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FACTORS THAT INFLUENCE ACADEMIC ACHIEVEMENT

by  
Leah Georgene Shaffer

A Thesis

Submitted in partial fulfillment of the requirements of the  
Masters of Arts Degree in School Psychology  
of Rowan University of New Jersey  
Spring, 1998

Approved by \_\_\_\_\_  
Professor

Date Approved 5/1/98

## **Abstract**

Leah Georgene Shaffer

Factors That Influence Academic Achievement

1998

Dr. Roberta Dihoff, Advisor

School Psychology

Does environment affect academic achievement? The dispute over environmental influences has been the topic of numerous debates. This study was designed to investigate the relationship between academic achievement and the following environmental factors: family structure, ethnic background, socioeconomic circumstances and family size. The 1,500 participants of this study were collected from a large, extremely diverse elementary school population. From this general population, 134 students were selected for the control group based on participation in the Basic Skills Program. Data was collected using teacher surveys and parent contact information. State and federal guidelines were used when identifying children for Basic Skills Instruction and free or reduced lunch. The control group is described using the mentioned environmental factors and compared to the general population. Findings indicated a slight relationship between the factors and academic achievement.

## **Mini-Abstract**

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# **CHAPTER I**

## **THE RESEARCH PROBLEM**

What is the key to success in school? This question has been the topic of numerous debates. It has dumbfounded government agencies for decades and continues to baffle school systems around the world. Research has provided answers, but unpopular ones. Is it nature or nurture? Research supports the naturalists. However, society continues to analyze the effects of the environment. Theorists assemble their studies on economic resources, family structure, ethnic background, marriage success rates and a plethora of other societal factors. My experiences in the classroom have been varied. But this researcher tends to agree. Factors such as ethnic background, family structure and economic resources are influencing the success of the students in my classroom. This is how my project came to be. This researcher wanted to research something that would be useful to the teaching profession. This study provides my school district with valuable information pertaining to the success rates of our student population.

### **PURPOSE**

This study weighed the effects of family structure, ethnic background, socioeconomic circumstances, and family size on academic success. Information is based on facts provided by an elementary school, grades K, 2 - 6, with approximately 1700 students from various social and economic backgrounds. Academic success is related to participation in the Basic Skills Program. Information pertaining to family size, socioeconomic circumstances, and family structure was obtained by examining applications for the free/reduced lunch program.

It is the researcher's hope that steps will be identified to lesson any negative impact these environmental factors have while simultaneously facilitating academic achievement



for all students.

## **HYPOTHESIS**

This research project explored the relationship between academic achievement and the following factors: [a] family structure; [b] ethnic background; [c] size of the family; and [d] socioeconomic circumstances.

The researcher measured academic achievement by recognizing those students who participate in the Basic Skills Program. These children were identified using standardized test scores from the previous school year. Family structure refers to the number of parents living in the home. The race of the child determined the ethnic background. The number of siblings living in the home determined the family size. Socioeconomic circumstances were based on eligibility for the free or reduced lunch program.

## **THEORY**

The researcher has read it many times -education begins at home. But how much of that beginning really helps most kids? Educating a child is very similar to building a house. You start with the foundation. The strength and shape of the house depends upon the foundation. If the house is to last and remain sturdy then the foundation must be strong. The family builds this academic foundation at home. Before any formal schooling begins the family has shaped the child's future. The school then begins to assemble the framework of the house upon the foundation. Together, the family and school create the infrastructure -the house plans of an individual. As the individual learns and develops the house becomes a home.

Just as the different materials selected may alter the construction of a house, there are many components to consider in the development of a child. If the best wood and nails are

used to build a house, its value is significantly higher. The life of the house is prolonged by using the best mortar and shingles available. Just as the prosperity of the house depends on the substance of the foundation, a child's chances of academic success depend on the support from the family and the environment. Therefore, the researcher believed that the materials used to establish a house can be paralleled to the many elements that influence a child's academic success. Several factors blend to create the environment of today's school age children. The race and ethnicity of the family play a part in what type of discipline styles are used and what values are developed. Is one parent raising the child or are two parents doing it together? Perhaps only one parent is setting the example for the child to follow. The number of brothers and sisters sharing the attention of the parents was also considered to alter the level of academic success a child reaches. Do not overlook the benefits and/or drawbacks that the family's socioeconomic circumstances provide. Many studies have been done to examine the effects of one or more of these elements on academic success.

Research supports a strong link between school and marriage failures. A recent Educational Testing Service study revealed a disturbing trend regarding the relationship of family life with school performance (Merina, 1992). Students with single parents tended to perform lower on standardized tests when compared to students who live with two. Children who grow up in single-parent families were more likely to drop out of school, to become unemployed, to form mother-only families, and to be poor as adults than children in two-parent families (Knox, 1996). The decline in family income played a significant role in this trend. Students with two parents in the home scored considerably higher on achievement tests than those living with only one parent.

