academic achievement may have been heavily influenced in this location by the value that is placed on education in the students' homes, which tends to generally be low in cultures of poverty (Payne, 2003). The school community may be economically disadvantaged, but all participants were sampled from the same economically disadvantaged school setting.

Situated in the proverbial 'Bible belt' region in the southeastern United States, the Christian influence is strongly felt in the selected geographic area. North Central High School even allows students to voluntarily attend classes during the school day at a nearby off-campus Christian Learning Center (CLC). As a public school, North Central is one of only a handful of schools in the southeast that collaborates with an off-campus religious-affiliated organization to grant students credits for coursework. However, the constitutionality of the relationship has been upheld by numerous court decisions. This influence of Christianity in the selected school is noteworthy because Biblical beliefs might have had an impact on family variables during this investigation.

Also notable, the participating school satisfactorily met Adequate Yearly Progress (AYP) requirements under the No Child Left Behind Act (NCLB, 2001) during the 2010-2011 school year, making it the sixth consecutive year the school successfully met AYP goals (The Atlanta-Journal Constitution, 2011). This information was of interest to

the study since student achievement was the dependent variable. Despite previously discussed poverty indicators for the school, North Central High continues to experience academic success. Student achievement is apparent, demonstrating that opportunities for academic success are present for students.

Instrumentation

The independent variable in this study was family structure. Gall, M.D., Gall, and Borg (2007) noted that a defining characteristic of causal-comparative research is that the independent variable is categorical. The independent variable in this study was categorized using the nominal scale of nontraditional family versus traditional family. A nontraditional family was defined as any family that is not comprised in its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. A traditional family was defined as one that is comprised in all its entirety by two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship. Participants from nontraditional families were further categorized into one of the following subgroups: single-mother family, single-father family, blended family, extended relative only family, or other.

The dependent variable in this study was student achievement data. Howell (2008) defined dependent variables as those not under the control of the investigator. Student achievement data from a standardized test were not a characteristic that could be controlled by the researcher in this study; thus, they served as the dependent variable. The student achievement data used for the dependent variable in this study were standardized scores from the four subtests of the GHSGT: English/language arts,

mathematics, science, and social studies. While pass/fail results were reported for the GHSGT, each student also received an individual numerical score in each of the four subject areas. The numerical scores were used for the purpose of data analysis. The scale score for each of the five subject areas places the pass score at 200. The highest possible score for each of the tests are as follows: English/language arts – 350; mathematics – 400; science – 370; and social studies – 450 (Georgia Department of Education, 2011).

Validity and Reliability

The independent variable of family structure in this study was measured on the nominal scale of nontraditional family versus traditional family, using a self-reported participant survey. The dependent variable of student achievement in this study was measured using the linear combination of student standardized tests scores on subtests of the GHSGT. The GHSGT is a state-mandated, criterion-referenced test that all students officially classified as high school juniors during Spring 2011 had to take in order to fulfill state-established requirements for high school graduation.

According to the Georgia Department of Education (n.d.), the state of Georgia takes careful measures to ensure the validity and reliability of all state-developed testing instruments, which are frequently reviewed by the Testing Division and TAC (Technical Advisory Committee), in addition to the federal government. The state's claims that the GHSGT is a valid and reliable instrument were supported by the U.S. Department of Education (2009). Graduation rates, attendance rates, and state achievement data are all indicators for high schools in the evaluation of Adequate Yearly Progress (AYP). Therefore, the U. S. Department of Education supports the validity and reliability of the

GHSGT, evident through the agency's reliance on the test as an AYP indicator under NCLB.

In a news brief addressing the validity and reliability of the GHSGT, the Georgia Department of Education (2011) explained that the development of the GHSGT proceeds under the *Standards for Educational and Psychological Testing* as set forth by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education. The Georgia Department of Education (2011) explained that the GHSGT instrument is valid because of its rigorous developmental process. First, test blueprints and test specifications are determined from a review of the current curriculum. From those, GHSGT Content Descriptions are written. Potential items for the instrument are field tested, generally through operational test administrations. Following administration of the GHSGT, cut scores are determined by the Georgia Department of Education and both scale scores and performance levels are reported for students. In sum, the Georgia Department of Education has worked to ensure both the internal and external validity of the GHSGT instrument.

Reliability indices were reported by the Georgia Department of Education (2011) for each of the four main subject administrations. Cronbach's alpha coefficients for the Spring 2011 administration of the GHSGT were as follows for each subject: ELA - .89; Mathematics - .90; Science - .91; and Social Studies - .94. Raw score standard error of measurement indices were as follows for the Spring 2011 administration: ELA: 2.91; Mathematics: 3.09; Science: 3.39; and Social Studies: 3.80. The Georgia Department of Education (2011) maintained that these statistics are consistent with previous administrations of the test; therefore, the results are reliable. Indeed, when Cronbach's

alpha was calculated with the data set used for this study, it was found to be .95. This indicates excellent reliability and supports the Georgia Department of Education's claims.

The test proctors for every administration of the GHSGT are teachers from the participating school that all undergo the same test training to further ensure administration validity. Furthermore, student participants for the Spring 2011 administration were operating under the knowledge that they must pass all portions of the GHSGT in order to receive a high school diploma. Therefore, intrinsic student motivation to perform well on the GHSGT should have outweighed any temptation to intentionally skew the results of this study by not performing to the best of their abilities. In addition, the study was not presented to students until almost a year after test administration. Thus, student performance on the GHSGT was an indicator of true student knowledge and ability.

Procedures

Permissions

Prior to selecting the student sample for the study, approval was obtained from the local board of education, the superintendent of schools, and the Liberty University Institutional Review Board (IRB). The expedited IRB application form was approved after revisions by the researcher. No data was collected prior to approval from all aforementioned agencies.

Data Collection

Once approval was obtained from the IRB and local authorities, the purpose of the study was explained to all twelfth grade students in the high school at a grade-level

meeting. The offer was extended for volunteers to participate in the study and the student Consent to Participate form (Appendix A) was distributed. The back of the Consent to Participate form contained the Family Structure Classification survey that students completed before returning the form. Then, the stratified random sample was selected from returned forms as previously described in the Participants section.

Once the student sample was selected, student names were given to the school registrar by the researcher for the purpose of accessing student achievement scores on the four subject area subtests of the GHSGT. The names of the student participants were grouped by family structure classification. The registrar then took the names of student participants and cross-referenced those names with student identification numbers. The registrar accessed student scores on the GHSGT via student identification numbers. In this way, student names were stripped from all achievement data by the school registrar to protect names from being associated with individual scores. The registrar then utilized the computer database to generate a score report for each student identification number within each subgroup. These score reports, void of student names and student identification numbers, were given to the researcher by the school registrar. The score reports contained detailed information on student performance levels, student scale scores, and student domain competencies on each of the following subtests: English/language arts, mathematics, science, and social studies. See Appendix D for detailed information on student scale scores.

