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A Study of the Influence of Birth Order and Other Variables on Student Perceptions of School Effectiveness in a Southwestern Michigan County

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School of Education

A STUDY OF THE INFLUENCE OF BIRTH ORDER AND OTHER
VARIABLES ON STUDENT PERCEPTIONS OF SCHOOL
EFFECTIVENESS IN A SOUTHWESTERN
MICHIGAN COUNTY

A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Hamil Tobias

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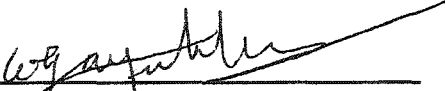
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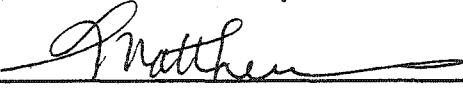
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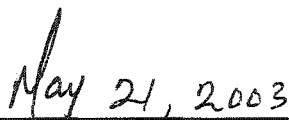
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ABSTRACT

THE INFLUENCE OF BIRTH ORDER AND OTHER VARIABLES
ON STUDENT PERCEPTIONS OF SCHOOL EFFECTIVENESS
IN A SOUTHWESTERN MICHIGAN COUNTY

by

Hamil Tobias

Co-chairs: Elvin Gabriel
          Wilfred G.A. Futcher

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: A STUDY OF THE INFLUENCE OF BIRTH ORDER AND OTHER
VARIABLES ON STUDENT PERCEPTIONS OF SCHOOL EFFECTIVENESS
IN A SOUTHWESTERN MICHIGAN COUNTY

Name of researcher: Hamil Tobias

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Problem

There is an increasing demand for quality education. In his initiative for

education reform, U.S. President George W. Bush promoted the concept of *no child left*

behind, in which he calls for more accountability. It is useful to examine student

perceptions of how well the education system functions. Instead of a monolithic view,

their perceptions were analyzed by birth order, gender, and ethnicity.

The purpose of this study was to determine to what extent student perceptions

differed by their birth order, gender, and ethnicity.

Method

This study utilized a 4 x 2 x 2 (birth order by gender by ethnicity) factorial design with a survey as the method for data collection. The instrument used in collection of data was the School Effective Questionnaire (SEQ). It is an instrument consisting of 48 items on school effectiveness to which 412 respondents used a 5-point Likert scale ranging from 1, strongly disagree, to 5, strongly agree, to evaluate their schools. The instrument has seven scales. The statistical analysis was performed using a 4 x 2 x 2 ANOVA.

Results

The results of this study indicated that birth order was not a significant discriminating factor. There was no significant difference in student perceptions on any of the seven dimensions in this study based on birth order. The one small exception was on the dimension, maximum opportunities for learning for African American females. Firstborn African American females had significantly higher mean scores than the last-born counterparts.

There was a slight increase in the number of variables with significant difference between males and females. Males had a significantly higher mean than females on the dimension, positive school climate. On the dimension, maximum opportunities for learning, middle-born and last-born males had significantly higher means than middle-born and last-born females.

On five of the seven dimensions, Caucasians had significantly higher mean scores than African Americans. Even though African Americans had higher mean scores than Caucasians on the dimension, emphasis on basic skills, it was not significant.

Conclusions

Birth order was not a significant factor in this study, except in one small sector of

the population. Gender, as an independent variable, was more discriminating than birth

order, but did not overwhelmingly influence student perceptions. Ethnicity, as the

literature suggested, played the greatest role in influencing student perceptions.

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ACKNOWLEDGMENTS

Working on and completing a dissertation take much more time, effort, and support from others than casually meets the eye. So many persons have made significant contributions to this assignment, that I now take time to identify some of these by name, and others by the roles they played.

My wife, Magdalene, and children, Hamdel, Hamdellia, and her husband, Roald, and Hamdelton, have been available and supportive throughout this process. Their encouragement, and their technical and professional support kept me going when the going got tough. They have been exceptional, everything a husband and father needed.

I wish to thank Dr. Lenore Brantley for all the support and help she so ably provided to me in conceptualizing and beginning the process. My dissertation co-chairs, Drs. Elvin Gabriel and Wilfred Futcher, and the other committee member, Dr. James Jeffery, are deserving of heartfelt thanks. They gave time, counsel, and encouragement which were both essential and necessary as I walked along the "Dissertation Highway." Thank you Dr. Jerome Thayer for technical and statistical expertise which you so willingly provided.

To the principals, assistant principals, and teachers from the six schools from which the sample was drawn, I owe my deepest gratitude. They worked with me, accommodated me, and even put up with inconveniences and disruptions to their schedules to make it all happen. To each one I express my sincerest thanks.

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I wish to thank the 444 students who took time to complete the survey sheets. Sincere thanks also to their parents for their kind consent.

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I offer my sincerest thanks to the host of other supportive friends and family here at Andrews and in Trinidad. These include Dr. Hinsdale Bernard, Dr. Sylvan Lashley, my many siblings, and in-laws. Their prayers and support meant more than words can express.

Above all, I thank God, the Father, Son., and Holy Spirit. "Your grace was indeed sufficient for me."

To all of you I give my thanks.
At no time did you pull your ranks
Or say to me "I have no time."
Your graciousness was so sublime
It challenged me to do the same
For others. I leave, not as I came,
Due to your self-less, committed way.
Without a doubt, I bless the day
I came to Andrews University.
Your caring ways point to eternity.
No thanks is too much for me to give.
That's why for God and others I live.
And though from Andrews I now leave,
To her ideals I'll always cleave.
So thanks to all for deeds well done,
You have indeed a convert won.

CHAPTER 1

INTRODUCTION

Background

I have been fascinated by the differences in my three children's attitudes toward and perceptions of their academic pursuits. Their approaches to school and their perceptions of it seemed so radically different. I wondered what factors might have contributed to their diverse tendencies. As I began making observations of, and holding discussions with, other students, I realized that a pattern began to emerge. It seemed more than mere coincidence that my children's attitudes toward school were so markedly dissimilar. Their attitudes and temperaments were more like other siblings of the same birth order positioning. That sparked off in me a desire to further investigate whether there is a link between birth order and perceptions of school effectiveness, for it is my belief that attitude informs perceptions.

In Sulloway's (1996) well-documented book, *Born to Rebel*, he stated that differences based on birth order positioning were so "sufficiently large that firstborn children appear to be more similar in their personalities to other firstborn children than they are to their own younger siblings" (p. 21). Ernst and Angst (1983) were critical of any scientific value of birth order, calling the concept a "mirage." Ernst and Angst, after reviewing more than a thousand publications on the topic, declared that most birth-order

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effects were artifacts of poor research design. They concluded that birth order of itself did not impact one's personality, values, or beliefs, but that there were other variables which really made the difference. Birth order's influences on personality and IQ had been greatly overrated. Sulloway (1966) himself reviewed many of the same studies and concluded: "The numerous birth-order effects reported in these studies are not likely to be artifacts of poor research design" (p. 72). He asserted that birth order shaped personality.

Sulloway (1996) argued that birth order was a significant factor in the differentiation of siblings. He studied scientists and concluded that firstborn scientists were the most conservative siblings, significantly more so than only children. Middle children tended to occupy the middle of the family spectrum, socially. Last-born children were typically the most liberal family members. The debate on the value of birth order rages on. Rodgers (2001) argued against its significance in shaping intelligence. But Zajonc (2001) contended that birth order is a significant factor in shaping intelligence.

I decided to investigate the role of birth order in shaping students' perceptions of schools' effectiveness. The primary purpose of my study was to determine whether birth order and other variables significantly influenced student perception of school effectiveness. The dependent variable in this study is student perception of school effectiveness.

The demand for quality education has attracted more than usual attention. It was featured prominently in the presidential campaign in the United States in the 2000 general election. It has attracted attention of the media, national and local politicians, and the general population.

The cry for improved quality of education, and for the reform of the systems was heard in the 1950s in response to the Russian Sputnik. This created a wave of curricular changes at elementary, secondary, and tertiary levels. In the 1970s there were more demands for educational reform with the emphasis being "back to basics." Students were too permissive and were getting away with far too much. Teachers needed to be tougher. This again brought curricular change. But little more than a decade later, in 1983, the publication of the report, *A Nation at Risk*, by The National Commission on Excellence in Education, starkly documented how poorly high-school students in the U.S. did in comparison with those from European and Asian countries. This gave impetus to another tidal movement for educational reform, the guiding theme of which was effective schools (Elkind, 1988).

In the report, The National Commission on Excellence in Education (1983) presented a serious indictment against what passed for education in the United States. The report noted, "Our society and its educational institutions seem to have lost sight of the basic purposes of schooling, and of the high expectations and disciplined effort needed to attain them" (pp. 5-6). These concerns intensified the reform initiatives toward school effectiveness. There have been coordinated efforts and programs to make schools more effective (Zigarelli, 1996).

Gaziel (2001) conducted a study on the impact of culture on school effectiveness. His sample included 724 students from 20 public secondary schools. He concluded that effective schools valued academic achievement, continuous school improvement, and orderliness. Based on his findings, he added that academic emphasis was the best cultural dimension for predicting effectiveness.

President George W. Bush, in his thrust for educational reform, places much emphasis on leaving no child behind. This issue of reform has again taken center stage. There is urgency in and general agreement of the need for comprehensive restructuring of our schools. It is informative to find out student perception about school effectiveness.

How well are our schools performing? Who could appropriately answer this question? The answer is, Those for whose benefit the school system operates. The students should have a voice in the quality of education they receive. But do students speak with one voice? Is there a monolithic view that students hold? Or, are their views as varied as their experiences? As students indicate their perceptions of how effective their schools are, the researcher would investigate the differences among these perceptions, in relation to the independent variables which are identified below.

This study was conducted using the following independent variables: birth order, gender, and ethnicity. That there may be a difference in perception based on birth order is supported by several studies that have used birth order as the primary independent variable. For example, Seigle and Schuler (2000) examined the impact of birth order and gender on 391 middle-school students' perceptions of perfectionism and giftedness. They found a difference in perception between firstborn adolescents and youngest adolescents with regard to their perceptions of parental criticism. Birth order positions have also been studied with intelligence (Rodgers, 2001; Zajonc, 2001); school graduation outcomes (Oettinger, 2001); perception on reading (Moravski, 1999); and the presidency of the United States of America (McCann, 2001). But I have not found any studies that incorporate birth order and students' perceptions of effective schools.

Effective school research, which began sometime between 1970 and 1980 (Elliot,

1996; Zigarelli, 1996), highlights several of its characteristics. Edmonds (1979), Steller

(1988), and Zigarelli (1996) posit the following:

1. Strong instructional leadership

2. Clear instructional focus

3. High expectations and standards

4. Safe and orderly climate

5. Frequent monitoring of student achievement

6. Students' acquisition of basic skills

7 Maximum opportunities for learning

8. Parental involvement.

All of the above characteristics have as their focus the creation of an environment

that will enhance students' academic performance. Student learning is explicitly stated in

2, 3, 6, and 7 of the above characteristics and implied in the others. So school

effectiveness is all about students and the school's attempts to maximize their learning

(Hamler, 1995). Students are the primary focus of the operations in effective schools.

This study seeks to examine the students' perceptions of the effectiveness of their schools

and, also, it seeks to understand those perceptions from the perspective of their birth

order.

Field (1974) and Perlin and Grater (1984) recommended that when birth order is

used as an independent variable, it should be used in conjunction with other variables,

e.g., gender and ethnicity. In addition to birth order, this study examined the impact of

gender and ethnicity on student perceptions of school effectiveness.

Statement of the Problem

There is an ever-increasing demand from various quarters for improved quality in education. As an example of some of the challenges education planners face, *The Digest of Education Statistics* (2000) reported that the reading scores, nation-wide, for 17-year-old students were the same in 1999 as they were in 1971. There has been some improvements in math scores for the same age group between 1973 and 1999, but the scores have had no significant change since 1994. Science scores for 17-year-old White students were lower in 1999 than in 1970. The National Commission on High School Senior Year (2001) reported that only 44% of seniors earned the number of academic credits recommended in 1983 by the National Commission on Excellence in Education.

After high-lighting many of the problems presented in *The Nation at Risk,* Macionis (2001), painted a picture of academic achievement for 12th-graders that is bleak. He noted that scores on the Scholastic Aptitude Test (SAT) have declined since the 1960s. Median mathematic and verbal test scores for students in 1967 were 516 and 543 and had by 1998 slipped to 505 and 512 respectively. Macionis added that about one-third of high-school students with more than a half in urban schools fail to gain mastery in even the basics in maths, reading, and science on the National Assessment of Education Progress examination. There is dire need for workable solutions in an attempt to educate students to meet their fullest potentials.

Educators need to consider other approaches, in addition to test scores, in their search for solutions (Houlihan, 1988). To this end, many studies have been conducted in pursuit of school excellence: instructional climate (Angell, 1994); school climate (Leake, 1987); student achievement (Sabatella, 1991); comparison of high- and middle-school

students' perception of school effectiveness (Subbs, 1995). These studies have investigated school effectiveness from many angles, but none has been done from the perspective of students' birth order. This study investigated school effectiveness using the variables birth order, gender, and ethnicity. It sought to determine the extent to which student perceptions are influenced by these variables.

Purpose of Study

The purpose of this study was to examine the impact of birth order, gender, and ethnicity on 12th-grade students' perceptions of school effectiveness in a Southwestern Michigan county.

Rationale

High-school students are the next generation's leaders. They are the future planners of educational policies. After high school many of these students will move on to college and university and then into their professions. It is vital for educators to sample and analyze the perceptions of these students since perceptions inform processing, planning, and ultimately performance. Hamler (1995) noted that most of the research on effective schools has been done through the eyes of the providers of education and not through the eyes of students. She argued for another perspective in the evolution of effective school research, which is the perception of students. This is crucial since they need to be involved in decision-making processes that affect their lives. Students are in a strategic position to assist educational planners in considering an aspect of school effectiveness which might be over-looked without their input.

Some have argued that birth order, gender, and ethnicity influence the way people

conceptualize ideas, and formulate their thoughts and perceptions (Adler, 1939, 1963; Belmont & Marolla, 1973; Grasshof & Oettingen, 2000; Ogbu, 1988; Onyegam, 1994; Santrock, 2001; Sulloway, 1996; Zajonc, 2001). Is this true of the perceptions of students on how effective their schools are? And if it is, are these differences significant and pervasive enough to matter? This study seeks to explore this and related issues.

School effectiveness has been chosen because it is a current educational issue. Additionally, students are intimately involved in the schooling process and their perceptions should be valued. Schools are operated for students, hence that which is done in the school should be student-centered. Schools need to be structured in such ways that students' unique needs are met where and while they learn. Whereas students will need to make adjustments as they fit into the school system, the school is also obliged to adjust for differences in students. Schools must pursue their larger purpose, which is the development of fully formed human beings (The National Commission on High School Senior Year, (2001). There is a strong indication that the position of one's birth generates unique desires and needs, and aids in shaping one's perceptions (Adler, 1924/1963; Belmont & Marolla, 1973; Breland, 1974; Leman 1985; Sulloway, 1996; Zajonc, 2001). This study will help to clarify the role, if any, that birth order plays in students' perceptions of the effectiveness of their schools. The findings will be available to the gatekeepers of education, who will be able to structure the learning environment for optimal student learning in ways outlined below in the *Significance of the Study.*

Research has been limited in addressing birth order positioning and perceptions of effective schools. This study seeks to bridge this gap and explore the impact of birth order and other variables on high-school students' perceptions of school effectiveness.

Significance of the Study

This study on birth order and school effectiveness presents a whole new perspective to administrators, other policy makers, teachers, parents, psychologists, and researchers. First, understanding the varying perceptions of siblings from the perspective of their birth order would instruct parents in their roles and their expectations in dealing with siblings. Second, gatekeepers of schools would be made aware of the perceptions that students of different gender and ethnicity have of their schools. This could inform planning since planners should focus on the academic, social, emotional, and psychological needs of students. By investigating birth order in relationship to high-school students' perception of effective schools, information can be obtained that provides a better understanding of their personality characteristics. This in turn can assist educators, parents, and counselors in meeting students' emotional needs (Siegle & Schuler, 2000).

Pratt's (1994) contention that "curriculum committees working on state and district levels frequently continue to establish priorities not on the basis of empirical needs assessment; but on the basis of tradition and political pressure" (p. 60) should be addressed. This study seeks to provide empirical data to decision-makers. Administrators, teachers, and counselors could benefit greatly from the results. If they pay attention to the perception of students, they could tailor the offerings of the school to meet students' specific and common needs. The findings of the study could be taken into consideration by leaders in education and by others when they are planning school programs and activities.

Theoretical Framework

The premise of this study seeks to achieve a balanced synthesis of psychology with tenets of educational administration. This unified theoretical framework brings together apparently conflicting themes: effective schools and birth order. But a more thoughtful analysis of these variables reveals an interaction between nature, nurture, and cognition. One does not choose the order of one's birth, neither the quantity of siblings (if any). Yet it is a factor in the shaping of one's view of life.

Students are the key variables in the school environment. The index of school effectiveness is largely determined by student performance. Even though administrators and teachers operate the school, to a large extent effectiveness is reflected in students' response to the offerings of the school. It is therefore difficult to talk about school effectiveness without talking about students and their perceptions. Hamler (1985) has indicated that students and educators do not perceive effective schools similarly. Lee's (1993) study, conducted to compare the perceptions of educators and students on school climate, is startling. The sample for the study consisted of 246 high-school students, 33 teachers, and 4 administrators. He found that teachers and administrators held more positive perceptions of the school climate than did students. By utilizing student perceptions this study seeks to introduce a balanced viewpoint.

Researchers, in studying school effectiveness, have classified students in various ways, by their location (Angell, 1994), by the type of schools they attend (Subbs, 1995), and even ethnic background (Ogbu, 1988). But none is known to have classified them by their birth order positions. The literature (Forer, 1979; Leman, 1985; Santrock, 2001; Sulloway, 1996) seems to suggest that people's thoughts and acts are influenced, if not

shaped, by their birth order positions. Is this true of high-school students? If true, does it influence their perceptions to any significant extent? If it does, it may be necessary for changes to be made in some school practices so that students' unique needs can be better met. Santrock (2000) believed that birth order is a strong predictor of behavior.

Individuals are influenced by other variables in their environments as they pursue their education. These variables may positively or negatively color their perception of the effectiveness of their schools. Dezmon (1996) posited that student perceptions of school climate influence their behavior more than the actual climate. She noted that, based on observation, researchers have found that student perceptions closely relate to reality. The variable of primary importance in this study is the order of one's birth into one's family (referred to as birth order in this study).

To this end, this study seeks to explore how birth order influences the way students of different birth order, gender, and ethnicity perceive the effectiveness of their schools. A detailed analysis follows.

Alfred Adler's (1933/1939, 1924/1963) theory is that the order of birth is a major social influence in childhood, one from which we create our style of life. Even though siblings have the same parents and live in the same house, they do not have identical social environments. Being older or younger than one's siblings and being exposed to differing parental attitudes create different childhood conditions that help determine personality. Schultz and Schultz (2001) corroborated Adler's theory. Adler (1924/1963) theorized that firstborn children are concerned with power and authority. This has found support in many studies (Eysenk & Cookson, 1969; Kellaghan & McNamara, 1972; Paulhus & Shaffer, 1981).

Breland (1974) and Schachter (1963) found that firstborn children were over-represented relative to their proportion of the population in college attendance and in high-level management. They tended to become eminent and attained to greater intellectual achievement in academic settings, and greater power and prestige in their career. They scored higher than later-born siblings in a variety of achievement tests that include English, mathematics, verbal skills, and verbal reasoning (Eysenk & Cookson, 1969; Kellaghan & McNamara, 1972; Paulhus & Shaffer, 1981). They had higher IQ scores than second-born children, who had higher scores than third-born ones, and so on (Belmont & Marolla, 1973).

Sulloway (1996) and Zajonc (2001) each presented different but compelling cases for the influence of birth order in shaping perception or thinking. Sulloway argued for differential family environment which gives rise to different family members developing differing roles based on available resources to each individual. Then there is the competition among siblings in their attempts to meet their physiological, belonging, emotional, and intellectual needs from the resources that parents have to give. Zajonc presented the confluence theory which proposed that as families got larger, on the average, intellectual resources decreased. This theory was developed to explain why first- born children tended to score higher on IQ tests, and why second-born children scored higher than third-born children, and so on. Other studies support the birth order factor (Davis, 1997; Paulhus, Traphell, & Chen,1999; Salmon & Davis, 1998) .

Equally compelling is the case presented by Ernst and Angst (1983), Parker, (1998), Phillips (1998), and Rodgers (2001) against the birth order factor. The contention is that birth order is the flagship, the part of the iceberg that is seen. With such high

visibility, birth order is credited with functions and influence more ideally belonging to other characteristics such as genetics, IQ, and others.

But birth order studies continue to show significant difference among birth order groups. To this end Sulloway (1996) concluded that differences based on birth order positioning were "sufficiently large that firstborn children appear to be more similar in their personalities to other firstborn children than they are to their own younger siblings" (p. 21). He added that positive outcomes in birth order studies were not due to poor research designs nor were they due to chance.