Family size has also been shown to influence school success. Karen Steiner reported

that only children score slightly higher on measures of intelligence (1984). Jane Mercer did intense studies on the relationship between academic achievement and number of children in the family.

Various studies confirmed that family education and income level are among the most important demographic variables related to academic achievement (Bracey, 1994). Ethnic factors relating to parental pressure and discipline styles were considered valuable when explaining relationships between family circumstances and school success rates. Statistics from one North Carolina research project showed that African-American students -at all grade levels- lagged behind Anglo-American students on test scores, missed more days, and received more discipline (Regin, 1995).

#### **DEFINITION OF TERMS**

**Academic achievement** Academic achievement characterizes the child's ability to acquire the basic proficiencies expected per grade level.

**Basic Skills Instruction** Basic skills Instruction (BSI) is a teaching program where children who lack reading and/or mathematic proficiencies receive attention to facilitate the learning of these necessary skills.

**Ethnic background** Ethnic background describes the child's race and family heritage.

**Family size** Family size identifies the number of siblings being supported by the household.

**Family structure** Family structure describes the number of parents living in the household.

**Free/reduced lunch program** The children taking part in the free/reduced lunch

program receive the school lunch for free or a reduced price.

**Socioeconomic circumstances** Socioeconomic circumstances describe the financial situation of the family. Low circumstances would identify a child from a poor family.

## **ASSUMPTIONS & LIMITATIONS**

This study made three major assumptions. The first was the influence teaching styles may have had on a child's learning. This may not be the case for the children in the higher grades of this research project, but the second graders had only 1 year of formal reading instruction. It should be noted that the child's lack of success in first grade may have been caused by a personality or social discrepancy. An unsuccessful first year placed the child at risk and therefore further instruction in basic proficiencies became needed.

The second assumption made was that the curriculum and practices used within the Basic Skills program had a positive influence on academic achievement. The purpose of the program was not a stepping stone on the way to special education. It was designed to facilitate the learning of necessary skills the child will need to be successful in mathematics and language arts. The goal was to remove the child from the at risk population.

The third assumption was that the children identified as African-American or Caucasian spoke English as a first language. The language spoken at home, if other than English, may have a direct influence on success in an English-speaking school system. Several steps were made to eliminate children whose families spoke a language other than English at home.

One limiting factor should be noted. Within the Basic Skills Instruction control group, there are at times students who are currently receiving basic skills instruction pending a child study team evaluation. Every effort was made to eliminate these children from this

research project.

## **OVERVIEW**

Despite society's contradictory views, many educators believe environmental influences on academic achievement must be addressed. Countless studies provide support for the development of programs to help the nation's 'at risk' student population. Four environmental factors were investigated: family size, ethnic background, family structure, and socioeconomic circumstances.

In Chapter two pertinent literature relating to each environmental factor is reviewed. The research is organized and presented one factor at a time. Studies pertaining to family size maintain that smaller is better. Information gathered on family structure explains why marriage matters. A child from a two-parent family is less likely to be poor, less likely to misbehave, and more likely to be a successful student. Data collected on socioeconomic influences shows that children growing up in poverty have markedly lower IQ's and display more fearfulness, anxiety, and unhappiness than other youngsters. The facts pertaining to ethnic background show academic differences appear early in elementary school and persist throughout a child's educational career.

Chapter three is an outline of the methods used for gathering information pertaining to each of the four environmental factors. Descriptions of the subjects and variables are presented. The design type and procedures are clarified to illustrate exactly how the study was carried out. The hypotheses are stated exactly, along with other guidelines and criteria used in this research project.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

It is the family -the most prominent ingredient in the recipe of life -that influences a child most of all. It is where it all begins. Whether it nourishes a life full of accomplishments or uncertain obstacles, society continues to turn to the family. Sometimes recognition is awarded, but usually blame is placed.

This research focuses on the school age years. Four factors were selected and researched in an effort to identify influences on the academic success of children in grades two through six.

This literature review summarizes several studies and speculations regarding four factors that may influence a child's academic success: Family size, Family structure, Ethnic background, and Socioeconomic circumstances.

#### **FAMILY SIZE**

Society tends to support the idea that children are a good thing -the more the better. Sometimes it depends on who you ask. If you ask a group of Americans whether there are more benefits to being born into a large family or a small one, they will select the large family. But if you ask a group of scholars, they will reply 'smaller the better'.