Data Analysis

For the purposes of data analysis, statistical outliers were first identified and removed from the data set. Any data values more than 3.29 from the mean were deemed

outliers and therefore discarded prior to statistical analysis (Tabachnick & Fidell, 2012). Osborne and Overbay (2004) showed the benefits of outlier removal. They found that accuracy is increased and errors of inference are reduced when extreme values are removed. In an effort to increase accuracy and reduce error, the researcher removed statistical outliers that varied by more than three standard deviations from the mean. This resulted in the removal of scores for ten students. Two multivariate outliers were then removed after assessment with Mahalanobis distances. Altogether, scores for twelve students were removed (four from traditional families, three from single-mother families, one from a single-father family, two from blended families, and two from other families). The assumption of normality was assessed with Q-Q plots. The assumption of equality of covariance matrices was assessed with a Box's M Test each time, and the assumption of equality of variance was assessed with Levene's tests.

Descriptive statistics were computed for the pooled sample and later for the subgroups based on family structure. Gall, M.D., Gall, and Borg (2007) explained that the first step in analysis for a causal-comparative design is to compute descriptive statistics, which generally include the mean and standard deviation. Therefore, means and standard deviations were first determined for the pooled sample on each of the four subtests (English/language arts, mathematics, science, and social studies). Then, means and standard deviations were computed for students from traditional families and students from each of the five subgroups of nontraditional families on each of the four subject area subtests of the GHSGT. Analyzing the means and standard deviations of the comparative groups in each of the four subject area subtests guarded against subject preference on the part of students. If the researcher had only examined one subject area,

then student subject preference would have been a major threat to the study. For example, students from single-mother families might potentially have a tendency to perform more poorly in mathematics than other subgroups of students. In this way, the researcher controlled for student subject preference.

Next, a multivariate analysis of variance (MANOVA) test was conducted in order to determine whether or not there was a significant difference between the means of the group of students from nontraditional families and the means of the group of students from traditional families on the four subject area subtests: English/language arts, mathematics, science, and social studies. This MANOVA addressed research question one. The MANOVA is a more appropriate analysis for this study than the *t*-test or the ANOVA because the dependent variable had multiple dimensions that are correlated, namely the four subject area subtests (Gall, M.D., Gall, & Borg, 2007). The MANOVA was selected to determine whether the comparison groups differed in more than one subject area subtest of the GHSGT. A one-tailed MANOVA was employed because the researcher had hypothesized in advance which scores would be higher (Gall, M.D., Gall, and Borg, 2007). Since the researcher hypothesized that the mean scores for the students from non-traditional families would be lower, the one-tailed test was appropriate(Gall, M.D., Gall & Borg, 2007). Although two-tailed tests are more common in educational research, a one-tailed test at the .05 alpha level can be as effective as a two-tailed test at the .10 alpha level (Howell, 2008). In light of the literature, the researcher hypothesized the directionality of the results and tested whether or not the achievement scores for the group of students from nontraditional families was lower than the group of students from

traditional families. For both of the one-tailed MANOVAs, the conventional alpha level of .05 was utilized.

As part of the MANOVA, the researcher calculated an *F* value to test for the equality of means. After the assumption of equality of group dispersions was confirmed, the next step was to test the difference between group centroids with Wilks' lambda (λ) (Gall, M.D., Gall, & Borg, 2007). This test produced the MANOVA *F*, which was compared to an *F* ratio table to determine the level of statistical significance. A statistically significant MANOVA *F* would indicate if there was a difference between comparison groups in specific subject areas subtests. A nonsignificant MANOVA *F* would indicate that there was not a difference between comparison groups.

While the first MANOVA adequately addressed research question one, the test was limited to a comparison between students from nontraditional families and students from traditional families. Therefore, an additional MANOVA was conducted to address research question two. Similar to the first MANOVA, the second MANOVA was also conducted on the four subject area subtests. However, the latter MANOVA compared the means of students from traditional families with means of students from single-mother families, students from single-father families, students from blended families, students from extended relative only families, and students from other families. The latter MANOVA provided a deeper investigation into the subgroups of nontraditional families.

For both MANOVAs, the researcher observed an alpha level of $p < .05$. This value is acceptable in educational research for testing the level of statistical significance and indicating that any observed differences were not simply attributable to chance (Gall,

M.D., Gall, & Borg, 2007). Further, the Bonferroni procedure was employed in this study because the researcher ran more than one test. The Bonferroni procedure reduces the overall familywise error rate by dividing the desired significance level by the number of tests conducted (Howell, 2008). The Bonferroni procedure reduced the chance of committing a Type I error. In addition to tests of statistical significance, it is necessary to examine effect size to understand how trivial or nontrivial any observed differences may be (Howell, 2008). The effect sizes for both MANOVAs in this study were reported with partial η^2. Though this is one of the simplest measures, it is acceptable in educational research for determining the percentage of the variability that can be accredited to group effects (Howell, 2008). Statistical Package for the Social Sciences (SPSS) 20.0 software was employed for all data analyses.

CHAPTER FOUR: FINDINGS

The purpose of this study was to test the interactive framework of social cognitive theory, attachment theory, and the theory of moral absolutism as it relates to the relationship between family structure and academic achievement. This was done by comparing the family structure of students to their scores on the GHSGT. This chapter presents the findings of the study. Outliers for the study are addressed in this chapter, pooled descriptive statistics are provided, and correlations among dependent variables are discussed. Finally, the essential tests of hypothesis are presented in this chapter.

Initially, data were collected on achievement scores for 242 students. As previously stated, data were collected for a sample size slightly larger than desired to allow for missing data, unreported scores, and statistical outliers. At the time of data collection, the researcher did not know how many scores might possibly be unusable. By collecting more data than was necessary, the researcher took care to ensure a sufficiently large sample size after potential attrition of student participants.

Data were first transferred from score reports provided by the school registrar into SPSS 20.0. The data were screened for accuracy, missing data, and outliers. Means and standard deviations were conducted to determine that responses were within the possible range of values; no cases were removed for such reasons. The presence of outliers was tested by the creation and examination of standardized residuals (*z* scores). Standardized values were created for all academic achievement scores and cases were examined for values that fell +/- 3.29 standard deviations from the mean (Tabachnick & Fidell, 2012), i.e., more than three standard deviations from the mean. Ten cases were removed as a

result.

Multivariate Outliers

Since the data was analyzed using MANOVA, multivariate outliers were also assessed through Mahalanobis distances. Due to the fact that both of the MANOVAs had five total variables (four dependent variables of subtests and the one independent variable of family structure), five represented the degrees of freedom. The critical value was determined to be χ^2 (5) = 20.52 at p = .001 (Tabachnick & Fidell, 2012). Two multivariate outliers were removed, because one was above 20.52 and one was below 20.52. Thus, the academic achievement scores from 230 students out of the original student sample (N = 242) were used in the final data analysis.