Based on Sulloway's findings (1996) of clear and significant differences in personalities and perceptions among the various birth order positions, I proposed to explore its applicability to students' perceptions of how effective their schools are.

There is a growing belief that gender differences have narrowed and in several areas have completely disappeared (Santrock, 2001; Stetsenko, Little, Gordeeva, Graasshof, & Oettingen, (2000). Other researchers (Bowman, 2000; Ogden, 1994; Onyegam, 1994; Riordan, 1999) contend that there is still a gap, with females out-performing males, except in mathematics and the sciences, where the gap has narrowed. Ogden and Onyegam have identified areas in which males and females have different perceptions.

Researchers, almost without exceptions, agree that there is a wide gap in performance and perceptions between African Americans and Caucasians. The latter have scored significantly higher than the former on a variety of measures with few exceptions (Dezmon, 1996; Durbin, 2001; Fordham & Ogbu, 1986; Ogbu, 1988).

There is a well-documented point-of-view that differences between the genders

are narrowing and in some cases disappearing completely. It is also clearly documented in the literature that there are gaps, sometimes wide, between the performance and perceptions of African Americans and Caucasians. This study sought to explore whether such findings would be replicated.

I decided to take the birth order debate into the effective school arena with a view to investigating the impact that birth order and the other variables have on students' perception of the effectiveness of their schools.

Delimitation

This study was confined to 12th-grade students from randomly selected high schools in Southwestern Michigan. It was further delimited to those students from the population whose consent forms were completed and returned.

Limitations of the Study

Certain limitations have been found in this study. This study would have been more effective if the sample had been drawn from a greater cross-section of the country. This was not possible because of the cost factor. Were this possible, it would have allowed for greater generalization of the findings to the population at large.

Another limitation centers on some concerns raised about the instrument (Fitzpatrick, 1998; Hartwell, 1998).

Finally, stepchildren, exceptionally short or long space between siblings, or other factors may influence the results of this study.

Research Questions

The following questions are addressed in this study:

Research Question 1: Is there a difference among only-born children, firstborn, second-born, and last-born students in the way they perceive the following dimensions of school effectiveness: safe and orderly environment, positive school climate, high expectations, frequent assessment/monitoring of student achievement, emphasis on basic skills, maximum opportunities for learning, and parent/community involvement?

Research Question 2: Is there a difference between male and female students in the way they perceive the following dimensions of school effectiveness: safe and orderly environment, positive school climate, high expectations, frequent assessment/monitoring of student achievement, emphasis on basic skills, maximum opportunities for learning, and parent/community involvement?

Research Question 3: Is there a difference between African American and Caucasian students in the way they perceive the following dimensions of school effectiveness: safe and orderly environment, positive school climate, high expectations, frequent assessment/monitoring of student achievement, emphasis on basic skills, maximum opportunities for learning, and parent/community involvement?

Research Hypotheses

As three main effects, birth order, gender, and ethnicity, are being studied, only the main effect research hypotheses are stated here. In chapter 3, the three main effects null hypotheses for each separate dependent variable will be supplemented by four interaction null hypotheses, for the purpose of statistical analysis. Thus three research

hypotheses, each with seven sub-sections, are stated in this chapter:

Research Question 1: Is there a difference among only-born children, firstborn, second-born, and last-born students in the way they perceive the following dimensions of school effectiveness: safe and orderly environment, positive school climate, high expectations, frequent assessment/monitoring of student achievement, emphasis on basic skills, maximum opportunities for learning, parent/community involvement?

This question will be answered with the following research hypothesis.

Research Hypothesis 1: There is a significant difference among the mean scores on perception of school effectiveness on the part of students of different birth order.

Research Question 2: Is there a difference between male and female students in the way they perceive the following dimensions of school effectiveness: safe and orderly environment, positive school climate, high expectations, frequent assessment/monitoring of student achievement, emphasis on basic skills, maximum opportunities for learning, and parent/community involvement?

This question will be answered with the following research hypothesis.

Research Hypothesis 2: There is a significant difference between the mean scores on perception of school effectiveness on the part of male and female students.

Research Question 3: Is there a difference between African Americans and Caucasians in the way they perceive the following dimensions of school effectiveness: safe and orderly environment, positive school climate, high expectations, frequent assessment/monitoring of student achievement, emphasis on basic skills, maximum opportunities for learning, and parent/community involvement?

This question will be answered with the following research hypothesis.

Research Hypothesis 3. There is a significant difference between mean scores on perception of school effectiveness on the part of African American and Caucasian students.

Definition of Terms

Birth Order: The numerical or ordinal place of a person in the order of his/her birth (Cavazos, 2000). Warren (1966, cited in Yeow, 2000) defined birth order as the sequential birth position of a person among his/her siblings.

Sibling: A person in relation to someone and having the same parents (Lechner, 1991, cited in Cavazos, 2000); one's brother or sister.

Firstborn: Oldest of two or more siblings in a family. Firstborn and oldest are used interchangeably.

Middle-born: Includes all siblings who are not the firstborn or last-born in a family. Other terms used are middle child or middle children.

Last-born: The youngest of two or more siblings in a family. The term is used interchangeably with youngest, youngest child, or youngest children.

Only-Born: A child with no siblings in the family. Other terms used are only child and only children.

Organization of Dissertation

This study is organized into five chapters. Chapter 1 covers the following topics: Background to study; statement of the problem; purpose of the study; independent and dependent variables; rationale for the study; significance of the study; the theoretical framework; delimitations and limitations of the study; research questions and research

hypotheses, and definitions of terms used in this study.

Chapter 2 presents a review of selected literature relevant to this study. This review will incorporate studies done on birth order, gender, and ethnicity. The literature review will also present and evaluate studies pertaining to school effectiveness. This will include the seven dimensions of school effectiveness covered in this study.

Chapter 3 discusses the methodology that was used in this study. A description of the research design, population, and sample is given. Also presented in this chapter is a discussion on power analysis, variables, instrumentation, procedure, data collection, and null hypotheses and statistical methodology. The chapter concludes with a summary.

Chapter 4 presents the findings in this study in descriptive and graphic forms.

Chapter 5 contains the summary, conclusions, discussion of the findings, and the recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter seeks to establish a framework for the study. It presents a clear

description of the characteristics of effective schools, describing in some detail the

findings of studies done and the gist of other works on the variables of effective schools

included in this research. I have also presented research findings and support from other

works on birth order, gender, and ethnicity. Since no studies were identified which linked

birth order and school effectiveness, this study has attempted to move the research in a

new direction. It has sought to present the case for and against birth order in an attempt

to establish its viability for this research. The literature review has sought to build

bridges between birth order and school effectiveness in the process of setting the stage for

this study.

Effective Schools

Effective school research has engaged the attention of the academic community

for approximately three decades (Elliot, 1996; Zigarelli, 1996). Effective schools have

been variously defined by different researchers. Steers (1975) sees it in terms of

achieving the organization's operational goals. Edmonds (1979) believed that a school is

effective when the children of the poor are prepared in basic skills as well as the children

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of the middle class. Sergiovanni (1991) defines it in terms of student achievement based on test scores. Rowan, Dwyer, and Bossert (1982) take aim at such a narrow definition. They describe school effectiveness as a multidimensional construct, that goes beyond achievement in academic outcomes, to include citizenship training, independence training, and the development of self-discipline.

The characteristics of effective schools vary from study to study, nonetheless some common ones have been identified (Edmonds, 1996; Rutters, Maughan, Mortimore, & Ouston, 1979; Steller, 1988; Taylor, 2002; Zigarelli, 1996). Steller (1988) proposed the following five correlates which encapsulate the characteristics listed by others, and ought to be found in all effective schools.

They are:

1. Strong instructional leadership

2. Clear instructional focus

3. High expectations and standards

4. Safe and orderly climate

5. Frequent monitoring of student achievement.

Edmonds (1979) agrees with the above characteristics and adds that effective schools must ensure that students' acquisition of basic school skills takes precedence over all other school activities. School energy and resources can be diverted when necessary from other business in the furtherance of fundamental objectives. Edmonds has also made the case for maximum opportunities for learning.

Zigarelli (1996) suggested that effective schools must have high parental involvement. The more parents are involved in a school, the better the educational

experience of the students.

The seven characteristics of effective schools that form the basis for this research have all been cited by researchers as evidence of effective schools. These characteristics are:

1. Safe and Orderly Environment

2. Positive School Climate

3. High Expectations

4. Frequent Assessment/Monitoring of Student Achievement

5. Emphasis on Basic skills

6. Maximum Opportunities for Learning

7. Parent/Community Involvement (Baldwin et al., 1993).

The ultimate goal of effective schooling is enhanced academic performance, social development, and preparation for life. Effective schools operate on the assumption that the above characteristics will increase learning and promote mastery of the academics and create more academically, socially, and emotionally equipped students.

> A High School of the Millennium (successful high school) recognizes the needs, beyond the academic needs, of high-school-aged youth and embraces a youth development approach to create engaging learning opportunities. It helps prepare youth for lifelong learning, civic involvement, leadership, and careers and engages young people in learning, work, and service throughout their community. (American Youth Policy Forum, 2000, p. vi)

But there are concerns about the effectiveness of schools. Some question the capacity of high schools to deliver quality education. The National Commission on High School Senior Year (2001), The American Youth Policy Forum (2000), and Thinking K-16 (2001) are among those raising doubts. The National Commission on High School

Senior Year reported that 50% of the educational needs of students in public and private schools in the United States were not being met. High-school seniors are among those questioning the quality of the academic program in the U.S. In 1997, only 43% of high-school seniors believed that they were in demanding academic programs.

In spite of the bleak picture painted above, the National Commission on High School Senior Year (2001) indicated that the situation could be different. It noted that "the primary goal of high schools should be graduating students who are ready (and eager) to learn, more capable of thinking critically, and comfortable with the ambiguities of the problem-solving process" (pp. 9, 11).

School Climate

According to Hoy and Miskel (2001), school climate is a broad term that refers to students' perceptions of the environment of a school, that distinguishes one school from another, and that influences the behavior of students. Johnson and Johnson (1996) refer to school climate as the personality of the school.

School climate sets the tone for the quality of the school. In 1984, the ERIC Clearinghouse of Educational Management quoted from a United States Department of Education document on the close relationship between school effectiveness and school climate. It noted that the climate of the school, viewed as the norms, expectations, and beliefs of the school, greatly influenced the behavior or conduct of the school members and in the end determines a school's success. The report indicated the importance of high expectation that all students can learn.

Hopkins and Crains (1985) underscored a relationship between school climate and

academic achievement. They studied the climate of an Ohio high school and expressed the view that the key to an effective school was the right combination of strong academic expectations and a school climate that encouraged students to be both integrally and responsibly involved in the process. Duttweiler (1989) stated that the schools' learning climate determined the success or failure of a given school. He concluded that the development of a positive climate required the involvement of the entire school community. Maxfield (1991) viewed climate as a means toward achievement of goals. When the school climate encapsulates pride, staff and student rally around the activities that promote achievement.

There are interesting definitions of climate and factors that contribute to a successful climate. Norman (1988) defined climate as "the summary of meaningful perceptions about the work setting which functions to help people adapt to the organization" (p. 8). Flanagan and Trueblood (1983) defined school climate as including "the values, beliefs, and attitudes of school community members as reflected in institutional patterns, processes, behavioral practices utilized in schools across time" (p. 1). Peach and Reddick (1989) defined climate as "a function of administrative practices, policy, personnel dispositions of organizational structure" (p. 4).

Mitchell and Willower (1992) contended that commonly shared values and beliefs in any organization could shape members, perceptions, feelings, and behaviors. Dennison (1984) added that if an organization possessed a well-defined culture, one that integrated a set of common values, beliefs, and behaviors concerning what a good school should be, it likely would perform at a higher level of productivity. Mells (1994) has studied many

types of organizations including schools. He concluded that they worked best when members were committed to commonly held values.

High Expectations

Santrock (2001) averred that the social and academic development of students depended on teacher expectations. He cited support (Scott-Jones & Clark, 1986) in his position that there were different expectations for minority students than for Caucasian students. Teachers looked for and rewarded academically oriented behaviors in Caucasian students more than in African American students. He further noted that teachers had been found to criticize gifted African American students because they did not expect intellectual competence in them. When teachers did praise them, they qualified the praise, comparing present performance to previous ones.

Santrock (2001) cited educational psychologist Margaret Beale Spencer and sociologist Sanford Dormbusch (1990) in showing how teachers hurt minority students by holding low expectations for them. Well-meaning teachers, out of misguided liberalism, often failed to challenge ethnic minority students and accepted low-level performance from them. They substituted warmth and affection for academic challenge and high standards of performance. Ethnic minority students, like Caucasian students, learned best when teachers combined warmth with academic challenge.

Shafffer (200) hypothesized that underachievement by some minority students was rooted in subtle stereotypical and discriminatory tendencies on the part of teachers. Asians worked hard and are bright, but African Americans, especially those from poor neighborhoods, were expected to perform poorly in school. African American students

believe White teachers do not understand them. They think that they could do better in school if given more respect and understanding. Teacher expectation of categories of students may allow them to rephrase questions for, or prompt those students whom they expected to do well, while rarely challenging or helping, and even criticizing those they expected to do poorly. Graig and Baucum (2002) observed that self-perceived competence may affect school performance. They cited studies by Phillips (1984) and McClelland (1955) in support of their position. In one study, 20% of school-age children underestimated their actual abilities, set lower expectations for themselves, and were surprised when they made high grades. The values of the culture in which one is reared help to shape one's determination or one's lack thereof for success. This all has to do with the expectations held by group members.

<center>Emphasis on Basic Skills</center>

How well are schools doing in preparing students to master the basic skills needed to complete high school and enter college and subsequently the workforce? The American Youth Policy Forum (2000) cited a poll, taken of parents, which showed that about 50% of the respondents thought that schools have gotten too far away from teaching the basic shills, that is, the traditional academic subjects. Forty-one percent of the respondents said that schools should teach a broader range of subjects including critical thinking and problem-solving skills. These will contribute to students who are better prepared for work, careers, and responsible citizenry.

The National Commission on High School Senior Year (2001) presented data from 1998 U.S. Department of Education that was critical of the attainment of high-

school students. Only 44% earned the minimum number of academic credits recommended in 1983 by the National Commission on Excellence in Education. According to the U.S. Department of Commerce, Bureau of Census, Current Population Survey (March 1999), only 28% of high-school graduates, ages 25 to 29, completed a bachelor's degree, while only 8% completed an associate's degree. Approximately 30% of high-school graduates who go to college need to take a remedial course in basic subjects like English and algebra.

The data here inspire no greater confidence than they did in 1990. Educational Testing Service (1990) revealed that although more students appeared to be gaining basic skills, fewer were demonstrating a grasp of higher-level thinking skills. Students were not enrolled in challenging mathematics and science course work. The gap in performance difference between White students and minority students was still unacceptably high. Performance was generally low with little improvement. Eighty-one to 96% of the students had only rudimentary interpretative skills.

The above statistics harmonize with the report of the American Youth Policy Forum (2000) on Key Elements of a High School of the Millennium. The report noted that although Americans think that youth are able to manage the 4 years of classes and emerge prepared for college work and life, the reality is very different from these expectations. But there is some good news from Michigan in the area of mathematics. Gov. John Engler reported that Michigan students were performing much better in math than they did a decade ago. But even then he acknowledged that students from Michigan,

and from the U.S. generally, were performing below students in Japan, Korea, and other Asian nations (Durbin, 2001).

Safe and Orderly Environment

There is a perception that schools at the national level are not very safe (Garbarino, 1999). This is the image that the media and other providers of information present. It is reported that a large proportion of schools have been the scene of some crime. Synder and Thomas in the *Digest of Education Statistics* (2000) noted that 57% of public schools in the U.S. reported a criminal incident to the police in 1996-1997. This included a serious violent crime or a less serious crime such as fight without weapons, theft, or vandalism. The data indicated that 10% of schools reported a serious violent crime to the police, while 47% reported only a less serious or nonviolent crime. Garbarino (1999) emphasized that violence in schools placed students at enough risk to undermine their capacity to pay attention in school.

Boys feel no safer at school than girls do. Riordan (1999) cites statistics from 1995 National Center for Education Statistics report which indicated that there was substantial bullying, physical attacks, and robbery in schools, and that boys were more likely to be victimized at school than were girls. This type of environment is not conducive to school effectiveness.

Gaziel (2001) contends that when a safe and orderly climate is emphasized by all the stakeholders in the school it contributes to school success. When students face "explicit expectations and clearly stated objectives" (p. 312) they perform at a higher level. Gaziel cited Tal (1978) in support of his view that distinct roles and behavioral

codes were "the most explicit and visible symbols of order and structure" (p. 312).

Purkey and Aspy (1988) averred that the environment of effective schools should be safe and orderly. This reduces the possibility of physical or emotional harm and sets the tone for learning to take place. Discipline is an important building block for safety and orderliness. The National Center for Education statistics (1991) revealed that the lack of discipline had been consistently perceived as a major problem for more than 20 years. Hamler (1995) cited Gladdy and Kelly (1984) who in their research found that a positive climate in a school reduces the prospect of violence and vandalism in that school.

Assessment

Schools use assessment on an on-going basis to determine how well students are learning their course work. Additionally, assessment provides information to teachers about how they need to alter their instruction to better meet their students' needs (American Youth Policy Forum, 2000).

Robinson (1985) gave counsel to teachers that they may use in assessment. He recommended that they use diagnostic measures that specify the skills that students have already mastered, and those they still need to master. Teachers would be better able to plan their lessons, group students, and use school resources where they could best serve the students who are deficient. Schools in pursuit of effectiveness use assessment and monitoring of their students to accomplish specific learning objectives. Students' performances are thoroughly reviewed and they are given timely feedback regarding their progress. Teachers modify their instructional program based on test results. Students, progress must be shared with them and with their parents in ways that are meaningful and

understandable. This practice would enhance the relationship between the home and the school.

Eggen and Kauchak (1994) stated that teachers believe that assessment is important to the teaching and learning process. But teachers think that they are inadequately trained in measurement skills. Only one half of teachers had a course that focused on assessment. Teachers think that time is a factor that militates against their attempts at effective testing. They added that test anxiety hinders students from performing at optimum levels. The public has demanded greater accountability from American schools because of students' mediocre performance on standardized tests. In addition, students' performances compared poorly to the performances of students from other industrialized countries. This has consequences for the nation's economic development.

David and Shields (1991) criticized the incongruence between what teachers are asked to teach and the tests that measure their teaching. Teachers are given challenging curriculum, but they are being judged by tests that measure discrete, factual information.

Parents and teachers place pressure on students to perform beyond their capacity or readiness. This creates a devastating experience for students. It may later contribute to stress, which ultimately leads to negative reactions in school. In the process students' school performance is affected (Elkind, 1988).

Parent/Community Involvement

There is the growing belief that if schools are to perform effectively, parents and the community must find ways to be involved with the schools (Bunting, 1990;

Tomlinson, 1981). But Elkind (1990) noted the greater challenge that households face as a result of changing times and dynamics. One in two marriages ends in divorce and 60% of mothers with young children work outside the home. When parents and other care-givers are at home, they spent less of their elective time supervising their charges and more in self-pursuits. Parents spend fewer weekend and evening hours with their children, opting instead for a range of health, social, and recreational activities (Bunting, 1990).

Since school programs tend to elicit separate responses from community members regarding their activity value and quality, channels of communication between the home/community and the school must be open and kept open. School employees will be aware of the community perceptions (Hansen, 1992). American Youth Policy Forum (2000) was critical of the absence of real open communication between the school and the home/community. Communication is limited to parents' night and the few conferences held with parents. The lack of meaningful "communication can set up a situation in which parents feel unwelcome or intrusive, and often parents who propose change are viewed as troublemakers" (American Youth Policy Forum, 2000, p. 17).

Schools feel the effects of the growing absence of personal guidance and close interaction with caring adults. Children attend school without requisite skills for learning and for emotional survival. This condition challenges the school's capacity to perform its roles in any adequate way. The school likely will become the agency to compensate for the growing absence of intimacy in the home (Bunting, 1990). Even though schools cannot replace parents, Bunting contended that schools can offer meaningful support to the complex role of parenting. Since both teaching and parenting require a working

knowledge of human development and the principles of psychology and personal communication, schools can find new approaches and contexts to utilize their expertise in helping parents in these areas.

Birth Order

Adler (1930, cited in Schultz & Schultz, 2001) contended that birth order has a major social influence on childhood. His contention that different birth positions created different childhood conditions, which helped determine one's personality, could be linked to the study of effective schools. Schools are comprised of people (students) and all students are born into one birth order or another.

Adler (1930) identified four situations: the firstborn child, the second-born child, the youngest child, and the only child. Banks and Khan (1982), Boer and Dunn (1992), and Santrock (2001) all agree that birth order impacts the siblings' attitude to life. Santrock contends that the differences in family dynamics, which is involved in birth order, should not surprise anyone that firstborn and later born have different characteristics. Ewart (1994) conducted research and also cited studies on the personalities of siblings. He concluded that, compared to later-born siblings, "firstborn children confirm more to authority, attain higher levels of education, and exhibit higher occupational achievement" (p. 181). Santrock (2001) cites Falbo and Polit (1986), Falbo and Poston (1993), and Thomas, Cofman and Kipp (1993) in making the assessment about the only child. He noted that the only child tended to be achievement oriented and displayed a desirable personality especially when compared to later-born and children from large families.