Judith Blake (1989) agrees. In her book she claims that a person's chances of getting through 12 years of school are heavily influenced by family size, which she feels is the second most important factor after the level of the father's education (Blake, 1989). She also maintains that adults from one and two child families achieve at least two more years of schooling, even after socioeconomic factors are taken into account. She emphasizes that

children without siblings have higher IQ's than children from larger families, as well as more advanced verbal skills. Blake contends that children from small families find it easier to improve their educational backgrounds and achieve higher levels of education. Eric A. Hanushek (1992) conducted an empirical study to determine if a relationship exists between the number of children (in a family) and their scholastic performance. He found that recent changes in family size explain a portion of the decline occurring in test scores. A definite trade-off exists between quantity and quality of children. Achievement falls systematically with increased family size.

Douglas Downey (1995) accepted the data gathered in a 1988 study claiming that children from larger families are not as successful academically as children from smaller families. Regardless of race, class, and socioeconomic standing the idea that small families produce better students has been proven time and again throughout several decades. Children from larger families suffer from what has been called the diminution of parental resources (Downey, 1995). Parents have less time, energy, money and materials such as magazines and books for the children to enjoy. A computer becomes rare in a household containing four or more children. After the fourth child the focus seems to shift from providing educational resources to fulfilling basic needs like food and shelter.

Downey collected data from 24,599 eighth graders in 1,550 schools. Results concluded that according to standardized test scores, math and verbal skills seem to fall as families expand (Downey, 1995). The effects of family size on grades are consistent but negligible: where an only child earns a B-, children with five siblings average a B.

Wherefore the only child is believed to be at a disadvantage socially and psychologically, research is proving that the only child has the advantage academically.

## **FAMILYSTRUCTURE**

Marriage matters. Educators agree that a child from a two-parent family is happier -less likely to be poor, less likely to misbehave, more likely to achieve academic success.

A 1992 Educational Testing Service study reveals disturbing trends regarding the relationship of family life and school performance. It examines a number of large-scale surveys and measurement programs, such as the National Assessment of Educational Progress and the International Assessment of Educational Progress. The later rates the United States along with fourteen other countries according to educational movements. It concludes that students with single parents tend to perform lower on achievement tests. With the lower parent to pupil ratio the amount of television increases, therefore lowering academic achievement. Decline in family income may also be a factor. Perhaps it is the change in priorities within the family or just a change in attitude and atmosphere -from loving and caring to confused and anxious.

Darin Featherstone, Bert Cundick and Larry Jensen examines the differences in school behavior and achievement between children from intact, reconstituted, and single-parent families (1992). They conclude that students from intact two-parent families have fewer absences and tardies, higher grade point averages, and fewer negative behavioral ratings than did those from the two other groups. They investigated 530 students from two schools in Salt Lake City in grades six through nine. The schools were selected based on the east vs. west location in order to broaden the socioeconomic status of the sample. The data collected contains the following information: grade point average, absences, tardies, teacher behavioral observations, social competence ratings and a citizenship scale. Findings yield that the children from the intact families are at a greater advantage academically than any of



the children from the other groups.

In 1993 Mortimer Zuckerman published an editorial entitled 'The Crisis of Kids'. It discusses the negative effects of single-parent families on children. He claims one million kids a year watch their parents split-up, and a similar number are born out of wedlock. He refers to Barbara Dafoe Whitehead's article which demolishes the idea that divorce is the best alternative to a bad marriage and supports the notion that single parenthood carries no risk to children. The chances of poverty are six times greater for children in single-parent families. Emotional and behavioral problems are two to three more times as likely to occur. These children are more likely to drop out of school, be expelled or suspended, get pregnant as teenagers, use drugs and/or to be in trouble with the law. The reality is that many children do not bounce back after divorce or even after remarriage (Zuckerman, 1993).

It does not seem to matter if the child is white or black, rich or poor, boy or girl. The notion that happy parents make happy children does not seem to be holding up. Quality time is not compensating for scarcity. As Whitehead puts it, 'Children who grow up in single-parent or stepparent families are less successful as adults, particularly in the two domains of life -love and work- that are the most essential to happiness' (Zuckerman, 1993).

In 1995 the Journal of Divorce and Remarriage published an article written by Thomas E. Smith evaluating the effects of parental separation on school grades rather than academic achievement. He contends that a considerable amount of social science research proves that an obstacle transpires in social development of children whose biological parents are separated. Rates of antisocial behavior are much higher among these children. Smith focuses on another area of child development -academics. He hypothesized that parental separation would have a greater negative effect on school grades than on standardized test

scores. Smith analyzes data supplied in 1986 by 1,688 seventh and ninth grade students in 14 selected public schools in the Columbia, South Carolina area. A racially mixed and economically diversified sample was created from the medium-sized metropolitan area. None of the children took part in remedial classes. The results conclude that grades are influenced more often than achievement scores. Smith adds that grades reflect a student's social environment more adequately than academic achievement tests do. Neglecting school grades could lead to understanding the effects of parental separation and other social-environment factors on the 'real world' academic performance of children (Smith, 1995).