Pooled Descriptive Statistics

For cases that remained in the study, data were already categorized based on family structure. After discarding statistical outliers and unusable student data, 55% of participants (n = 126) came from traditional families, while 45% of participants (n = 104) were from nontraditional families. The frequencies and percentages of participants from each of the five subgroups of students from nontraditional families are detailed in Table 1. Certain subgroups were smaller than others due to the associated family structures naturally occurring less frequently. However, each subgroup contained at least seven members, as recommended by VanVoorhis and Morgan (2007) for a MANOVA. Moreover, only one subgroup contained less than 14 members, which is recommended in order to achieve a power of approximately 80% (VanVoorhis & Morgan, 2007).

Table 1

Frequencies and Percentages for Participant Family Structure

Family structure	*N*	%
Traditional	126	55
Single-mother	29	13
Single-father	14	6
Blended	33	14
Extended relative only	15	7
Other	13	6

Note. Percentage column may not total 100 due to rounding.

Means and standard deviations were conducted for all participants' scale scores on English/language arts, mathematics, science, and social studies. For the pooled sample, scores on English/language arts ranged from184 – 321, scores on mathematics ranged from 155 – 353, scores on science ranged from 180 – 349, and scores on social studies ranged from 152 – 381. The means and standard deviations of the scale scores for the pooled sample are presented in Table 2. The same descriptive statistics are later disaggregated by subgroups based on family structure in Table 4 and Table 6.

Table 2

Pooled Means and Standard Deviations for English/Language Arts, Mathematics, Science, and Social Studies Scale Scores

Scale Item	*M*	*SD*
English/language arts	245.95	26.86
Mathematics	238.39	35.53
Science	253.82	29.80
Social Studies	241.96	42.71

Correlations Among Dependent Variables

Preliminary correlations were conducted to determine the relationships between the dependent variables. See Table 3 for the Pearson correlations among variables. This

correlation matrix for the four GHSGT scale scores showed significant, positive correlations among all four of the dependent variables ($p < .001$). Although there were significant correlations among the dependent variables, none of the variables were correlated at the .80 or .90 level to suggest multicollinearity issues. Since the dependent variables were correlated but not dependent upon one another, based on the results of the Pearson Correlations, the MANOVA was the appropriate selection for data analysis. The MANOVA allowed the researcher to investigate the related dependent variables while controlling for the correlations between them. Thus, in light of the Pearson correlations, all four dependent variables were used for analysis in the MANOVA.

Table 3

Pearson Correlations among English/Language Arts, Mathematics, Science, and Social Studies GHSGT Scale Scores

Variable	English/language arts	Mathematics	Science
Mathematics	.57**		
Science	.57**	.72**	
Social Studies	.60**	.52**	.70**

** $p < .01$.

Tests of Hypotheses

Research Hypothesis One: H_1

High school seniors from nontraditional families will have statistically significant lower achievement scores when compared to the achievement scores of high school seniors from traditional families on the linear combination of GHSGT subtests.

Null Hypothesis One: $H_0$1a

There will be no statistically significant difference in the achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the linear combination of GHSGT subtests.

Null Hypothesis One: $H_0$1b

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the English/language arts GHSGT subtest.

Null Hypothesis One: $H_0$1c

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the mathematics GHSGT subtest.

Null Hypothesis One: $H_0$1d

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the science GHSGT subtest.

Null Hypothesis One: $H_0$1e

There will be no statistically significant difference in the mean achievement scores of high school seniors from nontraditional families when compared to high school seniors from traditional families on the social studies GHSGT subtest.

Assessment of Null Hypothesis One (a-e)

Descriptive statistics for null hypothesis one (a-e). Means and standard deviations were calculated for both the group of students from traditional families and the group of students from nontraditional families for each of the GHSGT subtests. See

Table 4 for these statistics. In each of the four subtests, the mean for students from traditional families was higher than the mean for students from nontraditional families.

Table 4

Means and Standard Deviations for English/Language Arts, Mathematics, Science, and Social Studies Scale Scores (Traditional vs. Nontraditional)

	Traditional Family		Nontraditional Family	
Scale Item	*M*	*SD*	*M*	*SD*
English/language arts	247.51	26.30	243.31	25.41
Mathematics	242.60	34.69	232.00	33.90
Science	257.02	30.43	249.57	27.98
Social Studies	246.60	41.82	237.03	43.06

Assumption testing for null hypothesis one (a-e). The assumption of normality was assessed with the examination of a Q-Q plot. While many tests for normality are available, this test was chosen because it is not an extremely strict test and violations of normality are not a major threat when conducting a MANOVA. The Q-Q plot showed only slight positive deviations in normality occurred, indicating the assumption was met. The assumption of equality of covariance matrices was assessed with a Box's *M* test. The result of the test was not significant, indicating the assumption was met. The assumption of equality of variance was assessed with four Levene's tests. None of the scores violated the assumption, again indicating the assumption was met.

Results for null hypothesis one (a-e). To assess research question one, a MANOVA was conducted on the GHSGT scale scores by family structure (traditional vs. nontraditional). The alpha level of significance for this test was .05. The result of this first MANOVA was not significant, F (4, 218) = 1.42, p = .230, partial η^2 = .03, power = .44, suggesting that there was not a simultaneous, significant difference on the four

dependent variables based on family structure (traditional vs. all other nontraditional). The result of the MANOVA is presented in Table 5. This result indicated there is no difference between the group of students from nontraditional families and the group of students from traditional families that cannot be attributed to random chance. The power of .44 for this MANOVA indicated there was a 44% likelihood the researcher would correctly reject the null hypothesis. This value for power was lower than the recommended .80 value for power in educational research (Howell, 2010).

For this study, there was no need to assess the univariate ANOVAs in light of the nonsignificant MANOVA. However, the univariate ANOVAs have been included in Table 5 for discussion purposes. It is important to note, though, that a significant difference on one or more of the univariate ANOVAs is not an acceptable indicator of results if the overall MANOVA *F* is not significant itself. A discussion on the univariate ANOVAs follows in Chapter Five.

Table 5

MANOVA and Individual ANOVAs for English/Language Arts, Mathematics, Science, and Social Studies Scale Scores

Source	MANOVA *F* (4, 218)	ANOVA *F* (1, 221)			
		English/language arts	Mathematics	Science	Social studies
Family structure	1.42	1.45	5.26*	3.56	2.82

Note. F values reported are Wilks' Lambda.
* $p < .05$, ** $p < .01$

Research Hypothesis Two: H_2

High school seniors from single-mother families will have statistically significant higher achievement scores when compared to high school seniors from single-father

families, blended families, extended relative only families, and other nontraditional families on the linear combination of GHSGT subtests.

Null Hypothesis Two: $H_0$2a

There will be no statistically significant difference in the achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the linear combination of GHSGT subtests.