Some argue that birth order by itself does not determine sibling relationships but it impacts those relationships in some ways (Bank & Khan, 1982; Boer & Dunn, 1992; Santrock, 2001). Sulloway (1996) argued the case for differences in siblings in the home based on birth order. He argued that individuals within the family system developed differing roles based on resources available to each individual. There is competition among siblings in their attempts to secure physical, emotional, and intellectual resources from parents. He argued that the uniqueness in children is augmented by differences in birth order, gender, physical traits, and temperament. Children of different birth order develop appropriate coping skills in their attempts to deal with their situations. Birth order is critical because it is a proxy for differences in age, size, power, and privilege. Birth order, therefore, provides "a potential Rosetta Stone for deciphering some of the basic principles that govern family niches" (Sulloway, 1996, p. 21).

Sulloway (1996) firmly believed that differences in the behavior and attitude of siblings are based on their birth into distinct and different environments. They must therefore develop different qualities in order to compete successfully for parental attention and acceptance. His views run counter to previously held beliefs that behaviors result from differential treatment of firstborn and later-born siblings by their parents.

There are conflicting schools of thought about the importance and role of birth order and its impact on the growth, development, and performance of the individual. While Davis (1997), Forer (1977), Paulhus, Trapnell, and Chen (1999), Salmon and Davis (1998), Sulloway (1996), and Zajonc (2001), among others, support the concept and influence of birth order, there are those who stoutly oppose its impact. Those

opposing the importance and influence of birth order as a significant variable include

Ernst and Angst (1983), Parker (1998), Phillips (1998), and Rodgers (2001).

Let us look at some of the opposing views first. Rodgers (2001) holds the view

that birth order is not a very significant factor in shaping one's world view. He contends

that birth order is very visible and easily identifiable. It therefore receives credit for other

less visible characteristics like genetics, quality of schooling, and quality of parental

support. Ernst and Angst (1983) were critical of any scientific value of birth order calling

the concept a "mirage." They concluded that birth order of itself did not in any

significant way impact one's personality, values, or beliefs, but that there were other

variables which really made the difference. Birth-order influences on personality and IQ

had been greatly overrated. They therefore sought to discredit the value of birth order as

a viable variable. Parish (1990), in a study in which 334 youth, ages 10 to 18, evaluated

their families to determine whether they varied as a function of family structure, gender,

and birth order concluded that there was no significant main effect due to birth order or

gender.

But the defenders of birth order stoutly defend its credibility as a sound variable.

Zajonc (2001) argued that each successive child enters the family into a different

environment and begins a particular cycle of growth. Each successive child is changed

and in turn changes the family environment. The differences within each family

environment are revealed in the personality, occupational, and intellectual development

of successive children. Birth order does make a significance difference in the

development of each child. Sulloway, (1996) a staunch proponent of the impact of birth

order, wrote: "The literature on birth order exhibits consistent trends that overwhelmingly exceed chance expectations" (p. 74).

The following were birth order studies conducted by various researchers. Freese, Powell, and Steelman (1999) in their study of non-institutionalized adults on 24 measures of social attitudes found no support for a birth order factor. They found that gender, race, and other factors were good predictors of social attitudes. Paulhus, Trapnell, and Chen (1999) found support for Sulloway's claims that firstborn individuals were perceived as higher achieving and more conscientious, and later-born individuals were perceived as more rebellious, liberal, and agreeable.

Zweigenhaft (2002) conducted two studies, one with high-school students, and the other with college students. He sought to discover whether birth order played a role in rebelliousness and political activism. He found that birth order was a good predictor of rebelliousness in high school though not of political activism. It was inconclusive for college students.

Harris and Morrow (1992) conducted a study to determine whether males or females, and firstborns or later borns, scored significantly higher on measures of responsibility and dominance. Firstborns scored significantly higher than middle- and last-borns, and females scored significantly higher than males on measures of responsibility. There was significant interaction but no significant difference among these groups on measures of dominance. Some studies involving birth order and gender have reported interactions between them (Cohen, 1985; Steelman & Powell, 1985).

In the study by Siegle and Schuler (2000) firstborn students reported highest level of parental criticism and expectations. Youngest students showed the lowest concerns in

those areas. They cautioned parents of firstborn (albeit gifted) children. They should

examine their expectations and how they responded to the higher needs of firstborn

children for approval, achievement, and conformity. I now present research findings on

the four birth order groups individually.

Only Child

Adler (1927/1946) makes the case that an only child is in a peculiar situation since

the child is very dependent and waits for others to serve him or her. Such a child is

pampered, hence unaccustomed to handling difficulties. When a difficult situation arises

such a child is unprepared to meet it. The only-born child is constantly the center of

attention, which contributes to feelings of importance (Adler, 1927/1946; Leman, 1985).

Leman noted that only-children tend to be critical of themselves as well as others. They

are lonely when they grow up without playmates. They get plenty of adult attention and

they relate better to much older or younger people than to their peers. Only-children are

considered perfectionists, reliable, conscientious, well-organized, critical, serious,

scholarly, cautious, and conservative.

Only-children have other positive qualities. They are good at following directions

(Leman, 1985). They demonstrate more cooperative behaviors than firstborn or last-born

(Falbo, 1978). Falbo and Polit (1986) analyzed 115 studies of only-born and reported

higher levels of achievement and intelligence than children with siblings. Mellor (1990)

discovered that only-born had higher levels of initiative, aspiration, industriousness, and

self-esteem than people with siblings.

Leman (1985) contended that only-children appear to have it all together, but they tend to have an inner rebellion that causes them to feel inferior. They are "scared, rebellious, and angry. Because they have been so spoiled and pampered they are no where near as in control as they appear to look" (p. 52). Leman (1985) cited Toni Falbo's (1976) survey of college students in which only-children are perceived as more self-centered, attention seeking, unhappy, and unlikeable than children with siblings.

Firstborn Children

The firstborn child has a favored and advantageous position. That child is constantly entrusted with responsibilities by his environment. This may lead to feelings of superiority over others. As a result firstborn children tend to be conservative (Adler, 1933/1939, 1927/1946). The firstborn is in the unique position of having been the only child for a while (Adler, 1930; Zajonc, 2001).

Forer (1977) contended that firstborn children demonstrate the following characteristics: need for approval of others, low test anxiety, need for achievement, conformity to authority, regulation, task orientation, susceptibility to social pressure, and high responsibility scores. Leman (1985) advanced some additional characteristics of the firstborn. They are perfectionists, reliable, conscientious, list makers, well organized, critical, serious, and scholarly. They are the pace setters and standard bearers of the family. They get the most discipline, the most work, and take responsibility for younger siblings.

Leman (1985) suggests that parents play a major role in shaping firstborn children. Parents place pressure on them to perform. They give motivation to firstborn

offsprings by celebrating every achievement, even when very insignificant. This practice is not as evident in dealing with later-born ones. They prepare their firstborn charges to be wary of life's challenges. They may accept unacceptable traits in younger siblings not tolerated in firstborn children. Parents tend to be paradoxical in dealing with firstborn children. On the one hand, they are overprotective, anxious, tentative, and inconsistent. On the other hand they are strict in discipline, demanding, always pushing, and encouraging them for great achievements.

Rothbart (1971) concludes that parents have higher expectations for, and put more pressure for achievement and responsibility on, and interfere more with the activities of firstborn children as compared with later-born children. In one study, firstborn adolescents reported the highest levels of parental criticism and expectation when compared with later-born ones (Seigle & Schuler, 2000). This compares favorably with the findings in another study that more firstborn children were identified for gifted programs which may be related to higher expectations parents hold for their firstborn children (Schuler, 1997).

Adler (1924/1963) noted that firstborn children are concerned with power and authority which they gain, as adults, through achievement in their work. Firstborn children tend to be over-represented, relative to their proportion of the population, in college attendance and in high level management (Breland, 1974; Schacter, 1963). Firstborn children, more than later-born ones, tend to become eminent and tend to attain to greater intellectual achievement in academic settings and greater power and prestige in their career (Breland, 1974; Schacter, 1963). They scored higher than later-born on a variety of achievement tests in English, mathematics, verbal skills, and verbal reasoning

(Eysenk & Cook, 1969; Kellaghan & McNamara, 1972; Paulhus & Shafffer, 1981).

First-born children seem to exceed later-born ones also in intelligence. One study of 400,000 European men, when analyzed with respect to birth order, showed that firstborn children had higher IQ scores than second-born ones, who had higher scores than third-born ones, and so on (Belmont & Marolla, 1973). Zajonc, Markus, and Markus (1979) found that similar results were true for men and women in several countries.

Zajonc (2001) noted that firstborn children, until the birth of younger siblings, are exposed to adult language. This will continue if no other siblings enter the family. First-born children act as tutors to later-born ones thus developing skills which later-born children may not have.

Firstborn children enjoy access to parents and the exclusive attention of parents. This is usually ruptured with the birth of a second child. This has the potential for deep psychological scars and even trauma, if not managed properly. Even with such ruptured relationships, an especially intense relationship between parents and firstborn children is often maintained throughout the life cycle (Dunn, 1984; Santrock, 2001). Perlin and Grater (1984) interpreted firstborns' feelings of dethronement in a positive light. That feeling subsequently motivates them to reestablish their place of significance in the sibling constellation.

Firstborn children are not exposed to the social modeling influences of older siblings. Later-born children may benefit from being raised by "more experienced" parents. The simple fact of birth order may differentially affect sibling interaction, competition, and socialization (Leman, 1985).

Middle-Born Children

Of all birth order positions, the middle-born position is the most difficult to define and generalize about in a meaningful way (Wilson & Edington, cited in Leman, 1985). Leman noted that middle children may be second-born, third-born, fourth-born, etc., once the sibling has an oldest and youngest in the family. The profile that applies to a second-born may also apply to the middle-born, since both groups have much in common. Middle children may often be second-born and they have much in common.

Adler (1927/1946) noted that second-born children are driven to perform. The fact that there is a sibling ahead who has already gained power is a strong stimulus for the second-born. This cause may stimulate the second-born to exert effort and strive for achievement. In contrast, Forer (1977) noted that later-borns (which includes second-borns) prefer social relationships over completing tasks. This is distinctly different from firstborns.

Powers (2000) noted that middle-born children felt stuck in the middle, sandwiched between their siblings. They appeared to be forgotten and were the most neglected in the family album. They scored lower than their siblings on tests of self-esteem. They also struggled for parental attention. Leman (1985) contended that middle children are born too late to enjoy the privileges and special favor of firstborn ones and too soon to strike the bonanza that many last-born children get, especially relaxed disciplinary reins. He introduced the concept of "branching off effect" which notes that the second-born will be most directly influenced by the firstborn, and the third-born will be most directly influenced by the second-born, and so on. By influence he means that each child looks up to and sizes up the older sibling. The child may compete with the

older sibling if he or she feels capable of doing so. On the contrary, if the child feels incapable because the older sibling is stronger or smarter, the second- or middle-born will engage in other pursuits.

Sulloway (1996) described middle children as the most open to new ideas. They made the greatest investment in relationships with their peers. He reported that their spouses rated them to be more agreeable. On the other hand, Kidwell (1982), in her study of middle-borns, found that they did not have the advantages of the oldest and the benefits of the youngest, hence they had no inherent uniqueness. Their role in the family was less well-defined. She further found that it was more difficult for them to achieve status, affection, and recognition among their siblings. Additionally, they had a hard time feeling special in the eyes of their parents.

Leman (1985) argued that middle children, especially second-born children, tend to be the opposite of the firstborn and may very likely take a different role. This potentially creates a paradoxical psychological set for the middle-born or the second-born. That child may be a pleaser or an antagonizer; a victim or a martyr; a manipulator or a controller. Middle children feel squeezed from above and below. They have many friends, are mediators, avoid conflicts, are independent, are extremely loyal to their peers, and are secretive. They tended to be free spirits who often had new ideas, and the independence to try them.

Eisenman (1964) believed that middle individuals tended to be more original in dealing with life's tasks. This was especially so if their older siblings demonstrated more firstborn behaviors such as dependency and affiliative responses.

Last-Born Children

Last-born children are very different from firstborn, middle-, and only-born children. Leman (1985) described last-born, of whom he was one, as personable manipulators, affectionate, outgoing charmers, uncomplicated, and often absentminded. Last-born love the limelight and therefore act as the family's clowns or entertainers because they want attention. They are usually popular, like people, and gravitate toward professions that are people oriented. For example, they are good salespersons. They strive on praise and need much encouragement. Lemon adds that last-borns find ways to get the attention they need. They compete with those who excel, though they may do it by devious means.

Leman (1985) quoted Mopsy Strange Kennedy, a family therapist and a last-born, who noted that last-born "live, inevitably, in the potent shadow of those who were born before" (p. 84). He added that last-born individuals seem to sense that their knowledge and ability carry less importance and weight than that of their older siblings. In addition, there is always the comparison to the older ones. The last-born tend to be critically evaluated and unfavorably judged in the process. Last-born siblings usually learn much of their facts of life from older siblings rather than from parents. As a result, they (last-born) do not get the facts of life straight. They are generally ambivalent, and their emotions fluctuate. Last-borns develop independent cockiness that helps cover self-doubt and confusion. But underneath the independent veneer is an inner rebelliousness. Last-borns are impetuous and brash. Forer (1977) reported that last-borns prefer social relationships rather than complex tasks.

Gender

Gender also affects student perception of school effectiveness. Studies have been conducted by Ogden (1994) and Onyegam (1994) on the perception of male and female students on aspects of school experience. Onyegam discovered that male students may be less critical of teaching than are female students. Ogden (1994) also found differences in perception of males and females. Female students, more than males, would like to see teachers show understanding, enthusiasm, creativity, and organization. On the other hand, males would like to see teachers show fairness, good communication, responsibility, and humor.

Some argue that gender is a non-issue. But the data seem to suggest that though there is a narrowing gap between males and females, a gender gap still exists. Bowman (2000) cited a federal report to support his position that girls are doing better than boys in school except in math and science. He also cited other sources in revealing that gender gaps in education that previously favored males have, in the main, been eliminated or significantly decreased. High-school senior girls have higher educational goals than senior boys. Girls are more likely than boys to enroll in college in the fall following the high-school graduation. They are also more likely than boys to complete a bachelor's degree withing 5 years after entering college.

Riordan (1999) also shared the view that girls are outperforming boys in school. He noted that boys' writing skills are significantly and profoundly below the writing skills of girls. Though boys' mathematics and science skills are better than that of girls, he cited Willingham and Cole (1997) who noted that 12th-grade girls have substantially closed the familiar math and science gap between them. On the other hand, boys have not

closed the gap in writing skills.

But others believe that there are greater cognitive similarities than differences between males and females. Santrock (2001) reviewed several studies (Lin & Petersen, 1986; Fabes, Knight, & Higgins, 19985; Maccoby, 1987a; Maccoby & Jacklin, 1974) on the males-females debate. He agreed that there were great cognitive similarities between males and females. Differences in math as well as visuospatial differences had been exaggerated. Only among the gifted did males outperform females in math. Only in limited areas did males perform better than females in visuospatial tasks. There was convergence in the verbal abilities of males and females, leading to no differences in scores in the verbal ability section of SAT. He concluded that cognitive differences between males and females did not exist in many areas, were disappearing in others, and were small when they were in existence.

I noted that in some areas, for example, cognitive, there were greater similarities between males and females than there were differences. But in others there were marked differences. Siegle and Schuler (2000), in their study of gifted adolescents in junior high school, found that males reported higher parental expectations than females. Parents seemed to place higher expectation in the academic arena on their sons than on their daughters. Male students took on more dangerous tasks while female students assisted in more nurturing ones (Santrock, 2001).

Stetsenko, Little, Gordeeva, Graasshof, and Oettingen (2000) found that when females had higher grades than males, the former had higher self-beliefs than the latter. In addition, when their performances were equal, their perceptions of their achievement potential were equal. They interpreted this to mean that both males and females were, in

the main, realistic in their self-assessment. They observed one exception, when females evaluated how talented they were. Where females outperformed males in 9 of 10 situations, females' self-assessments of their own ability were equal to the males but not higher. Females did not credit themselves with being more talented even though they did better than the males. They added that females tended to minimize their own achievement potential. More so "they discounted their own talent as a cause for their success at school" (p. 109).

Ethnicity

One of the independent variables in this study was ethnicity. There is a strong argument in support of wide gaps in performance and perceptions along ethnic lines (Boykin & Toms, 1985; Coleman, Campbell, & Mood, 1966; Dezmon, 1996). It is theorized that African Americans' genetical inferiority and cultural deprivations contribute to their lack of success. Other factors that are suggested as contributing to their lack of success are cultural conflict, stress, and caste perceptions (Boykin & Toms, 1985; Coleman et.al., 1966; Jensen, 1969). Research seems to indicate differences in performance and perception of African American and Caucasian students. Invariably, Caucasians scored higher on tests than African Americans (Dezmon, 1966; Durbin, 2001; Educational Testing Service, 1990; Fordham & Ogbu, 1986; Ogbu, 1988).

Boykin and Toms (1985) posited that African American children existed in a cultural perspective which was contradictory to the social construct of American schools. Teachers' attempts to make them conform to the norms of the majority culture detracted from African Americans' determination to learn. They added that the attitude and

behavior of school officials tended to make African American students feel oppressed. In the process these students built negative attitudes toward school. What was normal in the system at large was not normal to African American students.

Some have argued that the opposition to mainstream culture by African American students, in part, contributes to their academically disadvantaged state. But argument is advanced to the contrary. A source of the disadvantage by African American students is identified as opposition of the main culture to African American students (Boykin & Toms, 1985; Prager, 1982).

African American and Latino students were less likely than Caucasian or Asian students to be enrolled in academic college preparatory programs and much more likely to be enrolled in remedial and special education programs. In addition, African American children were twice as likely as Caucasian children to enroll in educable mentally retarded programs. They were twice as likely as Caucasians to be suspended from school or to be corporally punished (Santrock, 2001).

The following appeared in Thinking K-16 (2001) and presents a very disturbing picture of the quality of education for minority students:

> Near the end of high school, African American and Latino youngsters have skills about the same as White students near the end of junior high school.
> During the 1990s, these gaps grew wider even as employment, income, and other social gaps grew narrower.
> Though some continue to argue otherwise, it is now overwhelmingly clear that these patterns are not the inevitable result of poverty, racism, or other social conditions. Rather, schools and school systems themselves are contributing mightily to that gap by taking young people who have less to begin with, and then giving less in school, too. (p. 2)

Shaffer (2000) noted that peers at school helped in impeding the academic gains that parents and teachers made among African American students. Steinberg et al. (1993)

in a major study came to the same conclusion about the negative effects of peers on African American students. Fordham and Ogbu (1986) remarked that peer and cultural influences may be contributing to low achievement by African Americans. They were swayed by cultural beliefs that led them to associate success with "whiteness." They feared abuse and rejection from their peers for acting "white" if they strived to achieve. As a result they displayed oppositional attitudes toward school and efforts to achieve. Collins-Eaglin and Karabenick (1993) studied factors that influenced academic attitudes of African American middle- and high-school students through a project comprising a sample of 190 of them. They found that though some students held such beliefs, fear of alienation was not a significant factor.

Entwistle (1990) postulated that when minority youths, including African Americans, completed high school or college, they did not always get the same job opportunities as Caucasian youths. This leads to frustration. Shaffer (2000) hypothesized that under-achievement by some minority students was rooted in subtle stereotyping and discrimination. Santrock (2001) cited Ogbu (1974, 1986, 1989) in stating that African American and Latino students were placed in a position of subordination and exploitation in the American education system. They had inferior educational opportunities and lower teacher expectation. Therefore, they had opposition to the middle-class White educational system from a lack of trust, and because of years of discrimination and oppression.

Summary

The study was conducted to determine whether students' perceptions of their

schools were related to or influenced by their birth order, their gender, or their ethnicity. This investigation solicited input of seniors from schools randomly selected from a county in Southwestern Michigan. It sought to determine how they perceived their schools. The demographic categories were designed to help determine how segments of seniors perceived the effectiveness of their schools.

The study examined various sources that dealt with birth order and with school effectiveness. The literature review noted the behavior characteristics of each birth order category identified in the study. It also presented research data on the dependent variables in this study.

Though Rodgers (2001) and others argue against the validity of birth order positioning as a discriminating factor, Moravski (1999), Oettinger (2001), Seigle and Schuler (2001), and Zajonc (2001) support it. Banks and Khan (1982), Boer and Dunn (1992), and Santrock (1996) agree that birth order impacts the sibling's attitude to life. Ewart (1994) concluded that, compared to later-born siblings, firstborn children tend to conform more to authority, attain higher levels of education, and achieve more occupationally. Forer (1977) stated that firstborn children have the need for approval of others, tend to conform to authority, are susceptible to social pressure, and have high responsibility scores.

The middle-born children are the most difficult to define. They tend to compete with the older siblings if they think that they can successfully do so. They feel squeezed from above and below. They have many friends, are mediators, avoid conflicts, are extremely loyal to their peers and are secretive (Leman, 1985).