### **SOCIOECONOMIC CIRCUMSTANCES**

One common belief about growing up in America is that anyone can accomplish anything they set out to do, regardless of any obstacles standing in the way. But research is beginning to show that for children growing up in poverty, the reality is not quite as rosy as the dream. According to some educational experts, a distinct correlation exists between poverty and academic achievement. A 1991 U.S. Department of Education study cites that the combination of the length of time a child spends in disadvantaged conditions, along with the local school district's poverty level, often produces a direct impact on a child's ability to maintain an expected grade level. Presently, students subjected to long-term poverty are more apt to be black, to come from the south or to live in single-parent households. In addition, the likelihood of a child falling behind an expected grade level rises 2% for each year he spends in poverty. These findings become significant when it is recognized that future earning power is often determined by the amount of schooling attained (Black Enterprise, 1991)

In 1991 the official qualification to be poor was that a family of four could have

brought in no more than \$13,924. Census data shows that the United States poverty rate has risen by one-third over the past 20 years. By the late 1980's it was two to four times the rates of child poverty in Canada and Western Europe. By the numbers, it is white children that suffer the most poverty, but the greatest proportion of poverty occurs in blacks (Bower, 1994). More recent statistics are not encouraging. In the summer of 1996 Mike Powers wrote an article that includes some interesting statistics. Children in the U.S. are more likely to fall below the poverty line than any other age group. Approximately one in five children under the age of 18 and one in four under the age of 6 live in a family whose annual income falls below the federal poverty threshold. The threshold is currently \$15,141 for a two parent family with two children and \$9,137 for a single parent family with one child, \$11,186 with two children, or \$14,335 with three. Between 1970 and 1992, poverty rates for children increased almost 50 percent. Welfare expenditures have more than tripled.

A report issued by Greg J. Duncan, a sociologist at the University of Michigan in Ann Arbor, finds that by age 5, children in persistently or occasionally poor families have markedly lower IQ's and display more fearfulness, anxiety, and unhappiness than never poor youngsters. 'There is little doubt that poverty is scarring the development of our nation's children' Duncan claims. His study uses family income to predict the IQ's of 895 low-birth weight infants. The children had entered one of the health and child-care program run at eight medical centers in different parts of the country. Black youngsters make up more than half the sample, followed by white and Hispanic children. Duncan and his research group find that income predicts the IQ's of five-year olds far more accurately than ethnicity, mother's educational background, or number of parents living in the household. Behaviors such as destroying belongings and throwing tantrums, rise considerably in poor families and

neighborhoods.

One area that is often forgotten when evaluating a child's environment is parental discipline. Despite all its uncertainties, poverty apparently boosts the likelihood of harsh parental discipline and family contact, which directly influences a child's behavior in school and perhaps indirectly quells the child's academic achievement. Kenneth A. Dodge, a psychologist at Vanderbilt University in Nashville, studied 585 urban children whose family income ranges from extremely poor to affluent. His team tracks youngsters and their parents from preschool to third grade. Their research shows that as a family's economic disadvantage grows, the parental discipline becomes harsher and the home environment deteriorates completely. The most disruptive and hostile grade-school students, as noted by teachers, come from these worsening situations.

Professor Elizabeth Peters of the Department of Consumer Economics and Housing has been studying the effects of poverty on educational attainment since 1979. Her goal was to measure family income over time. Income is extremely variable, and people go in and out of poverty quite frequently, especially those families on the edge (Peters, 1996). She finds that educational attainment and test scores rise in direct correlation to increases in income. Peters also contends that income becomes less important during adolescence than early childhood. Another goal of her research was to determine whether sporadic poverty is less damaging to schooling and test scores than continuous poverty. She finds no real difference.

Other evidence suggests that emotional and academic resilience in the face of poverty gets a major boost from early entry into preschools that involve the family. Childhood poverty still breeds a wealth of unanswered questions.

## **ETHNIC BACKGROUND**

Differences in academic achievement among black and white children appear early in the elementary school years and persist throughout the elementary and secondary school years. The lower levels of achievement of minority children are typically explained in terms of cognitive and linguistic deficits, low need for achievement, lack of self-direction, low self-esteem and/or difficulty in delaying gratification (Holiday, 1985). These factors are always attributed to presumed problems in the family environment of the child.