Null Hypothesis Two: $H_0$2b

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the English/language arts GHSGT subtest.

Null Hypothesis Two: $H_0$2c

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the mathematics GHSGT subtest.

Null Hypothesis Two: $H_0$2d

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when compared to other subgroups of nontraditional families on the science GHSGT subtest.

Null Hypothesis Two: $H_0$2e

There will be no statistically significant difference in the mean achievement scores of high school seniors from one subgroup of nontraditional families when

compared to other subgroups of nontraditional families on the social studies GHSGT subtest.

Assessment of Null Hypothesis Two

Descriptive statistics for null hypothesis two. To begin the assessment of null hypothesis two, the means and standard deviations were calculated for each of the subgroups of nontraditional families (single-mother, single-father, blended, extended relative only, and other) on all four of the GHSGT subtests. These descriptive statistics are reported in Table 6 along with the means and standard deviations on each of the four subtests for students from traditional families. In most cases, the mean for students from traditional families was higher than the mean for students from a subgroup of nontraditional families. Only three subgroups of students from nontraditional families maintained a higher mean than that of students from traditional families on the same subtest; one in English/language arts, one in mathematics, and one in social studies.

Table 6

Means and Standard Deviations for English/Language Arts, Mathematics, Science, and Social Studies Scale Scores by Family Structure (Traditional vs. Single Mother vs. Single Father vs. Blended vs. Extended Relative Only vs. Other)

	Traditional family		Single-mother		Single-father		Blended		Extended relative only		Other	
Scale Item	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
English/l.a.	247.51	26.30	245.90	23.36	237.75	28.87	248.24	28.87	234.20	29.88	240.42	24.94
Mathematics	242.60	34.69	247.66	42.68	221.50	28.58	232.03	24.37	210.13	29.95	231.92	26.62
Science	257.02	30.43	255.00	25.37	249.00	36.38	249.85	27.41	236.07	25.47	253.17	28.17
Social Studies	246.61	41.82	248.03	46.96	218.83	27.41	241.39	44.09	213.93	36.71	245.50	39.75

Assumption testing for null hypothesis two. The assumption of normality was once again assessed with the examination of a Q-Qplot. The Q-Q plot showed that only slight positive deviations in normality occurred, indicating the assumption was met. The assumption of equality of covariance matrices was assessed with a Box's M test. The result of the test was significant, indicating the assumption was not met. Tabachnick and Fidell (2012) state in such cases Pillai's Trace should be reported. This more stringent measure replaced Wilks' Lambda in this case. The assumption of equality of variance was assessed with four Levene's tests. None of the scores violated the assumption, indicating the assumption was met.

Results for null hypothesis two. To assess research question two, a second MANOVA was conducted. The first MANOVA was conducted on the GHSGT scale scores by family structure. This time, the researcher compared the subgroups of nontraditional families: traditional vs. single-mother vs. single-father vs. blended vs. extended relative only vs. other. The result of this MANOVA was not significant either, F (20, 868) = 1.57, p = .054, partial η^2 = .04, power = .95. This suggests that there was not a simultaneous, significant difference among the four dependent variables based on family structure (traditional vs. single-mother vs. single-father vs. blended vs. extended relative only vs. other). In short, this result suggested there is no difference between groups that cannot be attributed to random chance. The result of the MANOVA is presented in Table 7. The power of .95 for this MANOVA was very high, indicating a 95% likelihood the researcher would correctly reject the null hypothesis. This value of power was certainly higher than the minimum recommendation for power of .80 in educational research (Howell, 2010). Univariate ANOVAs did not need to be assessed

because the nonsignificant MANOVA result trumps any statistically significant univariate ANOVAs; however, they are included in Table 7 for discussion purposes. A thorough discussion of these ANOVAs follows in Chapter Five.

Table 7

MANOVA and Individual ANOVAs for English/Language Arts, Mathematics, Science, and Social Studies Scale Scores by Family Structure (Traditional vs. Single-Mother vs. Single-Father vs. Blended vs. Extended Relative Only vs. Other)

Source	MANOVA *F* (20, 868)	ANOVA *F* (5, 217)			
		English/language arts	Mathematics	Science	Social studies
Family structure	1.57	1.10	3.86**	1.59	2.52*

Note. F values reported are Pillai's Trace.
* $p < .05$, ** $p < .01$

CHAPTER FIVE: DISCUSSION

Societal changes in the latter twentieth century have challenged the ideal of the "traditional postwar family model" (Angel-Castillo & Torres-Herrera, 2008, p. 405) as the predominate family structure for children. Increasing numbers of children in public schools are now being raised in nontraditional family structures (Vaughn, 2011). Such societal shifts often birth new sociological structures; regardless of whether the changes are positive or negative, they are worthy of investigation, particularly for educators as they learn how to best respond to the needs of their students.

The problem for educators is that current literature suggests an achievement gap exists for students from nontraditional families when compared to their peers from traditional families (Angel-Castillo & Torres-Herrera, 2008; Bachman, Coley, & Chase-Lansdale, 2009; Hampden-Thompson, 2009; Jeynes, 1999; 2006; Uwaifo, 2008; Yara & Tunde-Yara, 2010). Therefore, this study was very worthy of investigation as it examined whether or not the alleged achievement gap still exists in the 21st century American classroom and what the nature of that gap might be for specific types of nontraditional families. As the global community becomes a melting pot and the previously held norms of many cultures are changing, there are no cookie-cutter descriptions that classify all children anymore. Each child is unique, bringing individualized experiences and backgrounds to the classroom. The more educators and parents know about students, the better these adults can equip children to succeed academically. Therefore, the purpose of this study was to provide educators, parents, and students alike with insights into the interactive framework of social cognitive theory,

attachment theory, and the theory of moral absolutism and how the family structure of students influences their academic achievement. The ultimate purpose was to empower educators and students to succeed.

This chapter provides a brief summary of the findings and then a discussion of the findings in light of the related literature. The study's limitations are outlined in this chapter along with implications. The chapter concludes with recommendations for future research.

Summary of the Findings

This causal-comparative investigation examined the achievement scores for 242 twelfth grade students at a rural North Georgia high school. After assumption testing was conducted and descriptive statistics were computed, two different MANOVAs were performed for the purposes of data analysis. The assumptions of equality of covariance and equality of variance were tested and met each time.

The first MANOVA addressed research question one: Is there a statistically significant difference in the achievement scores of high school students from nontraditional families when compared to high school students from traditional families on the linear combination of Georgia High School Graduation Test (GHSGT) subtests (including English/language arts, mathematics, science, and social studies)? For this MANOVA, the achievement data for all students from nontraditional families were compared with all students from traditional families. The comparison was made to either support or refute indications in the literature that an achievement gap exists between the two groups. The first MANOVA assessed the four dependent variables of GHSGT subtests (English/language arts, mathematics, science, and social studies) on the basis of

family structure (traditional family vs. nontraditional family). The result of the MANOVA was not significant, indicating there was not a statistically significant difference between the groups. According to Gall, M.D., Gall, and Borg (2007), if no statistically significant difference can be found, then the null hypothesis cannot be rejected. In summary, this result indicates there is no difference in the achievement scores of high school seniors from nontraditional families and high school seniors from traditional families that cannot be attributed to random chance.