Salloway (1996) noted that last-born children did not conform to the status quo

and were the most likely to rebel against the establishment. Leman (1985) saw last-born children as personable manipulators, affectionate, outgoing charmers, and often absentminded. They are popular, like people, and seek professions that are people oriented. They compete with those who excel, though often by devious means. Last-born children tend to be impetuous and brash.

Adler (1927, 1946) averred that only-children are pampered and unaccustomed to handling difficulties. They are constantly the center of attention, which gives them a sense of importance. Leman (1985) noted that only-born children tend to be critical of themselves and of others. They are considered perfectionists, reliable, conscientious, well-organized, critical, serious, scholarly, cautious, and conservative.

Whereas some contend that gender is a non-issue, and although the data seem to suggest that there is a narrowing gap in performance between males and females, a gender gap still seems to exist. But there is no clear-cut agreement on this issue. Bowman (2000) and Riordan (1999) agree that there is a gap, while Santrock (2001) and Stetsenko et al. (2000) argued that the gap has narrowed or is non-existent in many instances.

Ethnic differences exist in the education system (Boykin & Toms, 1985; Shaffer, 2000). There is general agreement that there are significant differences between African American and Caucasian students in a variety of areas. Some teachers hold higher expectations for Caucasian students than for African Americans (Shaffer, 2000). Thinking K-16 (2001) reported that the school and the school systems are failing minority students.

Though the characteristics of effective schools vary in some studies, some common ones have been identified. These include high expectations for learning, safe

and orderly environment, frequent assessment, emphasis on basis skills, optimal

opportunity for learning, and parent and community involvement in the school (Edmonds,

1996; Steller, 1988; Taylor, 2002; Zigarelli, 1966). Edmonds (1979) believed that a

school is effective when the children of the poor as well as children in middle-class

schools are prepared in basic skills. Hoy and Miskel (2001) averred that school climate

distinguishes one school from another. The American Youth Policy Forum (2000)

presented findings that indicated that 50% of respondents polled believed that schools had

gotten too far away from teaching basic skills.

But of great importance is the statement from the National Commission on High

School Senior Year (2001) that the high school's primary goal should be graduating

students who were ready and eager to learn, students who were more capable of thinking

critically and who were comfortable with the ambiguities of the problem-solving process.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

This section presents the research design and methodology that were utilized in this study. The purpose of this study was to investigate the impact of birth order, gender, and ethnicity on high-school seniors' perceptions of the effectiveness of their high schools. This chapter presents the research design, population and sample, instrumentation, data collection, null hypotheses, and data analysis procedures.

Research Design and Methodology

The research design utilized for this study was a 4 x 2 x 2 (birth order by gender by ethnicity) factorial. The data were analyzed using three-way analysis of variance (ANOVA) to test for significant differences at the .05 level. A survey, using a closed-ended questionnaire with ordered choices, was used to collect the data from students. The use of a survey allowed for generalizing the findings from the sample of high-school students in the target area to the population of that region. A survey was used because it was economical, and data collection was thorough and quick. A survey permitted the researcher to identify the attributes, including attitudes and behaviors that were present in the larger population, from the sample (Babbie, 1990; Fowler, 1988). McLean (1988) noted that "surveys are an important diagnostic tool in the organization development"

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(p. 1). This survey was cross-sectional, a one-time collection of data from the target schools.

Population and Sample

The population consisted of seniors from 13 high schools in a county in Southwestern Michigan. I excluded 2 of the schools due to their small sizes and because they combined their junior high and senior high students. I randomly selected 6 of the remaining 11 schools.

An evaluation of the MEAP scores for all schools in the county for 2000 and 2001 indicated that schools performed at different levels. Some schools had an exceptionally high number (more than 70%) of students passing the subjects taken. Others had an average number (between 50% and 59%) of students passing the subjects taken. Still others had a low number (below 50%) of students passing the subjects taken. I stratified the schools so that students from high-, average-, and low-performing schools were represented in the sample. I used a computer-generated model to choose two schools from each category. Two of the schools had senior class sizes larger than 200, another had between 150 and 200, while three schools had sizes larger than 50 but smaller than 100 seniors. These six schools had a senior population of 849. Four hundred and forty-four of these students chose to participate in the study.

Power Analysis

Power analysis for the three-way ANOVA, described later in this chapter, was undertaken using table 8.4.4 on p. 377 of Cohen (1988).

The analysis was undertaken with α (Alpha) =.05, medium effect size (f =.25) and two different power levels, .90 and .80.

1. <u>Birth Order</u>--Four levels, hence 3 df.

Power of .9 requires $n = 58$. Therefore $N = 4 \times 58 = 232$.

Power of .8 requires $n = 45$. Therefore $N = 4 \times 45 = 180$.

2. <u>Gender and Ethnicity.</u> Each has two levels with 1 df.

Power of .9 requires $n = 85$. Therefore $N = 2 \times 85 = 170$.

Power of .8 requires $n = 64$. Therefore $N = 2 \times 64 = 128$.

Hence a sample size of 200+ would give power greater than .9 for gender and ethnicity, and power between .8 and .9 for birth order.

Variables

Independent Variables

There are three independent variables in this study, each with different levels. They are as follows:

1. Birth order with four levels, only-child, firstborn of several, middle-born, and last-born of several

2. Gender with two levels, male and female

3. Ethnicity with two levels, African American and Caucasian.

Dependent Variables

The dependent variable is perceptions of school effectiveness reflected in the following seven dimensions.

1. Safe and Orderly Environment

2. Positive School Climate

3. High Expectations

4. Frequent Assessment/Monitoring of Student Achievement

5. Emphasis on Basic Skills

6. Maximum Opportunities for Learning

7. Parent/Community Involvement.

Instrumentation

The instrument used in the study was the School Effectiveness Questionnaire (SEQ). It is an intact instrument developed by Baldwin, Coney, Fardig, and Thomas (1993). The instrument was originally developed in 1990 and revised and published in 1993. It embraces all the major characteristics of school effectiveness that have been identified in the literature. It grew out of a project conducted by the Orange County, Florida, School District. The district personnel wanted to measure the effectiveness of their schools and identify what could be done to improve them (Baldwin et al., 1993). The SEQ seeks to determine the effectiveness of schools by measuring if they were doing the right things (Fitzpatrick, 1998).

The SEQ consists of four survey forms: one for parents; one for teachers; one for students of Grades 5 through 8 (Level 1); and one for Grades 9 through 12 (Level 2). This study utilized the Level 2 survey for high-school students. This form contains a series of 48 statements on school effectiveness divided into seven scales (Baldwin et al., 1993). All scales or sections were presented in a closed format. The closed format

permits a choice of only predetermined responses. This approach allows the data to be easily quantified (Borg & Gall, 1983). The closed-form format required respondents to use a 5-point Likert scale with the following choices: Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5 to indicate their choice (Baldwin et al., 1993). Each statement required a judgment, or calls for an opinion about the way schools function (Fitzpatrick, 1998).

Whereas the complete SEQ has 11 characteristics, the Level 2 survey has 7. These 7 characteristics or scales of the survey form Level 2 are listed below with the number of items in each scale and one sample item from each.

Scale 1, Safe and Orderly Environment, has a total of nine statements. The following is an example of items found in scale 1: Safety rules are enforced.

Scale 2, Positive School Climate, has a total of 10 statements. The following is an example of items found in scale 2: I am proud to be a student at this school.

Scale 3, High Expectations, has a total of three statements. The following is an example of items found in scale 3: My teachers expect all students to do well in school.

Scale 4, Frequent Assessment/Monitoring of Student Achievement, has a total of four statements. The following is an example of items found in scale 4: My teachers keep track of how I am doing in my school work.

Scale 5, Emphasis on Basic Skills, has a total of eight statements. The following is an example of items found in scale 5: The things I learn in my science class are important.

Scale 6, Maximum Opportunities for Learning, has a total of 12 statements. The following is an example of items found in scale 6: My teachers are well prepared.

Scale 7, Parent/Community Involvement, has a total of two statements. The following is an example of items found in scale 7: My parents actively support school events.

The reading vocabulary level for the Level 2 survey is eight grade. The original questionnaires were tested using parents, students, and teachers in 10 schools, with all grade levels represented. The results were analyzed and the questionnaires were revised based on these data. Finally, approximately 30,000 students, teachers, and parents were surveyed with the revised instruments (Baldwin et al., 1993). The survey sheets are machine-scorable.

Psychometric Data

Validity

The authors of this instrument sought to establish content validity from the beginning in 1990. A committee was established that comprised district level staff, principals from various elementary and secondary schools, parents, and community representatives. This committee conducted a thorough review of the literature on effective schools and identified and agreed upon 11 characteristics that are essential to school effectiveness. The instrument was pilot tested and further revised (Baldwin et al., 1993, p. 7).

After the instrument was field tested, the results were reviewed during strategic planning sessions. Further adjustments were made to the instrument in an attempt to make it "more applicable across the wide variety of schools in the United States"

(Baldwin et al., 1993, p. 8). Higher scores suggest more effectiveness (Harwell, 1998). Fitzpatrick (1998) called the characteristics on the SEQ reasonable.

Reliability

Reliability estimates indicate the extent to which the assessment offers consistent results. The internal consistency of the School Effectiveness Questionnaire was determined by computing the Cronbach's (1951) coefficient alpha on the data obtained from the Orange County School District (Baldwin et al., 1993). The reliability coefficients for the seven characteristics in the level 2 students survey ranged from .78 to .84. The reliability coefficients of these characteristics are very adequate because generally a coefficient of .75 is considered acceptable. The reliability coefficient for the entire level 2 student survey is .83.

Fitzpatrick (1998) questioned the absence of concurrent validity. The instrument is recommended for use in a supplemental manner and is seen as "a ready-made set of instruments for measuring educational effectiveness from a process point of view" (p. 875). The instrument is easy to use. The manual contains detailed instructions on administering the survey (Harwell, 1998). However, the instrument is viewed as having some room for improvement. These include norms, sampling procedure, validity, and reliability of the instrument (Fitzpatrick, 1998; Harwell, 1998). Harwell argued that the absence of norms is defensible, while Fitzpatrick acknowledged that it can be used to measure educational effectiveness.

Procedure

I contacted the building principal by phone for each of the schools earmarked for this study and through a face-to-face visit during the second semester of the 2001/2002 school year. This was followed by a letter outlining the purpose and nature of the study, and the manner in which the principal could facilitate the process.

Each school arranged a schedule for signing and returning the consent forms and the administration of the survey. In four schools the designated school personnel followed written instructions I prepared for signing the consent forms. I distributed the consent forms and provided instructions for signing them in the other two schools. Consent forms were of two kinds: those for seniors above 18 years of age who were allowed to sign for themselves, and those for minors (under 18) whose parents had to sign giving written consent for them to participate in the study. All consent forms were collected by the date specified and I generated a list of the consenting students.

Data were collected via survey sheets which were issued to subjects at their schools. The time and place were determined by the school administrators. In three schools I administered the survey. In the other three, school personnel administered the survey. To standardize the administration of the survey, I provided and discussed the written guidelines, thus minimizing bias in administration. I took steps to guarantee that the confidentiality of each student was maintained (Babbie, 1995). To this end, I provided envelopes into which students placed their completed answer sheets. On the day for the administration of the survey all listed students who were present completed the survey. Of the 505 consenting, 444 (87.9%) completed the survey. This was a very economical

method with respect to time, energy, and cost. It was also a convenient and efficient way which ensured 100% return rate of survey forms.

Null Hypotheses and Statistical Analysis

As three main effects (birth order, gender, ethnicity) were studied, the appropriate analysis was a three-way Analysis of Variance (ANOVA). This necessitated seven sets of null hypotheses—three main effects, three 2-way interactions and a three-way interaction. The ANOVA was run separately for each of the seven dependent variables.

Null Hypothesis 1: There is no significant difference among the mean scores of the four birth-order groups on school effectiveness.

Null Hypothesis 2: There is no significant difference between the mean scores of males and females on school effectiveness.

Null Hypothesis 3: There is no significant difference between the mean scores of the two ethnic groups on school effectiveness.

Null Hypothesis 4: There is no significant interaction between birth order and gender with respect to scores on school effectiveness.

Null Hypothesis 5: There is no significant interaction between birth order and ethnicity with respect to scores on school effectiveness.

Null Hypothesis 6: There is no significant interaction between gender and ethnicity with respect to scores on school effectiveness.

Null Hypothesis 7: There is no significant three-way interaction of birth order, gender, and ethnicity with respect to scores on school effectiveness.

These seven null hypotheses were tested seven times, once for each of the seven

measures of school effectiveness previously mentioned. Each hypothesis was tested with $\alpha = .05$. For any three-way interaction that proved to be significant, all the two-way analyses were run with respect to that dependent variable. Likewise any significant two-way interaction required the relevant simple effects analyses.

Summary

The research design employed in this study was a 4 x 2 x 2 factorial (birth order by gender by ethnicity). A survey, using a questionnaire consisting of 48 statements on school effectiveness, divided into seven dimensions, was utilized in collecting the data. The subjects, 12th-graders drawn from six high schools in a Southwestern Michigan county, responded to the questionnaire using a 5-point Likert scale. Psychometric data were provided for the instrument.

A power analysis, using three-way ANOVA, indicated that about 200 subjects were needed for the study, but the sample consisted of 444 subjects of which 412 were usable. There were seven null hypotheses, each consisting of seven sub-sections. Each hypothesis was tested with $\alpha = .05$.

CHAPTER IV

PRESENTATION OF FINDINGS AND ANALYSIS OF DATA

Introduction

This chapter includes a description of the population and sample; and data on the instrument. Then follows a report of the testing of the null hypotheses.

Population and Sample

A sample was drawn from a population of 849 seniors from six high schools in a county in Southwestern Michigan. Four hundred and forty-four seniors completed the survey. Four hundred and twelve surveys were usable, and 32 were excluded because 19 were of ethnic groups other than African American and Caucasian, and 13 had missing demographic data. An attempt was made to select an equal number of males and females and an equal number of subjects from the two major ethnic groups–African Americans and Caucasians– that were represented in the county. The sample was not equally divided based on ethnicity or gender. Table 1 shows the descriptive statistics for the sample by birth order, gender, and ethnicity.

The sample was comprised of 187 (45.39%) males, 225 (54.61%) females, 153 (37.14%) African Americans, 259 (62.86%) Caucasians, 30 (7.28%) only-born, 136 (33%) firstborn, 121 (29.37%) middle-born, and 125 (30.34%) last-born. The total sample contained 412 individuals.

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Table 1

Descriptive Statistics of Sample by Birth Order, Gender, and Ethnicity

Birth Order	Ethnicity	Gender		Total
		Male	Female	
Only	African American	3	7	10
	Caucasian	11	9	20
	Total	14	16	30
First	African American	20	27	47
	Caucasian	44	45	89
	Total	64	72	136
Middle	African American	24	26	50
	Caucasian	23	48	71
	Total	47	74	121
Last	African American	22	24	46
	Caucasian	40	39	79
	Total	62	63	125
Total	African American	69	84	153
	Caucasian	118	141	259
	Total	187	225	412

Data on the Instrument

Table 2 gives the descriptive statistics with respect to seven sub-scales. The possible range of scores and the actual range of scores for each scale are listed. For each variable, the complete range of scores is used, with the exception of the variable "maximum opportunities for learning" where the lowest three possible scores do not appear.

Table 2

Mean, Standard Deviation, Possible Range, and Actual Range of Scores

Scales	Mean	SD	Possible Range	Actual Range
Safe and orderly environment	28.0534	5.57614	9.00-45.00	9.00-45.00
Positive school climate	31.5995	6.49891	10.00-50.00	10.00-50.00
High expectations	10.1335	2.30922	3.00-15.00	3.00-15.00
Frequent assessment/ monitoring of student achievement	12.8204	3.08781	4.00-20.00	4.00-20.00
Emphasis on basic skills	28.5534	5.85465	8.00-40.00	8.00-40.00
Maximum opportunities for learning	39.6602	7.27935	12.00-60.00	15.00-60.00
Parent/ community involvement	6.4612	1.98558	2.00-10.00	2.00-10.00

Testing the Null Hypotheses

The purpose of this study was to investigate the influence of birth order, gender, and ethnicity on high-school seniors' perceptions of the effectiveness of their school. As three main effects (birth order, gender, ethnicity) were studied, the appropriate analysis was a three-way Analysis of Variance (ANOVA). This involves seven null hypotheses–three main effects, three 2-way interactions and a three-way interaction in testing each scale, which are as follows:

Null Hypothesis 1: There is no significant difference among the mean scores of the four birth-order groups on school effectiveness.

Null Hypothesis 2: There is no significant difference between the mean scores of males and females on school effectiveness.

Null Hypothesis 3: There is no significant difference between the mean scores of the two ethnic groups on school effectiveness.

Null Hypothesis 4: There is no significant interaction between birth order and gender with respect to scores on school effectiveness.

Null Hypothesis 5: There is no significant interaction between birth order and ethnicity with respect to scores on school effectiveness.

Null Hypothesis 6: There is no significant interaction between gender and ethnicity with respect to scores on school effectiveness.

Null Hypothesis 7: There is no significant three-way interaction of birth order, gender, and ethnicity with respect to scores on school effectiveness.

The ANOVA was run separately for each of the seven dependent variables which are: (a) safe and orderly environment, (b) positive school climate, (c) high expectations,

(d) frequent assessment/monitoring of student achievement, (e) emphasis on basic skills, (f) maximum opportunities for learning, and (g) parent/community involvement.

<div align="center">Variable (a): Safe and Orderly Environment</div>

Table 3 presents the means on safe and orderly environment for the three-way table, birth order by gender by ethnicity.

Table 4 presents the results of the three-way ANOVA for this variable. There is significant three-way interaction. Thus null hypothesis 7 is rejected. This requires that all the possible two-way ANOVA's be run. The results of these eight analyses follow.

Birth Order by Gender for African Americans

Table 5 presents the ANOVA results. Null hypothesis 4a, "There is no significant interaction between birth order and gender with respect to scores on safe and orderly environment," is retained. Therefore I looked at main effects. The main effect for birth order is not significant. Therefore null hypothesis 1a "There is no significant difference among the mean scores of the four birth-order groups with respect to safe and orderly environment," is retained for African Americans. Main effect for gender is not significant. Therefore null hypothesis 2a, "There is no significant difference between means of males and females with respect to safe and orderly environment," is retained for African Americans.

Table 3

Means on Safe and Orderly Environment

Birth order	Male			Female			Total		
	African American	Caucasian	Total	African American	Caucasian	Total	African American	Caucasian	Total
Only	20.0000	29.8182	27.7143	25.0000	27.4444	26.3750	23.5000	28.7500	27.0000
First	26.7000	28.2727	27.7813	24.3704	30.3778	28.1250	25.3617	29.3371	27.9632
Middle	24.8750	30.9565	27.8511	25.3846	30.1458	28.4730	25.1400	30.4085	28.2314
Last	27.0000	30.2000	29.0645	23.4167	29.8718	27.4127	25.1304	30.0380	28.2320
Total	25.8696	29.5932	28.2193	24.4643	29.9716	27.9156	25.0980	29.7992	28.0534

Table 4

Three-way ANOVA for Dependent Variable: Safe and Orderly Environment

Source	Sum of Squares	df	Mean Square	F	p
Order	103.424	3	34.475	1.240	.295
Gender	3.002	1	3.002	.108	.743
Ethnic	1489.718	1	1489.718	53.572	.000*
Order x Gender	87.752	3	29.251	1.052	.369
Order x Ethnic	51.836	3	17.279	.621	.602
Gender x Ethnic	.923	1	.923	.033	.856
Order x Gender x Ethnic	258.545	3	86.182	3.099	.027*
Error	11011.967	396	27.808		
Total	337884.000	411			

*significance at .05 level.

Table 5

Results of Two-way ANOVA for Dependent Variable: Safe and Orderly Environment for African Americans

Source	Sum of Squares	df	Mean Square	F	p
Order	65.929	3	21.976	.802	.495
Gender	2.223	1	.223	.008	.928
Gender x Order	196.109	3	65.370	2.384	.072
Error	3975.108	145	27.415		
Total	100646.000	152			

*significance at .05 level.

Birth Order by Gender for Caucasians

Table 6 presents the ANOVA results for Caucasians. The interaction effect is not significant, therefore I looked at main effects. The main effect for birth order is not significant. Therefore hypothesis 1a is retained for Caucasians. The main effect for gender is not significant, therefore hypothesis 2a is retained for Caucasians.

Table 6

Results of Two-way ANOVA for Dependent Variable: Safe and Orderly Environment for Caucasians

Source	Sum of Squares	df	Mean Square	F	p
Order	86.591	3	28.864	1.030	.380
Gender	5.474	1	5.474	.195	.659
Gender x Order	134.727	3	44.909	1.602	.189
Error	7036.858	259	28.035		
Total	237238.000	266			

*significance at .05 level.