Harold Stevenson, Chuansheng Chen, and David Uttal conducted a study in 1990 evaluating the differences in achievement-related beliefs between black, white and Hispanic children at the elementary school level. The project uses a representative sample of children attending elementary schools in the Chicago metropolitan area and investigates the role of the parents in regard to educating the children along with their beliefs and expectations of success in school. Since the sample is extremely large, sub-samples have been selected from each school. Achievement tests were used only as a component of academic achievement. The results are categorized: Achievement tests, Attitudes toward Academic Achievement and Expectations. Achievement test scores show that the black children received significantly lower scores in both reading and math. However, mothers of black (and Hispanic) children place greater importance on their child's academic achievement than did the mothers of white children. The third area, expectations, show that although the mothers of black children have high expectations for their children, 63% think their child will attend college, a higher percentage (71%) exist within the mothers of white children

In a study conducted by the National Review (1995) the author feels that perhaps the cause of the differences in achievement are due to the deficiencies in expectations. Barbara Lerner quotes one of the authors of The Bell Curve, Charles Murray, in her article, 'Black

scores have barely budged, and the truth, however unpalatable, is that they are not going to. The reason is probably partly genetic, but we are no better off if it is entirely environmental. We have no more of a clue about how to fix one than the other. Intelligence matters, more and more as technology advances, and blacks just have a lot less of it. This handicaps them and us, but we have to face up to it, quit pretending we can change it, and learn to live with it' (Lerner, 1995). Lerner rejects Murray's bleak picture of black America and describes her own. She identifies three distinct periods of change between the time black students fought to attend the same schools and universities to the present-when everyone is fighting for minimum competencies for grade school and high school graduation, the standards must be raised. Lerner feels that every child will rise to meet the expectations provided by society. We should move to throw the failed social and educational policies out and implement successful ones. Who knows how far any of the kids will go (Lerner, 1995)?

A North Carolina report card issued in 1995 reveals that in urban school districts African-American students -at all grade levels- lag behind Anglo-American students on test scores, miss more days, and receive more discipline. These frightening statistics started the ball rolling and several programs were implemented to give all the children an equal chance at academic success.

According to Amy Thoreson of the University of Chicago, the number of black children in the higher academic ability range has fallen since the mid 1960's despite the narrowing gap in educational attainment levels. She presents her findings, based on surveys, to the American Educational Research Association Conference. The purpose of her research is to investigate the financial discrepancies among the two groups occurring in the economic community. She predicts that the variations in wage earnings will continue to grow.

Furthermore, Thoreson does not expect the gap existing in general achievement to lessen within the next 60 years if it continues to change at its current rate.

### **SUMMARY OF FINDINGS**

Academic success is so important to achieve and yet so difficult to attain. So many things must be in place for a child to flourish. Race matters. Research suggests that being from an ethnic background other than Caucasian will hinder a child's progress. Money matters. Poverty creates an enormous obstacle, usually impossible to overcome. Marriage matters. Children from single parent families are less likely to become prosperous adults. Family matters. The larger the number of siblings, the higher the chance of poverty, the lower the scores and ability.

## **CHAPTER III**

### **SUBJECTS**

Participants of this study were collected from a large elementary school located in Southern New Jersey. The students attending this school come from extremely diversified environments, both ethnic and economic. The enrollment at the time of the study was approximately 1,500 students, grades two through six. From this general population, 134 regular education students were selected based on participation in the Basic Skills Program. These students are described using specific environmental factors and compared to the general population of the school.

### **HYPOTHESIS AND VARIABLES**

This research project investigates the relationship between academic achievement and four specific environmental variables: family structure, ethnic background, family size, and socioeconomic environment. Family structure is defined using the number of parents living in the household. Ethnic background is determined by the race of the child. The terms African-American or Caucasian are used to describe the race of the subject. Family size is dependent on the number of siblings living in the household. Finally, socioeconomic background is explained using the criteria established by the Free/Reduced lunch program. These criteria are explained in detail later in this paper. The control group was selected based on academic achievement. Achievement is being measured according to participation in the Basic Skills program. The Basic Skills population is described using the four variables. A comparison was made using the same variables applied to the general population.



This researcher began this project hoping to find the same percentages among the students in the general population as found in the subject group. This evidence would support a lack of relationship between academic achievement and the four environmental factors, or perhaps one that is coincidental.

## **PROCEDURE**

The control group was selected among students receiving Basic Skills Instruction (BSI). In selecting these subjects this researcher assumed that children with lower academic achievement are placed in this program. These children were identified using their scores from the CAT/5 standardized tests. The criterion to receive Basic Skills Instruction in reading or math is a test score that falls below the cutoff scores shown in Table 3.1.