The second MANOVA addressed research question two: Is there a statistically significant difference in the GHSGT subtests scores of high school students based on nontraditional family subgroups? For this MANOVA, the achievement data for students from all the nontraditional family subgroups were compared against each other and against the data for students from the traditional family group (single-mother families vs. single-father families vs. blended families vs. extended relative only families vs. other families vs. traditional families). These comparisons were made to add to the body of literature on students from nontraditional families while investigating and comparing various types of nontraditional structures. The second MANOVA assessed the four dependent variables of GHSGT subtests (English/language arts, mathematics, science, and social studies) on the basis of family structure (single-mother families vs. single-father families vs. blended families vs. extended relative only families vs. other families vs. traditional families). The result of the second MANOVA was also not significant, indicating there was not a statistically significant difference between the groups. Once again, the null hypothesis could not be rejected for research question two. In summary

the result of this MANOVA suggests there is no difference between groups that cannot be attributed to random chance.

Discussion of the Findings and Implications in Light of the Related Literature

Though the majority of relevant literature supports the theory that an achievement gap exists between students from nontraditional families and students from traditional families (Angel-Castillo & Torres-Herrera, 2008; Bachman, Coley, & Chase-Lansdale, 2009; Guidubaldi, Cleminshaw, Perry, Nastasi, & Lightel, 1986; Hampden-Thompson, 2009; Heuveline et al., 2003; Jeynes,1999; 2006; McLanahan & Sandefur, 1994; National Center for Education Statistics, 1998; Waldfogel, Craigie, & Brooks-Gunn, 2010; Xu, 2008; Uwaifo, 2008; Yara & Tunde-Yara, 2010; Zill, Morrison, & Coiro, 1993; Zimiles & Lee, 1991), the results of this study align more closely with the researchers who have found that no achievement gap exists between students from nontraditional and students from traditional families. In support of Weisner and Garnier's (1992) and Marsh's (1990) claims, achievement differences were not shown to be statistically significant in this study. It is noteworthy that the difference in math scores was found to be significant at the .05 level when the achievement scores of students from nontraditional families were compared with the achievement scores of students from traditional families in the first MANOVA (see Table 5). Additionally, the difference in math scores was found to be significant at the more stringent .01 level when students from nontraditional families were broken down into subgroups on the second MANOVA (see Table 7). The second MANOVA even produced a difference in social studies means significant at the .05 level (see Table 7). However, since neither the first MANOVA nor the second MANOVA were significant overall, the researcher did not have justification to claim that there was a

significant difference in the univariate ANOVAs in the area of mathematics or in the area of social studies. Gall, M.D., Gall, and Borg (2007) explained that when the MANOVA *F* is nonsignificant, researchers should be wary of differences on individual variables. In summary, any differences that were found in this study were not large enough to be deemed statistically significant, as Weisner and Garnier and Marshcriticize other studies of, even though the means for students from traditional families were higher than the other categories most times.

Since glimpses of differences were present in the study (even though they were nonsignificant), it is possible that differences based on family structure are moderated by other factors. As Pong (1997; 1998) suggested, SES may moderate the effects of family structure on student achievement. Or, as Weisner and Garnier (1992) claimed, the stability of a family's status and their degree of commitment to their chosen lifestyle (be it traditional or nontraditional) may moderate the effects of family structure on student achievement. While this study does not directly support either of the aforementioned findings because it did not attempt to replicate them, this study does suggest their claims that an achievement gap does not currently exist are accurate. Perhaps the family dimensions of cohesion, family resources, parental involvement, parenting style, and parental education discussed in Chapter Two are more accurate indicators of student achievement than family structure itself is. In this way, this study lends credence to the work of researchers in the field of family dimensions (Chiu & Ho, 2006; Dwairy, 2004; Robinson et al., 2002; Speirs, Neumeister, & Finch, 2006; Uruk, Sayger, & Cogdal, 2007).

In light of the interactive framework of social cognitive theory, attachment theory,

and the theory of moral absolutism, this study does not support the claim that student achievement is significantly affected by family structure. Though social cognitive theory, attachment theory, and the theory of moral absolutism have validity individually, the study does not suggest that they interact to predict student achievement in academics. There are likely other variables under the umbrella of social cognitive theory that influence achievement besides just family structure. Furthermore, this study investigated the effects of the *current* family structure of high school students on their academic achievement; attachment theory focuses on the emotional bonds a child forms with one or more primary caregivers during infancy. Perhaps the implications associated with attachment theory have been lessened somewhat by the time a student enters twelfth grade in high school. If the Resiliency School of Thought presented by Jeynes (2006) holds true, then children have had time to recover from the effects of family transitions that might have happened during infancy by the time the reach their senior year of high school. On the contrary, if one or more family transitions occurred subsequent to the infancy stage for a child, then attachment theory may not support the effects of the family transition.

Outline of the Study Limitations

There were several limitations associated with this study. First, the researcher was limited in the ability to verify family structures. The researcher was forced to hold the assumption that students correctly classified their family structure as either nontraditional or traditional. More specifically, the researcher was forced to assume that all students from nontraditional families accurately classified their associated family structure as one of the following: single-mother family, single-father family, blended

family, extended relative only family, or other. This limitation allowed student participants to purposefully misrepresent their family structure, if they chose to do so for whatever reason. It also left room for error in student reporting. Some familial structures are more complex than a definition and do not fit into a discrete category. For example, if a student's parents are separated, they are still legally married. Depending on places of residence for each family member, a student in this situation could meet the definition of a traditional family or a nontraditional family. With an ever increasing level of family complexity, the inability of the researcher to verify the accuracy of student reports on family structure was certainly a limitation of the study.

Similarly, another limitation of the study was the inability to correctly identify blended families for students and adults alike. Blended families are comprised of two parents, one male and one female, cohabitating in a marital relationship; however, one or more of the parents might be a stepparent or otherwise not a biological parent of the child. This scenario was problematic for this study because a student or a parent might have classified this type of family as a traditional family even though the student experienced divorce and/or a single-parent family situation for some time. This study had limitations because of the students' inability to measure traditional families in the sense of the accepted definition for the study, even though the definition was provided for the students, simply because of human error or personal interpretation.

Perhaps the most significant limitation associated with this study, though, was the selection threat due to nonequivalent groups. If the two initial groups of students-student from nontraditional families and students from traditional families-were not comparable in as many extraneous variables as possible aside from family structure, the inequality of

the groups could discredit the results of the study. Control measures were taken to ensure that the two groups were similar on as many extraneous variables as possible aside from the independent variable being investigated in the study, family structure.