Birth Order by Ethnicity for Males

Table 7 presents the ANOVA results. Null hypothesis 5a, "There is no significant interaction between birth order and ethnicity with respect to scores on safe and orderly environment," is retained for males. Therefore I looked at main effects. The main effect for birth order is not significant. Therefore hypothesis 1a is retained for males. The main effect for ethnicity is significant. Therefore hypothesis 3a is rejected for males. The mean of Caucasian males (29.5932) is significantly higher than the mean of African American males (25.8696).

Table 7

Results of Two-way ANOVA for Dependent Variable: Safe and Orderly Environment for Order by Ethnicity for Males

Source	Sum of Squares	df	Mean Square	F	p
Order	120.933	3	40.311	1.250	.293
Ethnicity	654.872	1	654.872	20.314	.000*
Order x Ethnicity	219.747	3	73.249	2.272	.082
Error	5770.545	179	32.238		
Total	155591.000	186			

*significance at .05 level.

Birth Order by Ethnicity for Females

Table 8 presents the ANOVA results. Null hypothesis 5a is retained for females. Therefore I looked at main effects. The main effect for birth order is not significant. Therefore hypothesis 1a is retained for females. The main effect for ethnicity is significant. Therefore hypothesis 3a is rejected for females. The mean of Caucasian females (29.9716) is significantly higher than the mean of African American females (24.4643).

Table 8

Results of Two-way ANOVA for dependent variable: Safe and Orderly Environment for Order by Ethnicity for Females

Source	Sum of Squares	df	Mean Square	F	p
Order	57.001	3	19.00	.787	.503
Ethnicity	879.517	1	879.517	36.413	.000*
Order x Ethnicity	63..808	3	21.269	.881	.452
Error	5241.422	217	24.154		
Total	182293.000	224			

*significance at .05 level.

Gender by Ethnicity for Only-Children

Table 9 presents the ANOVA results. The interaction effect is not significant. Null hypothesis 6a is therefore retained for the only-born children. I therefore looked at main effects. The main effect for gender is not significant, therefore hypothesis 2a is retained for only-born children. The main effect for ethnicity is significant, therefore null hypothesis 3a is rejected. From the table of means it is clear that the mean of only-born Caucasians (28.7500) is significantly higher than the mean of only-born African American (23.5000).

Table 9

Results of Two-way ANOVA for Dependent Variable: Safe and Orderly Environment for Gender by Ethnicity for Only Children.

Source	Sum of Squares	df	Mean Square	F	p
Gender	10.170	1	10.170	.281	.600
Ethnicity	221.719	1	221.719	6.134	.020*
Gender x Ethnicity	80.170	1	80.170	2.218	.148
Error	939.859	26	36.148		
Total	23074.000	29			

*significance at .05 level.

Gender by Ethnicity for Firstborn Children

Table 10 presents the ANOVA results. The two-way interaction is significant. All one-way analyses were therefore undertaken. The results are given in Table 11.

Table 10

Results of Two-way ANOVA Table for Dependent Variable: Safe and Orderly Environment for Gender by Ethnicity for Firstborn Children

Source	Sum of Squares	df	Mean Square	F	p
Gender	.382	1	.382	.016	.900
Ethnicity	435.336	1	435.336	17.981	.000
Gender x Ethnicity	149.003	1	149.003	6.154	.014*
Error	3195.801	132	24.211		
Total	110187.000	135			

*significance at .05 level.

Table 11 presents the results of all 4 one-way ANOVAs. The only significant comparison is ethnicity for female firstborn children. It is clear from the table of means that the mean for firstborn Caucasian females (30.3778) is significantly higher than the mean of firstborn African American females (24.3704).

Table 11

One-way ANOVA for Firstborn Children on Safe and Orderly Environment

Analysis	F	df	P
Ethnicity for Males	1.069	1, 62	.305
Ethnicity for Females	34.681	1, 70	.000*
Gender for African American	2.958	1, 45	.092
Gender for Caucasian	3.816	1, 87	.054

*significance at .05 level.

Gender by Ethnicity for Middle-Born Children

Table 12 presents the ANOVA results. The interaction effect is not significant, therefore I looked at the main effects. The main effects for gender is not significant. Hypothesis 2a is therefore retained. The main effect for ethnicity is significant, therefore hypothesis 3a is rejected. It is clear from the table of means that the mean of middle-born Caucasians (30.4085) is significantly higher than the mean of middle-born African Americans (25.1400).

Table 12

Results of Two-way ANOVA for Dependent Variable: Safe and Orderly Environment for Gender by Ethnicity for Middle-Born Children

Source	Sum of Squares	df	Mean Square	F	p
Gender	.628	1	.628	.024	.876
Ethnicity	813.938	1	813.938	31.704	.000*
Gender x Ethnicity	12.069	1	12.069	.470	.494
Error	3003.715	117	25.673		
Total	100270.000	120			

*significance at .05 level.

Gender by Ethnicity for Last-Born Children

Table 13 presents the ANOVA results. The interaction effect is not significant. Therefore I looked at the main effects. The main effect for gender is not significant. Therefore hypothesis 2a is retained for last-born. The main effect for ethnicity is significant, therefore hypothesis 3a is rejected for last-born. It is clear from the table of means that the mean of last-born Caucasians (30.0380) is higher than the mean of last-born African Americans (25.1304).

Table 13

Results of Two-way ANOVA for Dependent Variable: Safe and Orderly Environment for Gender by Ethnicity for Last-Born Children

Source	Sum of Squares	df	Mean Square	F	p
Gender	111.062	1	111.062	3.470	.065
Ethnicity	676.684	1	676.684	21.143	.000*
Gender x Ethnicity	76.914	1	76.914	2.403	.124
Error	3872.592	121	32.005		
Total	104353.000	124			

*significance at .05 level.

Variable (b): Positive School Climate

Table 14 gives the means on positive school climate for the three-way table, birth order by gender by ethnicity.

Table 14

Means on Positive School Climate

Birth order	Male			Female			Total		
	African American	Caucasian	Total	African American	Caucasian	Total	African American	Caucasian	Total
Only	26.6667	32.4545	31.2143	26.7143	31.6667	29.5000	26.7000	32.1000	30.3000
First	31.6500	32.5682	32.2813	27.8148	34.7778	32.1667	29.4468	33.6854	32.2206
Middle	29.2917	35.8261	32.4894	27.5769	32.6875	30.8919	28.4000	33.7042	31.5124
Last	29.6364	33.9250	32.4032	25.2500	33.3333	30.2540	27.3478	33.6329	31.3200
Total	29.9710	33.6525	32.2941	26.9167	33.4681	31.0222	28.2941	33.5521	31.5995

Table 15 presents the results of the three-way ANOVA for this variable. The three-way interaction effect is not significant. Therefore the null hypothesis 7b is retained. In all cases where three-way interaction is not significant I next looked at two-way interactions. The two-way interactions are also not significant. Therefore I looked at the main effects. The main effect for birth order is not significant. Therefore null hypothesis 1b is retained. The main effect for gender is significant. Therefore null hypothesis 2b is rejected. It is clear from the table of means that the mean of males (32.2941) is significantly higher than the mean of females (31.0222). The main effect for ethnicity is significant. Therefore null hypothesis 3b is rejected. The mean of the Caucasians (33.5521) is higher than the mean of the African Americans (28.2941) as indicated in the table of means.

Table 15

Results of ANOVA for Dependent Variable: Positive School Climate

Source	Sum of Squares	df	Mean Square	F	P
Order	157.695	3	52.565	1.506	.213
Gender	136.188	1	136.188	3.901	.049*
Ethnicity	1664.255	1	1664.255	47.667	.000*
Order x Gender	66.243	3	22.081	.632	.594
Order x Ethnic	86.385	3	28.795	.825	.481
Gender x Ethnic	52.598	1	52.598	1.507	.220
Order x Gender x Ethnic	229.621	3	76.540	2.192	.088
Error	13825.974	396	34.914		
Total	428753.000	411			

*significant at .05 level.

Variable (c): High Expectations

Table 16 gives the means on high expectations on the three-way table birth order by gender by ethnicity.

Table 16

Means on High expectations

Birth order	Male			Female			Total		
	African American	Caucasian	Total	African American	Caucasian	Total	African American	Caucasian	Total
Only	8.3333	10.4545	10.0000	9.4286	9.5556	9.5000	9.1000	10.0500	9.7333
First	9.8500	10.4773	10.2813	9.2593	10.6000	10.0972	9.5106	10.5393	10.1838
Middle	9.5417	11.3043	10.4043	9.6154	10.3125	10.0676	9.5800	10.6338	10.1983
Last	9.7727	10.9000	10.5000	9.1250	10.1026	9.7302	9.4348	10.5063	10.1120
Total	9.6522	10.7797	10.3636	9.3452	10.2979	9.9422	9.4837	10.5174	10.1335

Table 17 presents the results of the three-way ANOVA for this variable. The three-way interaction effect is not significant. Therefore the null hypothesis 7c is retained. There is no significant interaction on high expectations as perceived by students by birth order, gender, and ethnicity. I therefore looked at all two-way interactions. These are also not significant. Therefore I looked at the main effect. The main effects for birth order is not significant. Therefore hypothesis 1c is retained. The main effect for gender is not significant. Hypothesis 2c is therefore retained.

The main effect for ethnicity is significant. Therefore hypothesis 3c is rejected. From the table of means it is clear that the mean of the Caucasians (10.5174) is significantly higher than the mean of the African Americans(9.4837). There is significant difference on high expectations as perceived by Caucasians and African Americans.

Table 17

Results of ANOVA for Dependent Variable: High Expectations

Source	Sum of Squares	df	Mean Square	F	p
Order	11.473	3	3.824	.743	.527
Gender	6.356	1	6.356	1.235	.267
Ethnicity	70.582	1	70.582	13.716	.000*
Order x Gender	5.317	3	1.772	.344	.793
Order x Ethnic	.930	3	.310	.060	.981
Gender x Ethnic	5.703	1	5.703	1.108	.293
Order x Gender x Ethnic	16.195	3	5.398	1.049	.371
Error	2037.816	396	5.146		
Total	44499.000	411			

*significant at .05 level.

Variable (d): Frequent Assessment/Monitoring of Student Achievement

Table 18 gives the means on frequent assessment/monitoring of student

achievement on the three-way table birth order by gender by ethnicity.

Table 18

Means on Frequent Assessment/Monitoring of Student Achievement

Birth order	Male			Female			Total		
	African American	Caucasian	Total	African American	Caucasian	Total	African American	Caucasian	Total
Only	11.6667	12.7273	12.5000	13.4286	11.5556	12.3750	12.9000	12.2000	12.4333
First	11.8500	12.7955	12.5000	12.6296	13.6000	13.2361	12.2979	13.2022	12.8897
Middle	12.7500	13.7826	13.2553	13.0000	12.8750	12.9189	12.8800	13.1690	13.0496
Last	12.3636	12.6750	12.5645	11.4593	13.4103	12.6667	11.8913	13.0380	12.6160
Total	12.3188	12.9407	12.7112	12.4762	13.1702	12.9111	12.4052	13.0656	12.8204

Table 19 presents ANOVA results. The three-way interaction effect is not

significant for frequent assessment/monitoring of student achievement. Therefore null

hypothesis 7d is retained. I next looked at all two-way interactions. These are also not

significant. I therefore looked at main effects. The main effect for birth order is not

significant. Therefore null hypothesis 1d is retained. The main effect for gender is not

significant. Therefore null hypothesis 2d is retained. The main effect for ethnicity is not

significant. Null hypothesis 3d is therefore retained.

Table 19

Results of ANOVA for Dependent Variable: Frequent Assessment/Monitoring of Student Achievement

Source	Sum of Squares	df	Mean Square	F	P
Order	26.283	3	8.761	.922	.430
Gender	1.660	1	1.660	.175	.676
Ethnicity	16.724	1	16.724	1.759	.185
Order x Gender	20.571	3	6.857	.721	.540
Order x Ethnic	15.793	3	5.264	.554	.646
Gender x Ethnic	5.387	1	5.387	.567	.452
Order x Gender x Ethnic	41.506	3	13.835	1.455	.226
Error	3764.514	396	9.506		
Total	71636.000	411			

*significant at .05 level.

Variable (e): Emphasis on Basic Skills

Table 20 gives the means on emphasis on basic skills on the three-way table birth order by gender by ethnicity.

Table 20

Means on Emphasis on Basic Skills

Birth order	Male			Female			Total		
	African American	Caucasian	Total	African American	Caucasian	Total	African American	Caucasian	Total
Only	23.3333	27.7273	26.7857	31.1429	28.1111	29.4375	28.8000	27.9000	28.2000
First	30.1500	27.2273	28.1406	29.4444	28.7778	29.0278	29.7447	28.0112	28.6103
Middle	27.0000	29.8261	28.3830	29.5385	28.1458	28.6351	28.3200	28.6901	28.5372
Last	29.2273	28.4000	28.6935	27.5417	29.0769	28.4921	28.3478	28.7342	28.5920
Total	28.4638	28.1780	28.2834	29.0714	28.6028	28.7778	28.7974	28.4093	28.5534

Table 21 gives the results of the three-way ANOVA for this variable. There is significant three-way interaction. Thus hypothesis 7e is rejected. This requires that all the possible two-way ANOVAs be run. The results of these 8 analyses follow.

Birth Order by Gender for African Americans

Table 22 presents the ANOVA results. The two-way interaction is not significant. Null hypothesis 4e, "There is no significant interaction between birth order and gender with respect to scores on emphasis on basic skills," is retained. Therefore I looked at the main effects. The main effect for birth order is not significant. Therefore null hypothesis 1e is retained for African Americans. The main effect for gender is not significant. Therefore null hypothesis 2e is retained for African Americans.

Table 21

Results of ANOVA for Dependent Variable: Emphasis on Basic Skills

Source	Sum of Squares	df	Mean Square	F	p
Order	35.452	3	11.817	.344	.794
Gender	72.312	1	72.312	2.102	.148
Ethnicity	0.007	1	0.007	.000	.989
Order x Gender	104.287	3	34.762	1.010	.388
Order x Ethnic	113.804	3	37.935	1.103	.348
Gender x Ethnic	45.187	1	45.187	1.313	.252
Order x Gender x Ethnic	282.095	3	94.032	2.733	.043*
Error	13623.252	396	34.402		
Total	34990.000	411			

*significant at .05 level.

Birth Order by Gender for Caucasians

Table 23 presents the ANOVA results. The two-way interaction is not significant. Therefore null hypothesis 4e is retained. I then looked at main effects. The main effect for birth order is not significant. Therefore null hypothesis 1e is retained. There is no significant difference among the four birth-order Caucasian groups with respect to mean scores for emphasis on basic skills. The main effect for gender is not significant. Therefore null hypothesis 2e is retained for Caucasians. There is no significant difference between Caucasian males and females with respect to mean scores for emphasis on basic skills.

Table 22

Results of Two-way ANOVA Table for Dependent Variable: Emphasis on Basic Skills for Birth Order by Gender for African Americans

Source	Sum of Squares	df	Mean Square	F	p
Order	87.084	3	29.028	.717	.543
Gender	86.671	1	86.671	2.141	.146
Order x Gender	235.497	3	78.499	1.939	.126
Error	5871.024	145	40.490		
Total	13062.000	152			

*significant at .05 level.

Table 23

Results of Two-way ANOVA Table for Dependent Variable: Emphasis on Basic Skills for Birth Order by Gender for Caucasians

Source	Sum of Squares	df	Mean Square	F	p
Order	47.702	3	15.901	.515	.672
Gender	2.395	1	2.395	.078	.781
Order x Gender	98.223	3	32.741	1.060	.367
Error	7752.229	251	30.885		
Total	216928.000	258			

*significant at .05 level.

Birth Order by Ethnicity for Males

Tables 24 present the ANOVA results. Null hypothesis 5e, "There is no significant interaction between birth order and ethnicity with respect to scores on emphasis on basic skills," is retained for males. Therefore I looked at main effects. The main effect for birth order is not significant. Therefore 1e is retained for males. The main effect for ethnicity is not significant. Therefore null hypothesis 3e is retained for males.

Table 24

Results of Two-way ANOVA Table for Dependent Variable: Emphasis on Basic Skills for Birth Order by Ethnicity for Males

Source	Sum of Squares	df	Mean Square	F	p
Order	90.958	3	30.319	.720	.541
Ethnicity	18.452	1	18.452	.438	.509
Order x Ethnicity	264.811	3	88.270	2.097	.102
Error	7533.894	179	42.089		
Total	157435.000	186			

*significant at .05 level.

Birth Order by Ethnicity for Females

Tables 25 present the ANOVA results. There is no significant two-way interaction. Null hypothesis 5e is retained for females. Therefore I looked at main effects. The main effect for birth order is not significant. Therefore null hypothesis 1e is retained for females. The main effect for ethnicity is not significant. Null hypothesis 3e is retained for females.

Gender by Ethnicity for Only-Children

Table 26 presents the ANOVA results for only-born children. The interaction effect is not significant. Therefore I looked at the main effects. The main effect for gender is not significant. Hypothesis 5e is therefore retained for only-born children. The main effect for ethnicity is not significant. Hypothesis 5e is retained for only-born children.

Gender by Ethnicity for Firstborn Children

Table 27 presents ANOVA results for firstborn children. The interaction effect is not significant. Therefore I looked at the main effects. The main effect for gender is not significant, therefore hypothesis 2e is retained for firstborn children. The main effect for ethnicity is not significant. Therefore hypothesis 3e is retained for firstborn children.

Table 25

Results of Two-way ANOVA Table for Dependent Variable:
Emphasis on Basic Skills for Birth Order by Ethnicity for Females

Source	Sum of Squares	df	Mean Square	F	p
Order	31.452	3	10.484	.374	.772
Ethnicity	28.747	1	29.747	1.024	.313
Order x Ethnicity	100.577	3	33.526	1.195	.313
Error	6089.359	217	28.062		
Total	192555.000	224			

*significant at .05 level.

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Table 26

Results of Two-way ANOVA Table for Dependent Variable: Emphasis on Basic Skills for Gender by Ethnicity for Only-Children

Source	Sum of Squares	df	Mean Square	F	P
Gender	98.983	1	98.983	1.949	.175
Ethnicity	2.736	1	2.736	.054	.818
Gender x Ethnicity	81.303	1	81.303	1.601	.217
Error	1320.595	26	50.792		
Total	25313.000	29			

*significant at .05 level.

Table 27

Results of Two-way ANOVA Table for Dependent Variable: Emphasis on Basic Skills for Gender by Ethnicity for Firstborn Children

Source	Sum of Squares	df	Mean Square	F	P
Gender	5.409	1	5.409	.160	.690
Ethnicity	97.614	1	97.614	2.891	.091
Gender x Ethnicity	38.563	1	38.563	1.142	.287
Error	4456.722	132	33.763		
Total	115931.000	135			

*significant at .05 level.

Gender by Ethnicity for Middle-Born Children

Table 28 presents ANOVA results for middle children. There is significant two-way interaction effect of gender and ethnicity with respect to emphasis on basic skills. Therefore all one-way analyses were undertaken. The results are reported in Table 29.

Table 29 presents the results of all 4 one-way ANOVAs. There is no significant one-way comparison for middle-born children.

Table 28

Results of Two-way ANOVA Table for Dependent Variable: Emphasis on Basic Skills for Gender by Ethnicity for Middle-Born Children

Source	Sum of Squares	df	Mean Square	F	P
Gender	5.099	1	5.099	.172	.679
Ethnicity	14.226	1	14.226	.479	.490
Gender x Ethnicity	123.218	1	123.218	4.145	.044*
Error	3477.745	117	29.714		
Total	102145.000	120			

Table 29

One-way ANOVA for Middle-Born Children on Emphasis on Basic Skill

Analysis	F	df	P
Ethnicity for Males	2.475	1, 46	.123
Ethnicity for Females	1.329	1, 73	.253
Gender for African American	2.151	1, 49	.149
Gender for Caucasian	1.800	1, 70	.184

*significant at .05 level.

Gender by Ethnicity for Last-Born Children

Table 30 presents ANOVA results for last-born children. There is no significant interaction effect for gender and ethnicity. Therefore I looked at main effects. The main effect for gender is not significant. Therefore null hypothesis 2e is retained for last-born children. The main effect for ethnicity is not significant. Therefore hypothesis 3e is retained for last-born.

Table 30

Results of Two-way ANOVA Table for Dependent Variable: Emphasis on Basic Skills for Gender by Ethnicity for Last-Born Children

Source	Sum of Squares	df	Mean Square	F	p
Gender	7.385	1	7.385	.205	.652
Ethnicity	3.638	1	3.638	.101	.751
Gender x Ethnicity	40.516	1	40.516	1.122	.292
Error	4368.191	121	36.101		
Total	106602.000	124			

*significant at .05 level.

Variable (f): Maximum Opportunities for Learning

Table 31 gives the means on maximum opportunities for learning on the three-way table birth order by gender by ethnicity.