**Table 3.1**  
**Basic Skills CAT/5 Cut Off Scores**

<b>Grade</b>	<b>Reading</b>	<b>Math</b>
2	32	42
3	32	47
4	31	45
5	33	49
6	37	48

Teacher recommendation was also considered, but the test score weighs heavily. Socioeconomic circumstance was determined utilizing the same criteria adopted to identify families that are entitled to receive a free or reduced lunch. Table 3.2 indicates the eligibility guidelines for free or reduced price meals. If the family meets the criteria for this program,

the child was described as coming from a low socioeconomic background. If the family fails to meet the requirements necessary to receive lunch for free or a reduced price, then the family was not given low socioeconomic status. This information was collected from the material supplied by the families during the start of the 1996-1997 school year.

Information pertaining to the size of the subject's family was collected from school records and the students themselves. If four or more siblings lived in the home, the student was identified as coming from a large family. If there were less than four, the family was considered small.

Family structure data was collected from student contact sheets filled out in the early part of the school year. If the child lived with two parents then a traditional family was identified. The term broken home was associated with a student who lived with one parent.

Ethnic background information was gathered from the school records. Teacher input was also used. The terms African-American and Caucasian were used to describe the students. Children from other ethnic backgrounds were excluded from the study to eliminate any language differences causing an unforeseen influence on academic achievement.

Procedures for data collection consisted of teacher surveys and compiled research. The teacher survey was created using a class list and was completed by each homeroom teacher. Codes were assigned to each factor. The homeroom teacher then used these codes to describe each of students. Ethnic background was identified using A for African-American, C for Caucasian, and O for other. An asterisk was placed in the column next to the students' name if the child received Basic Skills Instruction and/or free or reduced lunch. To gather information pertaining to family size the teachers asked the students how many brothers and sisters lived in their home. This number was placed on the survey. Details

pertaining to family structure were compiled using parent contact sheets.

**Table 3.2**  
**Guidelines for Eligibility for Free or Reduced Lunch**

<b>Household Size</b>	<b>FREE MEALS OR MILK</b>			<b>REDUCED MEALS OR MILK</b>		
	Annual	Monthly	Weekly	Annual	Monthly	Weekly
1	10,257	855	198	14,597	1,217	281
2	13,793	1,150	266	19,629	1,636	378
3	17,329	1,445	334	24,661	2,056	475
4	20,865	1,739	402	29,693	2,475	572
5	24,401	2,034	470	34,725	2,894	668
6	27,937	2,329	538	39,757	3,314	765
7	31,473	2,623	606	44,789	3,733	862
8	35,009	2,918	674	49,821	4,152	959

### **DESIGN AND ANALYSIS**

This researcher conducted a descriptive analysis. Four different environmental factors were used to describe and compare a control group to the general population. The control group was assumed to be functioning at a lower academic level because of the recommendation for Basic Skills Instruction. The four descriptive variables utilized were ethnic background, family size, socioeconomic circumstances and family structure. Percentages and averages were found within each group.

In order to identify a correlation between academic achievement and environmental

factors any child that introduced biological influences was eliminated, such as the special education population. Within the control group, the Basic Skills population, it was difficult to identify those students who were receiving the Basic Skills Instruction pending child study team evaluation. Every effort was made to omit their information from the data used in this analysis. Children speaking a language at home other than English were also omitted from the sample population. It is for this reason that this researcher decided to include only students whose ethnic background is African-American or Caucasian.

## **CHAPTER IV**

### **ANALYSIS OF DATA**

This research project examined the relationship between academic achievement and four specific environmental factors: family structure, ethnic background, socioeconomic circumstances, and family size.

#### **Null Hypotheses**

The null hypotheses state that there is no relationship between academic achievement and family structure, ethnic background, socioeconomic circumstances, and family size.

#### **Alternative Hypotheses**

The alternate hypothesis states that there is a relationship between academic achievement and family structure, ethnic background, socioeconomic circumstances, and family size.

As seen in Tables 4.1 and 4.2, the data collected indicates support for the alternative hypotheses. It is apparent that while 42% of the Basic Skills population lives with a single parent, where as 23% of the general population reported the same situation. Over one third (38%) of the Basic Skills population reported being from an African American background, in comparison to less than one fourth (23%) of the general population with the same ethnic heritage. While almost half (48%) of the Basic Skills population receive free or reduced lunch, a little more than a quarter (27%) of the children in the general population meet the guidelines. The percent of families with 4 or more children in the Basic Skills population is 32%, and yet 24% of the families in the general population meet the same criteria. The factor with the largest difference is socioeconomic circumstances.