Other limitations concern the instrument used to measure student achievement. The GHSGT is a test administered only in the state of Georgia. Therefore, it is only standardized across the state of Georgia. Student scores in the sample population are not compared against student scores from other states that are perhaps situated in a higher achieving geographic region. As Chiu and Ho (2006) suggested, an achievement gap might be apparent in some locations of the world and not in others. The results of the study are therefore most relevant to students in rural Georgia areas, similar to the setting of the study. Caution should be exercised in generalizing the results to other geographic regions.

Furthermore, the use of the GHSGT as a measurement instrument limited the sample population to only twelfth grade students because students were not permitted to take the test until they were officially classified as juniors. The only students with score reports at the time of data collection were the current seniors who had participated in the Spring 2011 administration of the test. Ideally, another instrument would have been used that could compare students of all ages, kindergarten through twelfth grade. However, the researcher could not find a standardized test instrument that could accurately compare scores from such a wide range of student ages. Thus, the GHSGT was selected as the instrument for measuring student achievement, despite its limitations.

Finally, the selected research design itself was potentially a limitation of the study. As Tabachnick and Fidell (2012) noted, lack of randomization, manipulation, and

control are limitations in any causal-comparative study, along with the risk of committing a Type I error in data analysis. Although an element of randomization was present in the study, student participants were not truly randomly selected because of their membership in one of the family structure categories. Hence, this is the reason a stratified random sample was taken. Tabachnick and Fidell go on to explain that without truly random group assignments, the groups are likely to be different on some other variable (for example, gender or age) other than the variable in question. Such could have been the case in this study; groups could have differed on the variable of SES, for instance, in a way that affected the variable being studied. This idea speaks to the selection threat due to nonequivalent groups discussed previously. The researcher attempted to control for differences. Although certain limitations are inherent to any causal-comparative research design, the researcher would be remiss in not acknowledging them.

Implications

The results of this study imply that an achievement gap does not exist between students from nontraditional families and students from traditional families. Despite the vast body of literature indicating an achievement gap does exist, this work indicates there was not a statistically significant gap at the target location at the time the study was conducted, caveats that critics have pointed to as flaws in other studies (Amato & Keith, 1991; Chiu & Ho, 2006; Marsh, 1990; Weisner & Garnier, 1992). Nonetheless, further research is needed in the field to indicate why some studies have found achievement differences based on family structure and others have not.

Perhaps the theory presented in Chapter Two is accurate: The effects of divorce and being raised in a nontraditional family have become “less pronounced” (Amato &

Keith, 1991, p. 34) over time. While an achievement gap may have once existed between students from nontraditional families and students from traditional families in the past, the gap may have narrowed in the 21st century. A longitudinal study would be recommended to investigate the theory of a closing achievement gap.

Perhaps the family dimensions of cohesion, family resources, parental involvement, parenting style, and parental education discussed in Chapter Two are more accurate indicators of student achievement than family structure itself is. Therefore, the finding of this study lend credence to the work of researchers in the field of family dimensions (Chiu & Ho, 2006; Dwairy, 2004; Robinson et al., 2002; Speirs Neumeister & Finch, 2006; Uruk, Sayger, & Cogdal, 2007). Further investigation is needed into the effects that these family dimensions have on student achievement.

While this study does not end the debate on the effects of family structure on student achievement, it certainly does add to the body of knowledge. Furthermore, it shines an empirical light on multiple subtypes of nontraditional families (single-mother, single-father, blended, extended relative only, and others), not just one subtype. The failure to investigate nontraditional family subtypes in relation to student achievement was one of the researcher's initial criticisms of the current literature.

For educators, though, the results of this study imply that educational resources should be focused on helping students overcome disadvantages other than family structure, since family structure does not appear to place students at any kind of academic disadvantage. This study implies that all students have an equal opportunity to succeed academically, regardless of family structure. This implies that students from any given family structure do not have a familial excuse, or crutch, for lack of academic

achievement.

For parents, this study implies family structure does not impact academic achievement as much as other family dimensions may. While some situations cannot be changed or reversed, the past does not necessarily limit the success of a parent with the future of children. Garland, D.R. and Garland, D.E. (2007) said, "God takes broken families of all kinds of shapes and sizes and works processes of perfection through them" (p. 230). The results of this study are therefore encouraging to *all* parents to be a good parent, regardless of the family situation!

Recommendations for Future Research

Clearly, additional research is needed in the field of family structure as it relates to student achievement in order to draw more conclusive inferences on this topic. Recommendations for future research address the limitations of this study. First, future research could develop a more accurate reporting method for categorizing family structure. In this study, student participants self-reported their family structure classification. Due to the potential room for error in student reporting, whether intentionally or inadvertently, a more accurate reporting method would lend greater credibility to the results. An improved classification method might also address the limitation this study had in terms of distinguishing blended families. If one researcher classified all family structures of participants based on accepted definitions of those structures, greater consistency in reporting would be achieved. This recommendation lends itself toward a qualitative investigation of family structure as it relates to student achievement. More research from the qualitative field would undoubtedly enhance the body of knowledge on the subject.

Another recommendation for future research would be greater controls. Since the selection threat due to nonequivalent groups was a limitation of this study, future studies could add more sophisticated methods of control. The sample in this study was limited by the size of the overall population of twelfth grade students at the target school. Increasing the population size or the number of school sites in future studies would allow for groups to be sampled that potentially have more similarities.

Future research would be negligent if it did not use a different instrument from the one used in this study. The limitations of the GHSGT are numerous. Primarily, the GHSGT was only standardized with students in the state of Georgia, and it is only administered to students in the state of Georgia. Future research should include a nationally-normed instrument. Future research could also include a wider sampling population, perhaps on a national or even global scale, rather than just one school.

Future research should include students with greater diversity in demographics. This could likely be achieved by using a different geographic location. For example, the African American population at the target school was less than 1%. A different geographic location might lend itself to greater diversity that would include student participants of every ethnicity and background.

As discussed previously, this study was limited by its ability to only assess the achievement scores of twelfth graders. It is recommended that future research include a wider age range of student participants. Even if one single instrument cannot be found to measure a wide range of ages, different instruments could be used at different age levels to assess the potential difference between students from nontraditional families and students from traditional families. Future research could compare and contrast the effects

of family structure on student achievement at various stages of human development, perhaps even beyond the K-12 realm.

Finally, future research should most certainly include design methodologies other than just causal-comparative design since some of the limitations of this study are inherent to causal-comparative design. While this design certainly has merit, it should not be the sole methodology used for research on this subject. A wider variety of methodologies would certainly help to shed light on the veracity of arguments on both sides of this debate.

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APPENDIX A

Consent to Participate

The Effects of the Family on Student Achievement: A Comparative Study of Traditional and Nontraditional Families

By providing my name and signature below, I consent to participate in the above research study, to provide information on the back of this form that *best* describes my family structure, and to allow the researcher to access my scores on the Georgia High School Graduation Test in each of the following areas: English/language arts, mathematics, science, and social studies.