Table 31

Means on Maximum Opportunities for Learning

Birth Order	Male			Female			Total		
	African American	Caucasian	Total	African American	Caucasian	Total	African American	Caucasian	Total
Only	35.6667	41.0000	39.8571	40.4286	39.4444	39.8750	39.0000	40.3000	39.8667
First	37.7000	40.2045	39.4219	36.5185	41.5778	39.6806	37.0213	40.8989	39.5588
Middle	36.2500	44.0870	40.0851	38.9231	40.8125	40.1486	37.6400	41.8732	40.1240
Last	40.0455	40.5000	40.3387	33.7500	40.9744	38.2222	36.7609	40.7342	39.2720
Total	37.8551	41.1356	39.9251	36.7976	41.0142	39.4400	37.2745	41.0695	39.6602

Table 32 gives the results of the three-way ANOVA for this variable. There is significant three-way interaction. Thus hypothesis 7f is rejected. This requires that all the possible two-way ANOVAs be run. The results of these eight analyses follow.

Table 32

Results of ANOVA for Dependent Variable: Maximum Opportunities for Learning

Source	Sum of Squares	df	Mean Square	F	p
Order	94.956	3	31.652	.645	.587.
Gender	8.373	1	8.373	.171	.680.
Ethnic	786.857	1	786.857	16.029	.000*
Order x Gender	194.221	3	64.740	1.319	.268.
Order x Ethnic	42.439	3	14.146	.288	.834.
Gender x Ethnic	7.915	1	7.915	.161	.688.
Order x Gender x Ethnic	671.917	3	223.972	4.562	.004*
Error	19439.594	396	49.090		
Total	669826.000	411			

*significant at .05 level.

Birth Order by Gender for African Americans

Table 33 presents the ANOVA results. There is significant two-way interaction, therefore null hypothesis 4f is rejected. All one-way analyses were undertaken. They are reported in Table 34.

Table 33

Results of Two-way ANOVA Table for Dependent Variable: Opportunities for Learning for Birth Order by Gender for African Americans

Source	Sum of Squares	df	Mean Square	F	p
Order	17.601	3	5.867	.104	.957
Gender	0.002	1	0.002	.000	.995
Order x Gender	559.696	3	186.565	3.314	.022*
Error	8163.122	145	56.297		
Total	221399.000	152			

*significant at .05 level.

Table 34 presents the results of all 6 one-way ANOVAs. There are two significant comparisons: gender for last-born African Americans and order for African American females. The mean for last-born African Americans males (40.0455) is significantly higher than the mean of last-born African American females (33.7500). The mean of only-born African American females (40.4286) is significantly higher than the mean of last-born African American females (33.7500).

Table 34

*One-way ANOVA for- African Americans on Maximum
Opportunities for Learning*

Analysis	F	df	p
Order for Male	.998	3, 68	.399
Order for Female	2.755	3, 83	.048*
Gender for Only-born	.817	1, 9	.393
Gender for Firstborn	.323	1, 46	.573
Gender for Middle-born	1.325	1, 49	.255
Gender for Last-born	8.962	1, 45	.005*

*significant at .05 level.

Birth Order by Gender for Caucasians

Table 35 presents the ANOVA results. There is no significant two-way interaction. Therefore, I looked at the main effects. The main effects for order is not significant. Null hypothesis 1f is retained for Caucasians. Main effect for gender is not significant, therefore null hypothesis 2f is retained for Caucasians.

Table 35

*Results of Two-way ANOVA Table for Dependent Variable:
Opportunities for Learning for Birth Order by Gender for
Caucasians*

Source	Sum of Squares	df	Mean Square	F	p
Order	141.349	3	47.116	1.049	.372
Gender	24.577	1	24.577	.547	.460
Order x Gender	219.500	3	73.167	1.629	.183
Error	11276.472	251	44.926		
Total	448427.000	258			

*significant at .05 level.

Order by Ethnicity for Males

Table 36 presents the ANOVA results. The interaction effect is not significant, therefore I looked at the main effects. The main effect for birth order is not significant. Null hypothesis 1f is retained for males. The main effect for ethnicity is significant. Null hypothesis 3f is rejected for males. From the table of means it is clear that the mean for Caucasian males (41.1356) is significantly higher than the mean for African American males (37.8551).

Table 36

Results of Two-way ANOVA Table for Dependent Variable: Opportunities for Learning for Birth Order by Ethnicity for Males

Source	Sum of Squares	df	Mean Square	F	p
Order	77.293	3	25.764	.428	.733
Ethnicity	398.666	1	398.666	6.618	.011*
Order x Ethnicity	374.033	3	124.678	2.070	.106
Error	10783.306	179	60.242		
Total	309770.000	186			

*significant at .05 level.

Order by Ethnicity for Females

Table 37 presents the ANOVA results. Null hypothesis 6f is rejected. There is significant two-way interaction of birth order and ethnicity for females with respect to maximum opportunities for learning. Therefore all the one-way analyses were undertaken. They are given in Table 38.

Table 37

Results of Two-way ANOVA Table for Dependent Variable:
Opportunities for Learning for Birth Order by Ethnicity for Females

Source	Sum of Squares	df	Mean Square	F	p
Order	222.128	3	74.043	1.856	.138
Ethnicity	395.488	1	395.488	9.914	.002*
Order x Ethnicity	342.212	3	114.737	2.876	.037*
Error	8656.288	217	39.891		
Total	360056.000	224			

*significant at .05 level.

Table 38 presents the results of all 6 one-way ANOVAs. There are three significant comparisons: ethnicity for firstborn, ethnicity for last-born, and birth order for African Americans. The mean for firstborn Caucasian females (41.5778) is significantly higher than the mean of firstborn African American females (36.5185). The mean for last-born Caucasians females (40.9744) is significantly higher than the mean of last-born African American females (33.7500). The F ratio for birth order for African American females was significant, so a post hoc test was conducted. The conservative Scheffe test revealed no significant contrast. However, because of the significant F ratio, I may conclude that the highest mean (only-born, 40.4286) is significantly different from the lowest mean (last-born, 33.7500).

Gender by Ethnicity for Only-Children

Table 39 presents the ANOVA results. The interaction effect is not significant. I therefore looked at the main effects. The main effect for gender is not significant. The null hypothesis 2f is retained for only-borns. The main effect for ethnicity is not significant. Null hypothesis 3f is retained for only-borns.

Table 38

One-way ANOVA for Females on Maximum Opportunities for Learning

Analysis	F	df	p
Order for African American	2.755	3, 83	.048*
Order for Caucasian	.395	3, 140	.757
Ethnicity for Only-born	.155	1, 15	.700
Ethnicity for Firstborn	11.291	1, 71	.001*
Ethnicity for Middle-born	1.353	1, 73	.249
Ethnicity for last-born	19.453	1, 62	.000*

*significant at .05 level.

Table 39

Results of Two-way ANOVA Table for Dependent Variable: Maximum Opportunity for Learning for Gender by Ethnicity for Only-Children

Source	Sum of Squares	df	Mean Square	F	p
Gender	15.159	1	15.159	.303	.587
Ethnicity	27.890	1	27.890	.558	.462
Gender x Ethnicity	z58.846	1	58.846	1.176	.288
Error	13.00.603	26	50.023		
Total	49052.000	29			

*significant at .05 level.

Gender by Ethnicity for Firstborn Children

Table 40 presents the ANOVA results. The interaction effect is not significant. I therefore looked at the main effects. The main effect for gender is not significant. Null hypothesis 2f is retained for firstborn. The main effect for ethnicity is significant. The mean of firstborn Caucasians (41.5778) is higher than the mean of firstborn African Americans (36.5185).

Table 40

Results of Two-way ANOVA Table for Dependent Variable: Maximum Opportunity for Learning for Gender by Ethnicity for Firstborn

Source	Sum of Squares	df	Mean Square	F	P
Gender	.279	1	.279	.006	.940
Ethnicity	433.462	1	433.462	8.815	.004*
Gender x Ethnicity	49.449	1	49.449	1.006	.318
Error	6491.078	132	49.175		
Total	219838.000	135			

*significant at .05 level.

Gender by Ethnicity for Middle-Born Children

Table 41 presents the results of the 2-way ANOVA. There is significant two-way interaction. Thus hypothesis 6f is rejected. This requires that all possible one-way ANOVAs be run. The results of these four analyses are given in Table 42.

Table 41

Results of Two-way ANOVA Table for Dependent Variable: Maximum Opportunity for Learning for Gender by Ethnicity for middle-Born

Source	Sum of Squares	df	Mean Square	F	p
Gender	2.540	1	2.540	.050	.823
Ethnicity	654.961	1	654.961	13.200	.000*
Gender x Ethnicity	244.899	1	244.899	4.936	.028*
Error	5805.485	117	49.620		
Total	201389	120			

*significant at .05 level.

Table 42 presents the results of all 4 one-way ANOVAs. There are two significant

comparisons: ethnicity for males and gender for Caucasians for middle-born children. The

mean for middle-born Caucasian males (44.0870) is significantly higher than the mean

for middle-born African American males (36.2500). The mean for middle-born

Caucasian males (44.0870) is significantly higher than the mean for middle-born

Caucasian females (40.8125).

Gender by Ethnicity for Last-Born

Table 43 presents the results of the two-way ANOVA. The two-way interaction is

significant. Thus hypothesis 6f is rejected. This requires that all possible one-way

ANOVAs be run. The results are given in Table 44.

Table 42

One-Way ANOVAs for Middle-Born Children on
Maximum Opportunities for Learning

Analysis	F	df	p
Gender for African American	1.325	1, 49	.255
Gender for Caucasian	4.467	1, 70	.038*
Ethnicity for Males	12.473	1, 46	.001*
Ethnicity for Females	1.353	1, 73	.249

*significant at .05 level.

Table 44 presents the results of all the 4 one-way ANOVAs. There are two significant comparisons: ethnicity for females and gender for African Americans. The mean of Caucasian females (40.9744) is significantly higher than the mean of African American females (33.7500). The mean for African American males (40.0455) is significantly higher than the mean for African American females (33.7500).

Table 43

Results of Two-way ANOVA Table for Dependent Variable: Maximum Opportunity for Learning for Gender by Ethnicity for Last-Born

Source	Sum of Squares	df	Mean Square	F	p
Gender	245.968	1	245.968	5.094	.026*
Ethnicity	428.024	1	428.024	8.865	.004*
Gender x Ethnicity	332.677	1	332.677	6.890	.010*
Error	5842.429	121	48.285		
Total	199547.000	124			

*significant at .05 level.

Table 44

One-Way ANOVAs for Last-born Children on Maximum Opportunities for Learning

Analysis	F	df	P
Gender for African Americans	8.962	1, 45	.005*
Gender for Caucasian	.095	1, 78	.759
Ethnicity for Males	.052	1, 61	.821
Ethnicity for Females	19.453	1, 62	.000*

*significant at .05 level.

Variable (g): Parent/Community Involvement

Table 45 gives the means on parent/community involvement on the three-way

table birth order by gender by ethnicity.

Table 46 gives the results of the three-way ANOVA for this variable

parent/community involvement. There is no significant three-way interaction but with the

probability level being so close at .065, I decided to run the two-ways nonetheless. The

results of these analyses follow.

Birth Order by Gender for African Americans

Table 47 gives the results of the two-way ANOVA. The interaction effect is not

significant. Therefore I looked at the main effects. The main effect for birth order is not

significant. Thus hypothesis 7g is retained for African Americans. The main effect for

gender is not significant. Thus hypothesis 2g is retained for African Americans.

Table 45

Means on Parent/Community Involvement

Birth Order	Male			Female			Total		
	African America n	Caucasia n	Total	African America n	Caucasia n	Total	African America n	Caucasia n	Total
Only	4.3333	7.0000	6.4286	6.7143	6.8889	6.8125	6.0000	6.9500	6.3333
First	6.0500	6.4091	6.2969	6.4444	6.8889	6.7222	6.2766	6.6517	6.5221
Middle	5.3333	7.2174	6.2553	5.9615	7.0208	6.6486	5.6600	7.0845	6.4959
Last	6.2727	6.4250	6.3710	5.3333	6.8462	6.2698	5.7826	6.6329	6.3200
Total	5.7971	6.6271	6.3209	6.0000	6.9220	6.5778	5.9085	6.7876	6.4612

Table 46

Results of ANOVA for Dependent Variable: Parent/Community Involvement

Source	Sum of Squares	df	Mean Square	F	p
Order	3.575	3	1.192	.317	.813
Gender	8.558	1	8.558	2.278	.132
Ethnic	62.355	1	62.355	16.601	.000*
Order x Gender	12.986	3	4.329	1.152	.328
Order x Ethnic	18.268	3	6.089	1.621	.184
Gender x Ethnic	3.204	1	3.204	.853	.356
Order x Gender x Ethnic	27.303	3	9.101	2.423	.065+
Error	1487.418	396	3.756		
Total	18820.000	411			

*significant at .05 level.
+Level of significant outside of.05 but close enough to justify the running of the two-ways.

Table 47

*Results of Two-way ANOVA Table for Dependent Variable:
Parent/Community Involvement for Birth Order by Gender for
African Americans*

Source	Sum of Squares	df	Mean Square	F	P
Order	10.225	3	3.408	.827	.481
Gender	8.313	1	9.313	2.017	.158
Order x Gender	27.590	3	9.197	2.231	.087
Error	597.704	145	4.122		
Total	5978.000	152			

*significant at .05 level.

Birth Order by Gender for Caucasians

Table 48 gives the results of the two-way ANOVA. The interaction effect is not significant. I, therefore, looked at the main effects. The main effect for birth order is not significant. Thus hypothesis 1g is retained for Caucasians. The main effect for gender is not significant. Thus hypothesis 2g is retained for Caucasians.

Birth Order by Ethnicity for Males

Table 49 gives the results of the two-way ANOVA. The interaction effect is not significant. I, therefore, looked at the main effects. The main effect for birth order is not significant. Thus hypothesis 1g is retained for males. The main effect for ethnicity is significant. Thus hypothesis 3g is rejected for males. From the table of means, it is clear that the means of Caucasian males (6.6271) is significantly higher than the mean of African American males (5.7971).

Table 48

Results of Two-way ANOVA Table for Dependent Variable: Parent/Community Involvement for Birth Order by Gender for Caucasians

Source	Sum of Squares	df	Mean Square	F	p
Order	10.856	3	3.619	1.021	.384
Gender	.937	1	.937	.274	.601
Order x Gender	5.499	3	1.833	.517	.671
Error	889.714	251	3.545		
Total	12842.000	258			

*significant at .05 level.

Table 49

Results of Two-way ANOVA Table for Dependent Variable: Parent/Community Involvement for Birth Order by Ethnicity for Males

Source	Sum of Squares	df	Mean Square	F	p
Order	3.816	3	1.272	.319	.812
Ethnicity	39.267	1	39.267	9.489	.002*
Order x Ethnicity	30.560	3	10.187	2.555	.057
Error	713.638	179	3.987		
Total	8246.000	186			

*significant at .05 level.

Birth Order by Ethnicity for Females

Table 50 gives the results of the two-way ANOVA. The interaction effect is not significant. I, therefore, looked at the main effects. The main effect for birth order is not significant. Hypothesis 1g is therefore retained for females. The main effect for ethnicity is significant.

Table 50

Results of Two-way ANOVA Table for Dependent Variable: Parent/Community Involvement for Birth Order by Ethnicity for Females

Source	Sum of Squares	df	Mean Square	F	p
Order	12.932	3	4.311	1.209	.307
Ethnicity	23.153	1	23.153	6.493	.012*
Order x Ethnicity	11.552	3	3.851	1.080	.358
Error	773.780	217	3.566		
Total	10574.000	224			

*significant at .05 level.

Hypothesis 3g is thus rejected for females. From the table of means, it is clear that the mean of Caucasian females (6.9220) is significantly higher than the mean of African American females (6.0000).

Gender by Ethnicity for Only-Born

Table 51 gives the results of the two-way ANOVA. The interaction effect is not significant. I, therefore, looked at the main effects. The main effect for gender is not significant. Therefore hypothesis 2g is retained for only-born children. The main effect for ethnicity is not significant, therefore hypothesis 3g is retained for only-born children.

Table 51

Results of Two-way ANOVA Table for Dependent Variable: Parent/Community Involvement for Gender by Ethnicity for Only-Born

Source	Sum of Squares	df	Mean Square	F	p
Gender	7.597	1	7.597	1.606	.216
Ethnicity	11.903	1	11.903	2.516	.125
Gender x Ethnicity	9.157	1	9.157	1.936	.176
Error	122.984	26	4.730		
Total	1461.000	29			

*significant at .05 level.

Gender by Ethnicity for Firstborn

Table 52 gives the results of the two-way ANOVA. The interaction effect is not significant. Therefore I looked at the main effects. The main effect for gender is not significant. Therefore hypothesis 2g is retained for firstborn children. The main effect for ethnicity is not significant. Therefore hypothesis 3g is retained for firstborn children.

Table 52

*Results of Two-way ANOVA Table for Dependent Variable:
Parent/Community Involvement for Gender by Ethnicity for
Firstborn*

Source	Sum of Squares	df	Means Square	F	p
Gender	5.791	1	5.791	1.440	.232
Ethnicity	4.892	1	4.892	1.217	.272
Gender x Ethnicity	0.006	1	0.006	.014	.907
Error	530.697	132	4.020		
Total	6327.000	135			

*significant at .05 level.

Gender by Ethnicity for Middle-Born

Table 53 presents the results of the two-way ANOVA. The interaction effect is not significant. I, therefore, looked at the main effects. The main effect for gender is not significant. Therefore hypothesis 2g is retained for middle-born children. The main effect for ethnicity is significant. Therefore hypothesis 3g is rejected for middle-born children. It is clear from the table of means that the mean of middle-born Caucasians (7.0845) is significantly higher than the mean of middle-born African Americans (5.6600).

Gender by Ethnicity for Last-born

Table 54 presents the results of the two-way ANOVA. The interaction effect is not significant. Therefore I looked at the main effects. The main effect for gender is not significant. Therefore hypothesis 2g is retained for last-born children. The main effect for ethnicity is significant. Therefore hypothesis 3g is rejected for last-born children. From the table of means, it is clear that the mean of last-born Caucasians (6.6329) is

significantly higher than the mean of last-born African Americans (5.7826).

Table 53

Results of Two-way ANOVA Table for Dependent Variable:
Parent/Community Involvement for Gender by Ethnicity for
Middle-Born

Source	Sum of Squares	df	Mean Square	F	p
Gender	1.290	1	1.290	.413	.522
Ethnicity	59.979	1	59.979	19.216	.000*
Gender x Ethnicity	4.709	1	4.709	1.509	.222
Error	365.187	117	3.121		
Total	5536.000	120			

*significant at .05 level.

Table 54

Results of Two-way ANOVA Table for Dependent Variable:
Parent/Community Involvement for Gender by Ethnicity for Last-born

Source	Sum of Squares	df	Mean Square	F	p
Gender	1.950	1	1.950	.503	.479
Ethnicity	20.126	1	20.126	5.197	.024*
Gender x Ethnicity	13.437	1	13.437	3.470	.065
Error	468.549	121	3.872		
Total	5496.000	124			

*significant at .05 level.

It is important to note that had I not run all the two-way ANOVAs, I would have interpreted the main effect for ethnicity which is significant, as revealed in Table 46. Overall, the Caucasians' mean (6.7876) is significantly higher than the African Americans' mean (5.9085).

Summary

The results of this study were presented according to the scales or sections of the instrument used for data collection. Statistical analysis was conducted with use of 4 x 2 x 2 analysis of variance (ANOVA). The table of means and the three-way ANOVA table graphically illustrated the data for each of the seven dependent variables. Seven null hypotheses, each with seven parts, were tested. Of the seven three-way ANOVAs conducted, three had significant three-way interactions. For each of those with significant interactions, two-way ANOVAs were performed. Thirty-two 2-way ANOVAs were conducted. A three-way ANOVA was conducted for the seventh dependent variable, "Parent/Community Involvement." Even though the alpha for the three-way interaction was greater than .05 it was so close to .05, that I thought it was worthwhile to perform the two-way ANOVAs. I performed six 1-way ANOVAs as a result of six significant two-way interactions.

Table 55 presents a summary of the results. The results showed that birth order was not a very significant factor in shaping student perception of school effectiveness, but that gender and ethnicity were significant in several of the scales.

Table 55

Summary of Results

Description	three-way		2-Way		1-Way
	Significant Interaction	Main Effect	Significant Interaction	Simple Main Effect	
Safe and Orderly					
B x G x E	✓	x x ✓			
B x G (African American)			x	x x	
B x G (Caucasian)			x	x x	
B x E (Male)			x	x ✓	
B x E (Female)			x	x ✓	
G x E (Only child)			x	x ✓	
G x E (Firstborn)			✓	x ✓	x x x ✓
G x E (Middle-born)			x	x ✓	
G x E (Last-born)			x	x ✓	
Positive School Climate	x	x ✓ ✓			
High Expectations	x	x x ✓			
Assessment	x	x x x			
Basic Skills					
B x G x E	✓	x x x			
B x G (African American)			x	x x	
B x G (Caucasian)			x	x x	
B x E (Male)			x	x x	
B x E (Female)			x	x x	
G x E (Only child)			x	x x	
G x E (Firstborn)			x	x x	
G x E (Middle-born)			x	x x	x x x x*
G x E (Last-born)			x	x x	
Opportunities for Learning					
B x G x E	✓	x x ✓			
B x G (African American)			✓	x x	x ✓ x x x ✓
B x G (Caucasian)			x	x x	
B x E (Male)			x	x ✓	
B x E (Female)			✓	x ✓	✓ x x ✓ x ✓
G x E (Only child)			x	x x	
G x E (Firstborn)			x	x ✓	
G x E (Middle-born)			✓	x ✓	x ✓ ✓ x*
G x E (Last-born)			✓	✓ ✓	✓ x x ✓
Parent Community					
B x G x E	x*	x x ✓			
B x G (African American)			x	x x	
B x G (Caucasian)			x	x x	
B x E (Male)			x	x ✓	
B x E (Female)			x	x ✓	
G x E (Only child)			x	x x	
G x E (Firstborn)			x	x x	
G x E (Middle-born)			x	x ✓	
G x E (Last-born)			x	x ✓	

* Level of significance close to 0.05.