**Table 4.1  
Summary of Basic Skills Population**

Basic Skills Population					
	1 parent	African American	Free/reduced	Sib $\exists$ 4	Total #
2 <sup>nd</sup>	10	10	15	12	33
3 <sup>rd</sup>	13	1	10	5	24
4 <sup>th</sup>	7	6	8	1	11
5 <sup>th</sup>	7	12	6	7	19
6 <sup>th</sup>	9	12	13	9	22
<b>Total</b>	46	41	52	34	109
<b>% for BSI population</b>	42%	38%	48%	32%	

**Table 4.2  
Summary of General Population**

General Population					
	1 parent	African American	Free/reduced	Sib $\exists$ 4	Total #
2 <sup>nd</sup>	44	49	57	53	186
3 <sup>rd</sup>	34	39	45	33	176
4 <sup>th</sup>	50	44	49	49	200
5 <sup>th</sup>	50	45	55	41	182
6 <sup>th</sup>	36	34	39	49	177
<b>Total</b>	214	211	245	225	921
<b>% regular population</b>	23%	23%	27%	24%	

Tables 4.1 and 4.2 show the number of children in each population falling into the specific categories. These children were counted without reference to any of the other factors. For example, out of the 109 children in the Basic Skills population 46 of them live

with one parent. Of those 46 children only 5 of them (5%) fall solely into this category. Table 4.3 shows the number of children falling solely into each category. Note that of the 41 children identified as African-American in the Basic Skills population, 9 of them (8%) have no other factor that could influence their academic achievement. Fifty-two children in the control group receive free or reduced lunch. Of these 52 children 46 of them may be influenced by the other environmental factors. This means that only 6% of the Basic Skills population may be influenced exclusively by socioeconomic circumstances. The general population has the same size group, 51 of the 921 students or 6%. Lastly, 34 children were recorded as having 4 or more siblings living in their home. Of this group just 8 of the children fall exclusively in this division. This represents 7% of the Basic Skills population, while a larger percentage of the general population, 10%, was noted to have 4 or more brothers and sisters. Table 4.5 illustrates the two sets of data.

**Table 4.3**  
**Children recorded by factor, independent of other influences**

	<b>1 parent</b>	<b>African American</b>	<b>Free/reduced Lunch</b>	<b>Sib ≥ 4</b>	<b>Total # in group</b>
<b>Basic Skills population</b>	5	9	6	8	109
<b>General population</b>	64	46	51	88	921

**Table 4.4**  
**Percentages of children represented in a single category**

	<b>1 parent</b>	<b>African American</b>	<b>Free/reduced Lunch</b>	<b>Sib ≥ 4</b>
<b>Basic Skills population</b>	5	8	6	7
<b>General population</b>	7	8	6	10

**Table 4.5**  
**Single factor vs. Combination**

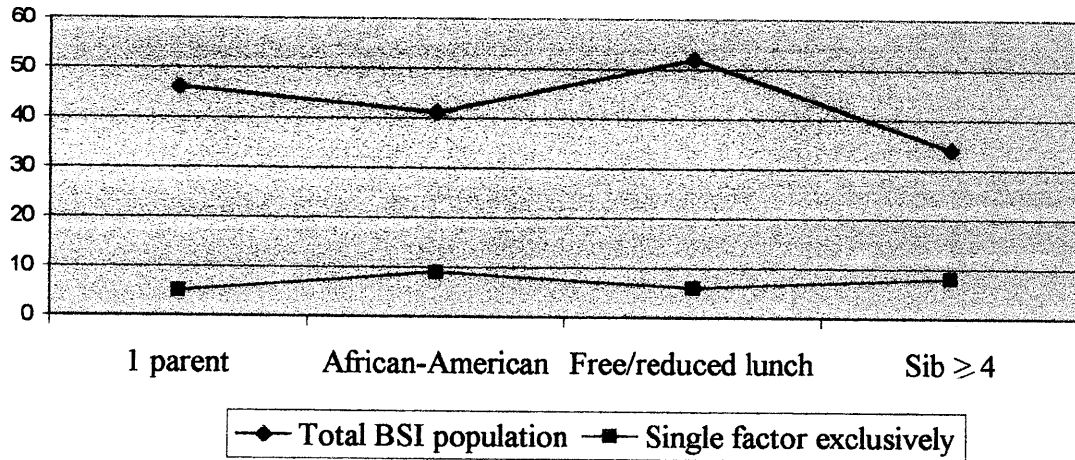
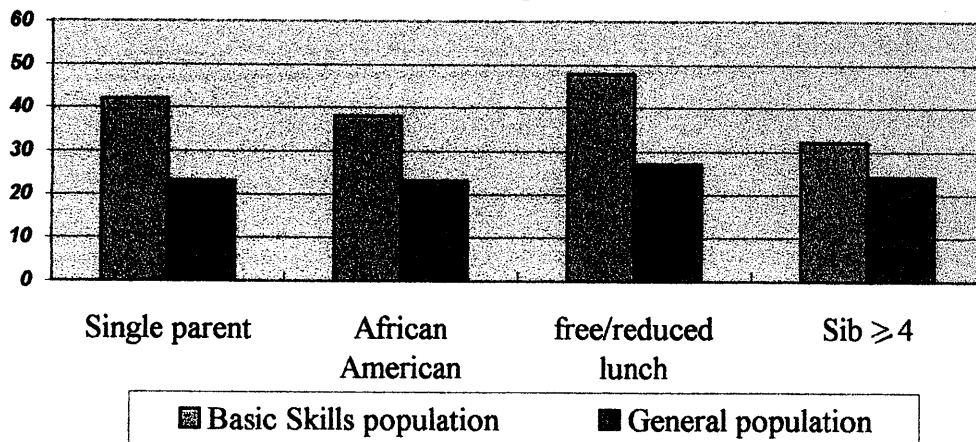