This study is being conducted by researcher Melinda Bailey Abercrombie from Liberty University, Lynchburg campus, School of Education, as part of the partial requirements for the degree of doctor of education. The information being gathered will be used to compare family structure to student achievement scores on the Georgia High School Graduation Test using a causal-comparative research design. A stratified random sample of student volunteers from each of the six family structure classifications on back will be selected. Approximately 200 students total will be selected for the study, with approximately 100 students being selected from the first category and approximately 20 students being selected from each of the following five categories. Scores will then be accessed for participants, student names will be removed from test data by the school registrar, and the researcher will run statistical test analyses on the data.

I understand that my name will be stripped from my test scores once my data is retrieved and my identity will remain completely anonymous in the research results, analysis, and reports. I understand that although I receive no direct personal benefits by participating in this study, I am helping to further the body of educational research. I understand that my participation in the duration of this study will be complete once I sign and return this consent form with the questions on "Family Structure Classification" completed on the back of this page. There are no reasonably foreseeable risks associated with the study, but I understand that I have the right to choose not to participate in this study. I understand that my choice to participate or not participate will in no way affect my grades, my academic standing, or my permanent school records. I understand that I have the right to discontinue participation in the study at any time with no penalty or detrimental effects.

For questions pertaining to the study, the subjects' rights, or any injury incurred as a result of this study, I can contact Melinda Bailey Abercrombie at mabercrombie@liberty.edu. Faculty advisor for the study is Dr. Constance L. Pearson, Department Chair, Liberty University School of Education, 434-592-4278.

Student Name (please print): _____
Student Signature: _____ Date: _____
*If you are under eighteen years of age at the date you printed above, please have a parent or legal guardian give consent to participate by signing below.
Parent/Guardian Name (please print): _____
Parent/Guardian Signature: _____ Date: _____
If you provided written consent above, please turn to the back of this paper.

Family Structure Classification

If you provided written consent to participate on the front of this paper, please place a check mark in the box beside the **ONE** choice below that *best* describes your family.

- ☐ My family is best described as one with two biological parents (or adoptive parents from birth), one male and one female, cohabitating in a marital relationship.

- ☐ My family is best described as one in which I reside a majority, if not all, of the time with my biological mother (or adoptive mother from birth) and no other parental figures.

- ☐ My family is best described as one in which I reside a majority, if not all, of the time with my biological father (or adoptive father from birth) and no other parental figures.

- ☐ My family is best described as one with two parents, one male and one female, cohabitating in a marital relationship but one or more of the parents is not the biological parent of one or more children in the family. This term is also referred to as a stepfamily.

- ☐ My family is best described as one in which neither one of my biological parent reside in my home and I live with extended relatives such as grandparents, aunts, uncles, et cetera.

- ☐ My family is not described by any of the choices above for some reason, including but not limited to, families in which parents are the same gender.

APPENDIX B
Parent/Guardian Letter

March 20, 2012

Dear Parent or Guardian,

Your child has been invited to participate in a research study of the effects of family structure on student achievement. Your child was selected as a possible participant because he or she participated in the Spring 2011 Georgia High School Graduation Test, which will be used to measure achievement. This letter provides you with some basic information about the study.

The purpose of this study is to compare the family structure of students with their achievement scores on the Georgia High School Graduation Test. If your child agrees to be in this study, he or she will sign the student consent form distributed at school today. If your child is under eighteen years of age, you will also have to sign the consent form in order for your child to participate. If your child is eighteen years of age or older then you are not required to sign the consent form in order for your child to participate. Your child will then select the *one* choice from the list provided on the consent form that *best* describes your family structure. Signing the consent form gives the researcher permission to place the your child's name in a group based on family structure and to access your child's scores on the Georgia High School Graduation Test in each of the following areas: English/language arts, mathematics, science, and social studies. The researcher will select a random group of student volunteers from each of the six family structure classifications on the consent form. Approximately 200 students total will be selected for the study. Approximately 100 students will be selected from the first category, which represents traditional families, and approximately 20 students will be selected from each of the following five categories: single-mother families, single-father families, blended families, extended relative only families, and other families. Scores will then be accessed, student names will be removed from test data by the school registrar, and the researcher will run statistical test analyses.

The risks for participants associated with this study are minimal. The foreseeable risks involve the researcher knowing the student's family structure. The risks are no more than you would expect to encounter in your everyday life. There are no monetary or physical benefits associated with being in this study. The primary benefit is the satisfaction of knowing you contributed to the body of knowledge on student achievement.

The records of this study will be kept private. In any sort of report that might be published, there will not be any information included that will make it possible to identify a student participating in the study. Research records will be stored securely and only the researcher will have access to the records. Student names will be stripped from test

scores once the data is retrieved and student identity will remain completely anonymous in the research results, analysis, and reports.

Participation in this study is voluntary. Your child's decision whether or not to participate will not affect current or future relations with Liberty University or with _____ High School. If your child decides to participate, he or she is free to not answer any question associated with the study or to withdraw at any time without affecting those relationships. Your child's choice to participate or not participate will in no way affect grades, academic standing, or permanent school records.

The researcher conducting this study is Melinda Bailey Abercrombie. If you have questions, **you are encouraged** to contact the researcher at mabercrombie@liberty.edu or at 706-669-8243. Faculty advisor for the study is Dr. Constance L. Pearson, Department Chair, Liberty University School of Education, 434-592-4278. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, Dr. Fernando Garzon, chair, 1971 University Boulevard, Suite 1582, Lynchburg, VA 24502 or email at fgarzon@liberty.edu.

Thank you for your time and consideration,

Melinda B. Abercrombie
Liberty University Graduate Student
mabercrombie@liberty.edu
706-669-8243

APPENDIX C
IRB Approval

LIBERTY
UNIVERSITY.

The Graduate School at Liberty University

March 28, 2012

Melinda Abercrombie
IRB Approval 1292.032812: The Effects of the Family on Student Achievement: A Comparative Study of Traditional and Non-Traditional Families

Dear Melinda,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB and we wish you well with your research project.