Key to Table 49

B x G x E	—	Birth order by Gender by Ethnicity
B x G	—	Birth order by Gender
G x E	—	Gender by Ethnicity
✓	—	Significant at .05 level
x	—	Not significant at .05 level
✓ x (for 2 way ANOVA)	—	Significant or not significant in the order of the variable (e.g., G x E = ✓ x)
x ✓ x x x ✓		Birth order for males, birth order females, gender for only children, gender for firstborns, Gender middle-borns, gender last-borns
✓ x x ✓ x ✓		Birth order for African Americans, birth order for Caucasians, ethnicity for only children, ethnicity for firstborns, ethnicity for middle-borns, ethnicity for last-borns
+		Gender for African American, gender for Caucasians, ethnicity for males, ethnicity for females

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION, AND

RECOMMENDATIONS

Summary

Introduction

This study was conducted to determine whether students' perceptions of the

effectiveness of their schools were related to, or influenced by, their birth order, their

gender, or their ethnicity. This investigation solicited input of seniors from schools

randomly selected from a county in Southwestern Michigan. It sought to determine how

these student perceived their schools. The demographic categories were designed to help

determine how segments of seniors perceived the effectiveness of their schools.

Overview of the Literature

The study examined various sources that dealt with birth order and with school

effectiveness. The literature review noted the behavior characteristics of each birth order

category identified in the study. It also presented research data on the dependent

variables in this study.

Though Ernst and Angst (1983), Rodgers (2001) and others argue against the

validity of birth-order positioning as a discriminating factor, Moravski (1999), Oettinger

(2001), Seigle and Schuler (2001), Sulloway (1996), and Zajonc (2001) support it. Banks

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and Khan (1982), Boer and Dunn (1992), and Santrock (2001) agree that birth order impacts the sibling's attitude to life. Ewart (1994) concluded that compared to later-born siblings, firstborn children tend to conform more to authority, attain higher levels of education, and achieve more occupationally. Forer (1977) stated that firstborn children have the need for approval of others, tend to conform to authority, are susceptible to social pressure, and have high responsibility scores.

The middle-born children are the most difficult to define. They tend to compete with the older siblings if they think that they can successfully do so. They feel squeezed from above and below. They have many friends, are mediators, avoid conflicts, are extremely loyal to their peers and are secretive (Leman, 1985).

Salloway (1996) noted that last-born children did not conform to the status quo and were the most likely to rebel against the establishment. Leman (1985) saw last-born children as personable manipulators, affectionate, outgoing charmers, and often absentminded. They are popular, like people, and seek professions that are people oriented. They compete with those who excel, though often by devious means. Last-born children tend to be impetuous and brash.

Adler (1927, 1946) averred that only-children are pampered and unaccustomed to handling difficulties. They are constantly the center of attention, which gives them a sense of importance. Leman (1985) noted that only-born children tend to be critical of themselves and of others. They are considered perfectionists, reliable, conscientious, well-organized, critical, serious, scholarly, cautious, and conservative.

Whereas some contend that gender is a non-issue, and although the data seem to suggest that there is a narrowing gap in performance between males and females, a gender

gap still exists. Bowman (2000) and Riordan (1999) concur that there is a gap.

Though the characteristics of effective schools vary in some studies, some common ones have been identified. These include high expectations for learning, safe and orderly environment, frequent assessment, emphasis on basis skills, optimal opportunity for learning, and parental and community involvement in the school (Edmonds, 1996; Steller, 1988; Taylor, 2002; Zigarelli, 1966). Edmonds (1979) believed that a school is effective when the children of the poor as well as children in middle-class schools are prepared in basic skills. Hoy and Miskel (2001) averred that school climate distinguishes one school from another. The American Youth Policy Forum (2000) presented findings that indicated that 50% of respondents polled believed that schools had gotten too far away from teaching basic skills.

But of great importance is the statement from the National Commission on High School Senior Year (2001) that the high school's primary goal should be graduating students who were ready and eager to learn—students who were more capable of thinking critically and who were comfortable with the ambiguities of the problem-solving process.

Methodology

This study utilized a survey method for collection of data. The instrument used in data collection was the School Effectiveness Questionnaire (SEQ). It is an intact instrument consisting of 48 items on school effectiveness to which respondents used a 5-point Likert scale ranging from 1, strongly disagree, to 5, strongly agree, to evaluate their school. The instrument is divided into seven scales. The statistical analysis was performed using a 4 x 2 x 2 ANOVA.

Population and Sample

The sample was drawn from six high schools from a county in Southwestern Michigan. The schools were randomly selected. Four hundred and forty-four seniors responded to the survey, but the data from 32 were deemed unuseable due to the absence of pertinent information. Of the 412 respondents whose surveys were used, 45% were male and 55% female. Thirty-seven percent were African American and 63% were Caucasian. Seven percent were only-born, 33% firstborn, 30% middle-born, and 30% were last-born.

Findings

The analysis used in this study was a three-way ANOVA, necessitating seven null hypotheses. These hypotheses were three main effects, which are birth order, gender, and ethnicity, three 2-way interactions, and a three-way interaction. The main effects hypotheses are the only ones stated here.

Hypothesis 1: There is no significant difference among the mean scores on the perception of school effectiveness on the part of 12th-grade students of the four birth-order groups.

Hypothesis 2: There is no significant difference between the mean scores on perception of school effectiveness on the part of male and female 12th-grade students.

Hypothesis 3: There is no significant difference between the mean scores on perception of school effectiveness on the part of African American and Caucasian 12th-grade students.

Because each hypothesis was tested with reference to seven dependent variables,

this section will present the results separately for each dependent variable.

Variable 1: Safe and Orderly Environment

There was significant three-way interaction in the analysis of this variable. The results of the simple effects analysis are as follows:

1. There was no significant difference among the four birth-order groups or between gender for either the African Americans or the Caucasians.

2. For both males and females, the means for Caucasians were significantly higher than those for African Americans.

3. For only-children there was no significant difference between males and females, but the mean for Caucasians was significantly higher than the mean for African Americans.

4. For firstborn students there was significant two-way interaction between gender and ethnicity. There was a significant difference between the mean scores of female Caucasian students and female African American students. Caucasian females had higher mean scores than African American females. But there were no significant differences for firstborn males, gender for firstborn African Americans, or gender for firstborn Caucasians.

5. For middle-born students, Caucasians had a significantly higher mean score than African Americans. But there was no significant difference between males and females.

6. For last-born students, Caucasians had a significantly higher mean than African Americans. But there was no significant difference between males and females.

Variable 2: Positive School Climate

There were no significant three-way or two-way interactions in the analysis of this variable. The results of main effects follow:

1. There was no significant difference among the mean scores on the perception of positive school climate on the part of 12th-graders of four birth order groups.

2. There was significant difference between the mean scores on the perception of positive school climate, of males, and females. Males had significantly higher mean scores than females.

3. There was significant difference between the mean scores of African Americans and Caucasians on the perception of 12th-graders on this variable. Caucasians had significantly higher mean scores than African Americans.

Variable 3: High Expectations

There were no significant three-way or two-way interactions in the analysis of this variable. The results of the main effects follow:

1. There was no significant differences among the mean scores on the perception of high expectations on the part of 12th-graders of the four birth order-groups.

2. There was no significant difference between the mean scores on the perception of high expectations for male and female 12th-graders.

3. There was significant difference between the mean scores of African American and Caucasian 12th -graders' perception on high expectations. Caucasians had significantly higher mean scores than African Americans.

Variable 4: Frequent Assessment/Monitoring of Student Achievement

There were no significant three-way or two-way interactions in the analysis of this variable. There was no significant difference in mean scores on the perception of 12th - graders (a) among the four birth-order groups (b) between males and females, and (c) between African Americans and Caucasians.

Variable 5: Emphasis on Basic Skills

There was significant three-way interaction in the analysis of this variable. The results of the two-way effects follow:

1. For neither African Americans nor Caucasians was there a significant difference in mean scores among the four birth-order groups or between the genders.

2. For neither males nor females was there a significant difference in mean scores on the perception of this variable between the two ethnic groups.

3. There was no significant difference in the mean scores for only-children for gender or for ethnicity.

4. For firstborn students there was no significant difference in mean scores between the genders and between the two ethnic groups.

5. For middle-born students, there was significant two-way interaction between gender and ethnicity. But there was no significant difference in the mean scores of the following the following: (a) African American and Caucasian males, (b) African American and Caucasian females, (c) African American males and females, and (d) Caucasian males and females.

6. For last-born children, there was no significant difference in mean scores on

the perception of 12th -graders between males and females, and between African American and Caucasians.

Variable 6: Maximum Opportunities for Learning

There was significant three-way interaction in the analysis of this variable. The results of the two-way analyses are as follows:

1. There was significant two-way interaction between birth order and gender for African American students: (a) There was significant difference in the mean scores of last-born African American males and females. Last-born African American males had significantly higher mean scores than last-born African American females. But there was no significant difference in mean scores for this variable for (b) only-children African American males and females, (c) firstborn African American males and females, (d) middle-born African American males and females, (e) birth order for African American males, and (f) birth order for African American females.

2. For Caucasian students, there was no significant difference in mean scores among the four birth-order groups or between the genders.

3. For males, the mean scores for Caucasians were significantly higher than that for African Americans. But there was no significant difference in mean scores among the four birth-order groups.

4. For females, there was two-way interaction between birth order and ethnicity. The mean score of first- and last-born Caucasian females was significantly higher than that for first- and last-born African American females respectively. The mean score for middle-born African American females was significantly higher than that for last-born

African American females. But there was no significant difference in the mean scores of only- and middle-born females and among Caucasian females in the four birth-order groups..

5. For only-children there was no significant difference for gender or ethnicity.

6. For firstborn children there was no significant difference for gender, but Caucasians had significantly higher means than African Americans.

7. For middle-born students, there was significant two-way interaction. Middle-born Caucasian males had significantly higher mean scores than that of middle-born African American males and middle-born Caucasian females. There was no significant difference in mean scores for ethnicity for middle-born females, neither for gender, nor for middle-born African Americans.

8. There was a significant two-way interaction for last-born students. For both last-born females and gender for last-born African Americans, there was significant difference in mean scores. Caucasian females had a significantly higher mean than African American females. The same was true for last-born African American males over African American females. Among last-born students, there was no significant difference in the mean score for ethnicity for males or gender for Caucasians.

Variable 7: Parent/Community Involvement

This variable had no significant three-way interaction, but since the alpha for the three-way interaction was .065, I decided to perform the two-way ANOVAs.

1. For neither African American nor Caucasian students was there a significant difference between birth order or between the genders.

2. For both males and females, the mean score for Caucasians was significantly higher than for African Americans. But there was no significant difference among the birth order groups for either only- or firstborn students.

3. There was no significant difference in the mean score between genders or between ethnic groups.

4. For both middle-born and last-born students, the mean for Caucasians was higher than the mean for African Americans. There was no significant difference for gender.

Discussion

The sample size projected for this study was 200+. This was based on power analysis undertaken with Alpha = .05, medium effect size at two different levels .90 and .80. The actual sample size in this study was 400+, more than double the projected size. This was well above the desired power, and provided safety in the interpretation of the results.

Birth Order

Previous studies revealed that birth order has played a significant role in the perceptions and performances of subjects in several areas that include perfectionism and giftedness (Seigle & Schuler, 2000); intelligence (Zajonc, 2001); school graduation outcomes (Oettinger, 2001); and reading (Moravski, 1999). However, in this study birth order was not significant at the .05 level or lower. There was significance for gender and ethnicity in some but not in all of variables that were investigated.

Hypothesis 1: There is no significance difference among the mean scores of the

four birth-order groups on the seven dimensions of school effectiveness.

In chapter 1 I stated that the literature seemed to suggest that people's thoughts and acts were influenced, if not shaped, by their birth-order positioning (Forer, 1977; Leman, 1985); Sulloway, 1996). One of the issues I raised in this study was whether birth order influenced student perceptions of school effectiveness. Based on the findings, there is no significant impact of birth order on students' perceptions of school effectiveness.

On each dimension, except for frequent assessment and maximum opportunities for learning, students, taken as a block, rated their schools on the average 3 or slightly higher, which approximates to neutral. On these two exceptions, students rated their schools on the average 3.5. When students were classified by birth order, some birth-order groups rated their schools even lower. The mean scores ranged from 2.6 to 3.6 across all dimensions. When taken as a whole, students were not convinced that their schools performed in any significant way on any of the dimensions of school effectiveness. Neither as a block nor by birth-order categories did students rate their schools at 4 (agree) or better. I expected the sample as a whole and even some birth-order categories to rate their schools higher than that reflected in this study. Lee's findings (1993) indicated that students had less positive perceptions of their schools than teachers and administrators. Yet I found it surprising that students did not perceive their schools in a more favorable light.

Of the seven variables of the hypothesis related to birth order, none was completely significant at the .05 level and they were all retained except for one 1-way analysis on the dimension maximum opportunity for learning. Only-child African American females had a significantly higher mean score than last-born African

Americans females. There was value to the recommendation of Field (1974) and Perlin and Grater (1984) that birth order should be studied with gender and ethnicity. The results seem to support Ernst and Angst (1983) and Rodgers' (2001) view that birth order is not a significant factor in shaping one's world view, but because of its visibility and easy identifiability, it receives credit for other less visible characteristics like genetics, quality of schooling, and quality of parental support.

But the converse view is also presented. Forer (1969, 1977), Salloway (1996), and Zajonc (2001) all argue for significant differences in attitudes, beliefs, perceptions, and behavior based on birth-order positioning. Based on discoveries in the literature, I expected to find significant differences in student perceptions based on birth order. There is general agreement that firstborns conform more to authority than those who were born later (Davis, 1997; Ewart, 1994; Forer, 1977; Leman, 1985; Sulloway, 1996). They tend to be more intelligent (Zajoncc, 2001), perfectionistic, conscientious, serious, and scholarly (Leman, 1985) than later-born siblings. They need approval from others, have low test anxiety, have a strong need for achievement, are task oriented, are susceptible to social pressure (Forer, 1977), and have high responsibility scores (Forer, 1977; Harris & Morrow, 1992).

Based on the profiles of the various birth-order positions presented in the literature, there were a few outcomes that I expected. Firstborn students would have been significantly different from others except perhaps for only-children. Only-children possess some similar characteristics to firstborn, though to a lesser degree. They have never been "dethroned" and they do not have siblings. I expected middle-born students to be more open-minded (Sulloway, 1996) and creative and original (Eisenman, 1964;

Leman, 1985). On the other hand, they were stuck in the middle and neglected (Kidwell, 1982; Powers, 2000). This should have created an attitude of ambivalence which should have influenced the way they perceived their school. It should have been different from the other groups.

I expected last-born students to reveal a spirit of rebelliousness against the status quo in the way they evaluated the system (Sulloway, 1996; Zweigenhaft, 2002). Maybe last-born students did, based on the low rating that they gave their schools. If last-borns were rebellious in the way they rated their schools, then they were not significantly different from the other birth-order groups except for firstborns on one dimension, maximum opportunity for learning.

I especially expected firstborn students to show marked differences on the dimensions safe and orderly environment and maximum opportunities for learning. This is predicated on the following. Firstborn children tended to be overprotected (Leman, 1985). I am suggesting that this desire for a safe environment may have found its genesis in the rupturing of the security that firstborn children enjoyed until their "dethronement" by a second-born. No other sibling suffered such displacement in the way the firstborn did. As a result there is always a longing for safety. Orderliness is cultivated by parents demanding precision and orderliness from firstborn siblings which are not generally demanded of later-borns. I believe that these tendencies are also reflected in school. Therefore, firstborns may be critical of any environment which is not perfect. It should be borne in mind that they are critical and perfectionistic (Leman, 1985). It is my belief that this should have driven firstborn students, in a significant way, to perceive their schools in a less than ideal manner. They would then have evaluated them much less

favorably than the other birth-order groups, and not statistically similar to them.

Firstborns' occupation with great achievement (Forer, 1977), need for scholarship (Leman, 1985), attainment of higher IQs than others (Belmont &Marolla, 1973), and their greater than expected proportion assigned to gifted programs (Schuler, 1997) would suggest that firstborn students would never be satisfied with the opportunities for learning available to them. The mean scores of firstborns on the variables safe and orderly environment and maximum opportunities for learning were among the lowest when compared to the other birth-order groups. In both cases firstborns' mean scores were one place from the bottom of the pack. But the results were not statistically significantly different from the other groups on these characteristics, as I expected.

Even though there was no significant difference among the mean scores of the four birth-order groups, firstborns had the highest means in four of the seven scales or characteristics. These were positive school climate, frequent assessment/monitoring of student achievement, emphasis on basic skills, and parent/community involvement.

Gender

Hypothesis 2: There is no significant difference between the mean scores of males and females on the seven dependent variables of school effectiveness.

There was relative closeness in rating of schools by males and females. The average mean scores for both genders ranged from 3.10 to 3.5. Males had higher mean scores on four dimensions, whereas females had higher mean scores on three.

Some researchers indicated a narrowing gap between males and females in performance and perception of school and non-school-related issues. I expected to find a

mixed response from the sample in this study. I expected to find males scoring higher than females on the variables: safe and orderly environment and on high expectations (Santrock, 2001; Siegele & Schuler, 2000). I expected females to have higher mean scores on the dimension emphasis on basic skills (Ogden, 1994; Riordan, 1999; Santrock, 2001). I had no expectation in what direction there would have been significant difference, if any, in mean scores on the following dimensions: frequent assessment/monitoring of student achievements, maximum opportunities for learning, and parent/community involvement (Santrock 2001; Stetsenko et al., 2000).

Santrock (2001) noted that males took on more dangerous tasks while females tended to be involved in more nurturing ones. These tendencies bring into focus safe environment for males and positive climate for females, respectively. Siegle and Schuler (2000) in their study on the gifted found that parents had higher expectations for males than they had for females.

The results for gender revealed significant difference for the dimension positive school climate, and for middle-born Caucasians and last-born African Americans on the dimension maximum opportunities for learning. For no other dimension was there significant difference in mean scores for gender. Males had significant higher mean scores than females in every case.

The results for gender reflect the data presented by Santrock (2001) that there were greater cognitive similarities between males and females than differences. Like Siegle and Schuler (2000), Santrock noted that significant difference between males and females was to be found among the gifted. This study did not specifically target the gifted and therefore could not verify their findings. The results did not support the

findings of Ogden (1994) and Onyegam (1994), whose findings on perceptions of males and females identified significant differences. It does appear that the greater effort by teachers and other educators to de-emphasize gender differences and emphasize similarities in the educative process, and in life, has taken root.

<div align="center">Ethnicity</div>

Hypothesis 3: There is no significant difference between the mean scores of African Americans and Caucasians on the seven dependent variables of school effectiveness.

Caucasians tended to rate their schools slightly higher than African Americans except on the dimension emphasis on basic skills where African Americans had a higher mean score. African Americans' mean scores ranged from 2.79 to 3.5, whereas Caucasians' mean scores ranged from 3.2 to 3.6 on all dimensions.

All the researchers that I have identified in the review of the literature indicated that there were differences between African Americans and Caucasians in a variety of variables (Boykin & Toms, 1985; Dezmon, 1996; Jensen, 1969; Ogbu, 1988; Shaffer, 2000). In this study, I found significant differences between the two ethnic groups on five of the seven dependent variables. Researchers have advanced very different reasons for the wide gaps between the two ethnic groups. These include genetic inferiority of African Americans (Jensen, 1969), peer pressure (Shaffer, 2000), fear that success and "whiteness" are associated (Steiberg et al., 1993), limited opportunities for African Americans after graduation (Entwistle, 1990), and double standards by teachers in dealing with both groups (Santrock, 2001). Whether the reasons advanced for the differences

between these two ethnic groups are valid or not, there is at least one thing on which there could be agreement. Based on the findings from this study, there are significant differences in perceptions between them on several of the dependent variables.

In every instance where there was significant difference in the mean, Caucasian students had higher scores than African American students. Could it be that a major reason that there is significant differences between African American and Caucasian students' perceptions and performance is linked to the information referred to in Thinking K-16? It indicated that the school and the school system are failing minority students, by giving them less in school and in the school system.

The two dimensions for which there were no significant differences in mean scores were emphasis on basic skills, and frequent assessment/monitoring of student achievements. One reason why there was no difference on the former may be found in The American Youth Policy (2000). It cited a poll indicating that 50% of respondents thought that schools had gotten too far away from teaching the basic skills. Another reason may be found in The National Commission on High School Senior Year (2000). It revealed that only 44% of high-school students earned the minimum number of academic credits recommended in 1983 by the National Commission on Excellence in Education. The U.S. Department of Commerce, Bureau of Census, Current Population Survey (March 1999) indicated that 30% of high-school graduates who went to college needed to take a remedial course in such basic subjects as English and algebra. Finally the Educational Testing Service (1990) gave a serious indictment against the education system in preparing students on basic skills. It noted that although more students appeared to be gaining basic skills, fewer were demonstrating a grasp of higher-level

thinking skills. Even though the report indicated that the gap between White students and minority students was unacceptably high, it noted that performance was generally low with little improvement. Eighty-one to 96% of students had only rudimentary interpretative skills. That is an indictment against all students: Caucasians and African Americans.

On the latter of the two dimensions frequent assessments/monitoring of student achievements in which there was no significant difference, I wish to suggest possible reasons for this situation. Eggen and Kauchak (1994) and Elkind (1988) believed that stress and anxiety interfered with students' performance on tests. Eggen and Kauchak also reported that teachers' inadequate preparation for assessment can have a negative effect. David and Shields (1991) were critical of the incongruence between what teachers were asked to teach, and the tests that measured their teaching. All students, both African American and Caucasians, are affected by problems raised. These could have contributed to no significant difference in mean scores between the groups.

Conclusions

This section presents each research question and a brief concluding response after each.

Research Question 1: Is there a difference among the mean scores of only-child, first-, middle-, and last-born students in the way they perceive the seven dimensions of school effectiveness?

With the exception of African Americans, only- and last-born females on the dimension maximum opportunities for learning, birth order was not a significant factor in

this study.

Research Question 2: Is there a difference between the mean scores of male and female students in the way they perceive the seven dimension of school effectiveness?

In this study gender played a minimal role as a means of discrimination. Males had significantly higher mean scores than females on the dimension positive school climate. On the dimension maximum opportunities for learning, African American males had a significantly higher mean score than African American females; middle-born Caucasian and last-born African American males had significantly higher mean scores that middle-born Caucasian and last-born African American females respectively.

Research Question 3: Is there any difference between the mean score of African American and Caucasian students in the way they perceive the seven dimensions of school effectiveness?

Of the three independent variables ethnicity showed the greatest discrimination. In five of the seven dimensions of school effectiveness, Caucasians either wholly or partially (partially meaning Caucasian males or females) had significantly higher mean scores than African Americans.

The findings of this study are limited to the population from which the sample was drawn.

Recommendations

The following recommendations are made for further research.

1. This study should be replicated with socioeconomic factor as an independent variable.

2. It is recommended that future studies include other minority groups which have been excluded from this study.

3. It is recommended that future studies on birth order could be limited to family sizes of up to four. This could partial out any biases that may be present when family sizes up to 10 are used.

4. Future studies on birth order could set the spacing limit of family members. For example, siblings should be no more than 2 or 3 years apart.

5. It might be interesting for this study to be replicated as a within-family study: all the subjects should have siblings included in the sample. Spacing seems to impact birth order.

6. A study that should be both interesting and informative is one where students' academic performance (either MEAP score or grades in school) is included.

7. It is recommended that the study be replicated with grade as an independent variable. This would reveal whether the results of this study are consistent across grades.

8. A replication of this study with schools classified as high performing, average, and low performing based on the schools' performance in the MEAP/ plus other means of classification, should yield very interesting results.

9. It is recommended that future studies could seek to determine whether there is any direct relationship between birth order and perception of school effectiveness.

Since birth order did not significantly influence students' perceptions of school effectiveness, I refrained from making any recommendations which could affect practice. The one exception is that further research be continued with birth order and students in a variety of areas, so that any benefits that may accrue from such studies would be applied

to practice in the field of education.

APPENDICES

APPENDIX A

CORRESPONDENCE

Andrews ◎ University

L e Co. 1

April 11, 2002

Hamil Tobias

Hamil Tobias
9124 George Avenue, Apt. #9
Berrien Springs, MI 49104

Dear   Hamil

RE: APPLICATION FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS
IRB Protocol #: 02-G-026   **Application Type:** Original   **Dept:** Ed. & Counseling Psychology
Review Category: Expedited   **Action Taken:** Approved   **Advisor:** Lenore Brantley
Protocol Title: A Study of the Influence of Birth Order and Other Variables on Student Perceptions of
                School Effectiveness in South Western Michigan

On behalf of the Institutional Review Board (IRB) I want to advise you that your proposal has been
reviewed and approved. You have been given clearance to proceed with your research plans.

All changes made to the study design and/or consent form, after initiation of the project, require prior
approval from the IRB before such changes can be implemented. Feel free to contact our office if you have
any questions.

The duration of the present approval is for one year. If your research is going to take more than one year,
you must apply for an extension of your approval in order to be authorized to continue with this project.

Some proposal and research design designs may be of such a nature that participation in the project may
involve certain risks to human subjects. If your project is one of this nature and in the implementation of
your project an incidence occurs which results in a research-related adverse reaction and/or physical injury,
such an occurrence must be reported immediately in writing to the Institutional Review Board. Any project-
related physical injury must also be reported immediately to the University physician, Dr. Loren Hamel, by
calling (616) 473-2222.

We wish you success as you implement the research project as outlined in the approved protocol.

Sincerely,

Michael D Pearson
Graduate Assistant
Office of Scholarly Research

9124 George Ave., #9   [Letter 2]
Berrien Springs, MI 49103

April 11, 2002

Dear Principal:

My dissertation project in Educational Psychology involves a survey of students in twelfth grade to determine whether the birth order gender and ethnicity of students play a role in their perception of their school. This dissertation project is part of the requirements for the completion of a Ph.D. degree at Andrews University.

This study will attempt to investigate if there is any link between birth order and student' perceptions of the effectiveness of their schools. In this way administrators, teachers, and parents can structure the school environment to better meet the unique needs of students of different birth order.

Six high schools are needed for the collection of data for this dissertation project, and your school has been selected. To this end I seek your permission and kind cooperation with the collection of data for this study.

The survey is scheduled to be conducted between the months of April and June, 2002. There are hazards or risks associated with the data collection. The questionnaire will take approximately 15 minutes to complete. It will be conducted at a time convenient to your school's schedule. The information collected will be held in the strictest confidence. Neither the school's nor the students' name will be used in the report of the project.

Thank you for your kind cooperation. If you have any further questions do not hesitate to contact me at (616) 471-2742 between the hours of 3:30 p.m. and 6:30 p.m. Monday through Friday. You may also contact my Dissertation Chair, Dr. Brantley at (616) 471-3491.

Sincerely,

Hamil Tobias
Doctoral Candidate

Lenore Brantley, Ed.D
Dissertation Chair
Dept. of Ed. & Counseling Psychology.

[Letter 3]

9124 George Ave, Apt 9
Berrien Springs, MI 49103

April 17, 2002

Dear Teacher

I'm happy that you are able to support me in my dissertation process. Thank you for the support.

My dissertation title is: *A Study of the Influence of Birth Order and Other Variables on Student Perceptions of School Effectiveness in Southwestern Michigan.* This study will attempt to investigate if there is any link between birth order and students' perceptions of the effectiveness of their schools. The study has great possibilities for developing new and creative techniques for helping students adjust to school and life successfully.

Kindly give these consent forms to the 12th Graders. There are two (2) categories of 12th graders. Those who are adults (over 18 yrs old), and those who are minors (under 18 years old). Give the adult forms to those above 18. Please have them complete the same and return to you today. Kindly have the minors take the *parent* consent forms home where their parents will sign and return them the following day. There are two consent forms per person. The student keeps one for his/her records.

Again, I thank you for your cooperation and support

Sincerely,

Hamil Tobias,
Ph.D Candidate

P.S.
Kindly emphasize the importance of returning the forms the following day since I will collecting the data within a week.

9124 George Ave., # 9   [Letter 4]
Berrien Springs, MI 49103

April 11, 2002

Dear Parent/Guardian:

Parents, teachers, administrators, and students are concerned about making their schools more
effective. Because students can make a big difference in this process, their perceptions have been
frequently examined. An important question that needs examination is whether one's birth order,
gender, and/or ethnicity influences one's perception of school's effectiveness. This research project
seeks to answer this and other questions related to school effectiveness.

I am writing to seek your consent for your child's participation in this study by completing a
survey. This dissertation project is part of the requirements for the completion of a Ph.D. degree in
Education Psychology at Andrews University. The purpose of this project is to examine student
perceptions of school effectiveness relative to birth order, gender, and ethnicity. Based on my
findings, I will make recommendations that could enhance the education system in this State and
beyond.

The survey is scheduled to be conducted between April 15, and June 7, 2002. There are no
hazards or risks associated with the survey. It will be conducted at your child's school and will
take approximately fifteen minutes to complete. The information collected will be held in strictest
confidence. Your child's name will not be used in the report of the project. Your consent is
voluntary. Even if you consent, your child will have the option to choose not to participate or to
withdraw from participating in the survey at any time.

If you consent for your child to participate in this exercise, please complete both consent forms and
return one form to your child's home room teacher. You may keep the other copy for your records.

Thank you for your cooperation. If you have any questions please feel free to contact me at (616)
471-2742 between 3:30 P.M. and 10:30 P.M. Monday through Friday. You may also contact Dr.
Brantley at (616) 471-3491. If there are any questions concerning your child's rights as a research
subject, please contact Andrews University's Institution Review Board at (616) 471-6361.

Sincerely,

Hamil Tobias
Doctoral Candidate

Lenore Brantley, Ed.D.
Dissertation Committee Chair
Dept. of Ed. & Counseling Psychology

9124 George Ave., # 9   [Letter 5]
Berrien Springs, MI 49103

April 11, 2002

Dear Student:

Parents, teachers, administrators, and students are concerned about making their schools more
effective. Because students can make a big difference in this process, their perceptions have
been frequently examined. An important question that needs examination is whether one's
birth order, gender, and/or ethnicity influences one's perception of school effectiveness. This
research project seeks to answer this and other questions related to school effectiveness.

I am writing to seek your consent for your participation in this study by completing a survey.
This dissertation project is part of the requirements for the completion of a Ph.D. degree in
Education Psychology at Andrews University. It is the purpose of this project to examine
student perceptions of school effectiveness relative to birth order, gender, and ethnicity. Based
on my findings, I will make recommendations that could enhance the education system in this
State and beyond.

The survey is scheduled to be conducted between the months of April 15, and June 7, 2002.
There are no hazards or risks associated with the survey. It will be conducted at your school
and will take approximately fifteen minutes to complete. The information collected will be held
in strictest confidence. Your name will not be used in the report of the project. Your consent
is voluntary. Even if you consent, you will have the option to choose not to participate or to
withdraw from participating in the survey at any time.

If you consent to participate in this exercise, please complete both consent forms and return one
form to your child's home room teacher. You may keep the other copy for your records.

Thank you for your cooperation. If you have any questions please feel free to contact me at
(616) 471-2742 between 3:30 P.M. and 10:30 P.M. Monday through Friday. You may also
contact Dr. Brantley at (616) 471-3491. If there are any questions concerning your rights as a
research subject, please contact Andrews University's Institution Review Board at (616) 471-
6361.

Sincerely,

Hamil Tobias
Doctoral Candidate

Lenore Brantley, Ed.D.
Dissertation Committee Chair
Dept. of Ed. & Counseling Psychology

[Letter 6]

9124 George Ave. #9
Berrien Springs MI 49103

April 22nd, 2002

Dear Principal,

Thanks for your full cooperation in allowing me to conduct the survey at your school. Also, thank you for the assistance that you have given in the process so far. We now focus on the actual survey and the collection of the data for the study.

Kindly advise the students that all those who return the signed consent forms and complete the survey will receive candies as a "Thank You" gesture for their involvement.

I have enclosed the direction for the proctor of the survey. When students are finished they should put the sheets in the envelope provided and sign their names on the sheet left for this purpose. Students should not write on the booklets.

Sincerely,

Hamil Tobias
Ph.D. Candidate.

APPENDIX B

INFORMED CONSENT FORMS

Andrews University

Department of Education and Counseling Psychology
Parent Informed Consent Form

Title of Study: **A study of the Influence of Birth Order and other Variables on Student Perceptions of Scho**
Effectiveness in Southwestern Michigan.
by: Hamil Tobias, Ph.D. Candidate
                                Lenore Brantley, Ed.D., Research Supervisor

I have read and understood the description given to me about the research project, and have been fully informed about the nature and purpose of the project, and my rights as a parent. I understand that:

- this project involves the use of a survey, to sample student perceptions of school effectiveness, as part of the requirements for the completion of a Ph.D. in Educational Psychology at Andrews University;

- it is the purpose of this project to make recommendations on how schools can better meet the needs of students by taking into consideration their positions of birth, gender and ethnicity based on their perceptions. In this way educators can enhance the effectiveness of schools;

- the survey will take approximately fifteen minutes and will be conducted at my child's school during the period April 15th to June 7th, 2002. It will involve completing a questionnaire that is appropriate for twelfi grade students;

- the information collected is confidential and my child's name will not be used in the written report of the project;

- I understand that the information collected during this study will be included in a Ph.D., dissertation in Educational Psychology.

- there are no hazards or risks associated with the survey and my consent is voluntary. Even if I consent, m child will have the option to not participate or to withdraw from participating in the survey at any time without prejudice, penalty or denial of benefits to which my child is entitled. I also understand that there no compensation in return for my child's participation.

I hereby give consent for my child _____ to participate in the survey. I have had all my questions satisfactorily answered and I have received a copy of this consent form. If I have any further questions I can call Hamil Tobias at (269) 471-2742, or e-mail him at tobiash@andrews.edu . His mailing address is:

        9124 George Avenue, Apt. 9
        Berrien Springs, MI 49103.

I can also call Dr. Brantley at (269) 471-3491. I understand that if I have any further questions about my child's rights as a research subject, I can contact Andrews University Institutional Review Board at (269) 471-6361.

_____   _/_/_
(Parent or legal guardian)   (Date)   _____
                                                            (Relationship)

_____   _/_/_
(Participant)   (Date)

_____   _/_/_
(Participant)   (Date)

Andrews University

Department of Education and Counseling Psychology
Adult Informed Consent Form

Title of Study: **A study of the Influence of Birth Order and other Variables on Student Perceptions of Scho**
Effectiveness in Southwestern Michigan.
by: Hamil Tobias, Ph.D. Candidate
                              Lenore Brantley, Ed.D., Research Supervisor

I have read and understood the description given to me about the research project, and have been fully informed about the nature and purpose of the project, and my rights as a subject. I understand that:

- this project involves the use of a survey, to sample student perceptions of school effectiveness, as part of the requirements for the completion of a Ph.D. in Educational Psychology at Andrews University;
- it is the purpose of this project to make recommendations on how schools can better meet the needs of students by taking into consideration their positions of birth, gender and ethnicity based on their perceptions. In this way educators can enhance the effectiveness of schools;
- the survey will take approximately fifteen minutes and will be conducted at my school during the period April 15th to June 7th, 2002. It will involve completing a questionnaire that is appropriate for twelfth grade students;
- the information collected is confidential and my name will not be used in the written report of the project;
- I understand that the information collected during this study will be included in a Ph.D., dissertation in Educational Psychology.
- there are no hazards or risks associated with the survey and my consent is voluntary. Even if I consent, I will have the option to not participate or to withdraw from participating in the survey at any time without prejudice, penalty or denial of benefits to which I am entitled. I also understand that there is no compensation in return for my participation.

I hereby give my consent to participate in the survey. I have had all my questions satisfactorily answered and I have received a copy of this consent form. If I have any further questions I can call Hamil Tobias at (269) 471-2742, or e-mail him at tobiash@andrews.edu . His mailing address is:
                              9124 George Avenue, Apt. 9
                              Berrien Springs, MI 49103.

I can also call Dr. Brantley at (269) 471-3491. I understand that if I have any further questions about my rights as a research subject, I can contact Andrews University Institutional Review Board at (269) 471-6361.

_____	_/_/_
(Participant)	(Date)
_____	_/_/_
(Witness)	(Date)
_____	_/_/_
(Investigator)	(Date)

APPENDIX C

DIRECTIONS FOR ADMINISTERING THE

SCHOOL EFFECTIVENESS QUESTIONNAIRE

Directions for Administering the School Effectiveness Questionnaire

When the students have taken their seats and you have distributed the questionnaire booklets and answer sheets, say:

Each of you should have a Number 2 pencil with an eraser, a questionnaire booklet, and an answer sheet. If you are missing any of these three things, raise your hand.

Check to see that everyone has the proper three items. If all students have the necessary item say:

This questionnaire asks how you feel about your school. Your answers can be used to determine if students of different birth order perceive school differently. Give honest answers. That way we will know what you think about your school. Do not write your name on the questionnaire or answer sheet. Try to respond to all the statements. The information is important.

There are no right or wrong answers, but you should not talk to others or compare your answers with others. Also, do not write in your booklets.
Are there any questions?

The answer sheet comprises of 2 sections. The first section consists of 8 questions and asks for specific information about yourself. These must be answered accurately. Question 7 deals with children in your family including you. The answer to question 8 refers to children in your immediate family. The answers to questions 7 and 8 should not include step brothers and step sisters.

The second section consists of bubbles for your responses to the 48 items in the survey booklet. Read each statement in the survey booklet carefully and decide to what extent you agree or disagree with the statement as it applies to your school. Then mark the space on the answer sheet that best represents how you feel about each statement.

Mark under the SD if you strongly disagree; under the D if you disagree; under the N if you are neutral; under the A if you agree; and under the SA if you strongly agree.
Are there any questions?

Answer any questions. Then say:

Now you may begin.

After the students have finished their questionnaires, say:

When you are finished sign your name on the sheet provided. Place your completed answer sheet in the envelope provided and give the survey sheet to the teacher.

You may have a candy. Thank you for your kind cooperation.

APPENDIX D

SCHOOL EFFECTIVENESS SURVEY ANSWER-SHEET

School Effectiveness Survey

General Questions:

1. My gender is:　　　　○ Male　　○ Female

2. I am in grade:　　　　○ 9　　○ 10　　○ 11　　○ 12

3. My ethnic background is:　　○ Asian/Oriental　　○ Caucasian　　○ Native American
　　　　　　　　　　　　　　　　○ African American/Black　　○ Hispanic

4. I live with:　　○ Both my parents　　○ Mother and stepfather
　　　　　　　　　○ None of my parents　　○ Father and stepmother
　　　　　　　　　○ Mother only　　○ I live alone
　　　　　　　　　○ Father only

5. I have:　　○ No other brothers/sisters
　　　　　　　○ One or more brothers/sisters but no stepbrothers/stepsisters
　　　　　　　○ One or more brothers/sisters and one or more stepbrothers/stepsisters
　　　　　　　○ One or more stepbrothers/stepsisters and no brothers/sisters

This item is for those with stepbrothers/stepsisters.

6. My stepbrother(s)/stepsister(s) have lived in the same house with me:　○ Yes　○ No

7. The number of children in my family including myself:
○ 1　○ 4　○ 7　○ 10
○ 2　○ 5　○ 8　○ 11
○ 3　○ 6　○ 9　○ over 11 (specify ＿＿＿)

8. In my family, I am the:　○ Oldest　○ 4th oldest　○ 7th oldest　○ 10th oldest
　　　　　　　　　　　　　○ 2nd oldest　○ 5th oldest　○ 8th oldest　○ 11th oldest
　　　　　　　　　　　　　○ 3rd oldest　○ 6th oldest　○ 9th oldest　○ Other (specify＿＿＿＿＿)

School Effectiveness Questionnaire (use statements from the separate survey booklet)

	SD	D	N	A	SA			SD	D	N	A	SA			SD	D	N	A	SA
1.	○	○	○	○	○		17.	○	○	○	○	○		33.	○	○	○	○	○
2.	○	○	○	○	○		18.	○	○	○	○	○		34.	○	○	○	○	○
3.	○	○	○	○	○		19.	○	○	○	○	○		35.	○	○	○	○	○
4.	○	○	○	○	○		20.	○	○	○	○	○		36.	○	○	○	○	○
5.	○	○	○	○	○		21.	○	○	○	○	○		37.	○	○	○	○	○
6.	○	○	○	○	○		22.	○	○	○	○	○		38.	○	○	○	○	○
7.	○	○	○	○	○		23.	○	○	○	○	○		39.	○	○	○	○	○
8.	○	○	○	○	○		24.	○	○	○	○	○		40.	○	○	○	○	○
9.	○	○	○	○	○		25.	○	○	○	○	○		41.	○	○	○	○	○
10.	○	○	○	○	○		26.	○	○	○	○	○		42.	○	○	○	○	○
11.	○	○	○	○	○		27.	○	○	○	○	○		43.	○	○	○	○	○
12.	○	○	○	○	○		28.	○	○	○	○	○		44.	○	○	○	○	○
13.	○	○	○	○	○		29.	○	○	○	○	○		45.	○	○	○	○	○
14.	○	○	○	○	○		30.	○	○	○	○	○		46.	○	○	○	○	○
15.	○	○	○	○	○		31.	○	○	○	○	○		47.	○	○	○	○	○
16.	○	○	○	○	○		32.	○	○	○	○	○		48.	○	○	○	○	○

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