Sincerely,

Fernando Garzon, Psy.D.
IRB Chair, Associate Professor
Center for Counseling & Family Studies

(434) 592-5054

LIBERTY
UNIVERSITY.
40 Years of Training Champions for Christ: 1971-2011

APPENDIX D
Data Collected on GHSGT Subtests
(Before Outliers Were Removed)

Number	Category	Eng/LA	Math	Science	Soc St
1	1	242	218	250	264
2	1	242	218	250	264
3	1	218	212	231	232
4	1	261	246	250	264
5	1	228	218	241	254
6	1	246	246	235	213
7	1	213	212	208	213
8	1	238	222	247	259
9	1	228	242	247	318
10	1	224	228	260	213
11	1	221	246	239	215
12	1	200	182	189	189
13	1	216	212	219	203
14	1	299	290	275	342
15	1	251	228	263	246
16	1	242	242	241	293
17	1	228	239	235	197
18	1	246	259	272	269
19	1	285	276	326	419
20	1	246	206	229	224
21	1	256	300	267	235
22	1	256	285	275	238
23	1	231	285	312	259
24	1	256	250	294	309
25	1	275	212	244	224
26	1	275	231	272	300
27	1	238	200	231	206
28	1	251	285	312	293
29	1	221	212	236	181
30	1	251	246	256	286
31	1	261	218	241	213
32	1	242	235	263	254
33	1	299	290	267	275
34	1	246	239	294	309
35	1	251	231	281	264
36	1	261	264	267	254
37	1	275	285	294	450
38	1	275	242	326	286

39	1	224	218	222	235
40	1	246	242	294	309
41	1	165	172		166
42	1	246	206	235	220
43	1	261	222	253	280
44	1	231	215	235	224
45	1	228	197	247	329
46	1	276	255	244	222
47	1	235	206	231	197
48	1	299	239	263	293
49	1	261	235	260	215
50	1	261	242	256	309
51	1	184			174
52	1	224	212	208	187
53	1	261	311	263	342
54	1	228	264	275	210
55	1	228	203	236	222
56	1	276	285	281	293
57	1	221	246	263	222
58	1	275	270	275	275
59	1	285	188	236	222
60	1	238	250	260	254
61	1	321	353	326	309
62	1	218	246	272	204
63	1	242	270	272	226
64	1	218	255	253	219
65	1	228	203	210	215
66	1	231	225	253	235
67	1	246	228	250	238
68	1	213	225	241	211
69	1	221	215	217	203
70	1	251	225	253	
71	1	285	235	287	300
72	1	228	215	217	235
73	1	235	197	224	213
74	1	251	231	250	220
75	1	231	242	253	254
76	1	251	225	222	201
77	1	275	255	281	309
78	1	275	264	302	450
79	1	246	290	349	280

80	1	238	239	226	228
81	1	299	311	302	286
82	1	275	276	302	300
83	1	202	225	213	187
84	1	246	255	294	286
85	1	261	311	294	269
86	1	275	215	256	238
87	1	231	285	275	230
88	1	238	191	202	189
89	1	242	250	267	235
90	1	224	225	222	215
91	1	261	285	302	300
92	1	246	209	256	226
93	1	238	231	267	293
94	1	276	255	302	280
95	1	235	259	236	190
96	1	251	206	224	200
97	1	256	215	260	246
98	1	256	300	263	226
99	1	246	255	256	232
100	1	216	228	241	222
101	1	299	276	312	318
102	1	321	250	281	300
103	1	261	290	294	286
104	1	242	200	226	203
105	1	228	246	229	211
106	1	194	194	213	194
107	1	207	222	231	168
108	1	285	250	275	259
109	1	285	353	294	309
110	1	256	235	244	230
111	1	242	259	281	318
112	1	261	250	256	238
113	1	246	206	253	219
114	1	235	225	253	230
115	1	299	311	302	329
116	1	224	250	253	226
117	1	221	179	204	164
118	1	299	276	272	259
119	1	321	353	326	
120	1	238	225	244	

121	1	299	311	326	309
122	1	276	264	302	275
123	1	238	225	263	242
124	1	261	285	272	254
125	1	207	212	206	180
126	1	216	225	219	206
127	1	261	218	250	235
128	1	210	311	253	203
129	1	228	250	281	259
130	1	205	191	219	194
131	2	256	290	263	275
132	2	275	290	250	235
133	2	242	250	226	219
134	2	261	212	235	215
135	2	285	222	231	232
136	2	275	250	253	238
137	2	184	218	198	176
138	2	216	285	253	228
139	2	171	147	191	183
140	2	242	222	256	210
141	2	238	231	247	254
142	2	276	311	275	224
143	2	210	197	247	264
144	2	251	231	226	329
145	2	238	353	326	309
146	2	228	246	302	250
147	2	192	147	189	185
148	2	228	242	275	300
149	2	275	203	260	318
150	2	231	215	253	228
151	2	228	197	247	329
152	2	218	218	229	192
153	2	218	242	287	224
154	2	221	239	244	220
155	2	221	200	275	213
156	2	238	218	229	213
157	2	285	259	272	381
158	2	256	276	294	242
159	2	261	290	236	226
160	2	285	353	256	235
161	2	235	225	222	200

162	2	238	215	226	190
163	3	228	206	229	197
164	3	235	203	231	201
165	3	224	209	195	194
166	3	261	215	241	208
167	3	205	212	239	206
168	3			224	
169	3	213	215	222	203
170	3	261	194	229	224
171	3	285	255	287	264
172	3	171	147	191	183
173	3	275	250	312	264
174	3	189	197	235	196
175	3	238	209	219	
176	3	246	290	312	259
177	3	231	212	256	210
178	4	235	246	256	208
179	4	285	222	231	232
180	4	231	191	222	196
181	4	261	259	224	217
182	4	276	276	312	342
183	4	276	242	287	293
184	4	221	222	250	230
185	4	275	231	244	293
186	4	251	218	235	232
187	4	197	215	263	211
188	4	235	235	241	217
189	4	275	250	275	238
190	4	251	245	244	230
191	4	261	264	275	275
192	4	275	235	244	226
193	4	231	235	253	222
194	4	275	245	213	293
195	4	285	353	256	235
196	4	235	206	224	180
197	4	235	225	239	275
198	4	275	255	287	275
199	4	228	228	241	197
200	4	275	270	281	264
201	4	275	259	239	242
202	4	202	188	210	176

203	4	261	231	294	358
204	4	216	197	236	196
205	4	251	250	260	210
206	4	210	191	210	180
207	4	207	185	204	200
208	4	235	228	263	259
209	4	246	255	260	280
210	4	261	246	302	264
211	4	228	212	236	224
212	4	238	215	253	242
213	5	202	194	204	181
214	5	238	246	247	219
215	5	224	212	244	222
216	5	221	212	236	181
217	5	216	185	235	201
218	5	256	212	244	238
219	5	299	270	256	254
22	5	224	185	219	206
221	5	242	215	253	228
222	5	261	228	263	269
223	5	187	155	180	152
224	5	256	182	219	183
225	5	189	191	213	168
226	5	242	215	247	232
227	5	256	250	281	275
228	6	231	235	182	172
229	6	218	222	247	215
230	6	285	239	256	254
231	6	213	215	256	293
232	6	251	259	287	300
233	6	299	353	326	419
234	6	238	222	244	208
235	6	231	209	241	222
236	6	216	242	253	242
237	6	224	222	213	185
238	6	261	276	294	264
239	6	321	311	294	
240	6	256	255	260	286
241	6	276	246	287	280
242	6	216	176	200	197