Table 4.6 illustrates a direct comparison between the general population and the Basic Skills population. It is apparent that a higher percentage of children in the Basic Skills population live with a single parent, receive free or reduced lunch, have 4 or more siblings, and come from an African-American background.

**Table 4.6**  
**Percentage Comparison**





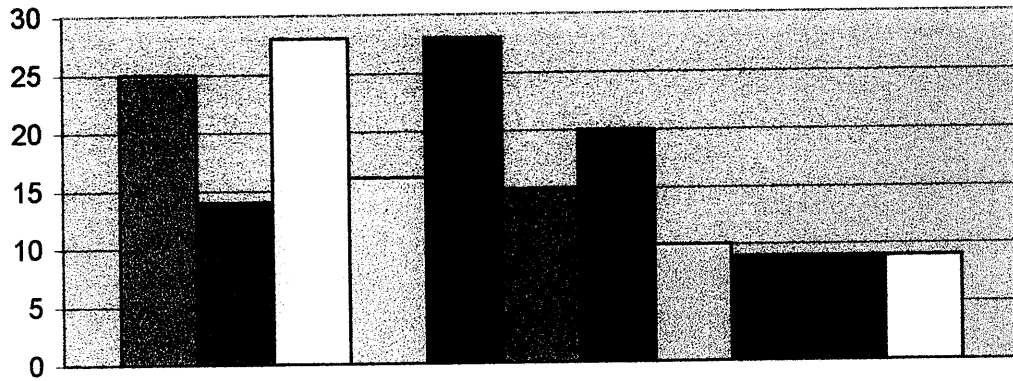
This provides reasonable support for rejecting the Null hypotheses and accepting the alternative. In view of the higher percentages among the BSI population there seems to be a relationship between academic achievement and environmental factors: family structure, ethnic background, socioeconomic circumstances and family size.

To further describe the 'at risk' population several combinations were investigated within the Basic Skills population. Tables 4.7 and 4.8 show the percentages of students that met specific factorial combinations. Within the Basic Skills population the groups having low socioeconomic conditions are the largest. It should also be noted that the siblings  $\geq 4$  factor is not seen in any of the four largest groups, but is evident in the smallest groups. The table also illustrates that approximately one third of the Basic Skills Population receives free or reduced lunch and lives with a single parent. Another combination found in approximately one third of the control is free or reduced lunch and an African American ethnic background.

**Table 4.7**  
**Factorial Combinations**

Factorial Combinations	# of students	% within BSI population
Single parent & African-American	27	25
Single parent & 4 ≥ siblings	15	14
Single parent & free/reduced lunch	31	28
African-American & 4 ≥ siblings	17	16
African-American & free/reduced lunch	30	28
4 ≥ siblings & free/reduced lunch	16	15
African-American, single parent & free/reduced lunch	22	20
African-American, free/reduced lunch & 4 ≥ siblings	11	10
Single parent, free/reduced lunch & 4 ≥ siblings	10	9
African-American, single parent & 4 ≥ siblings	10	9
African-American, single parent, free/reduced lunch & 4 ≥ siblings	10	9

**Table 4.8**  
**Percentage comparison of Factorial Combinations**



- Single parent & African American
- Single parent & 4 ≥ siblings
- Single parent & free/reduced lunch
- African-American & 4 ≥ siblings
- African-American & free/reduced lunch
- 4 ≥ siblings & free/reduced lunch
- African-American, single parent & free/reduced lunch
- African-American, free/reduced lunch, & 4 ≥ siblings
- Single parent, free/reduced lunch & 4 ≥ siblings
- African-American, Single parent & 4 ≥ siblings
- African-American, single parent, free/reduced lunch, & 4 ≥ siblings

## CHAPTER V

### SUMMARY AND CONCLUSIONS

Does environment affect academic achievement? The dispute over environment influences has been the topic of numerous debates. Research has provided answers, but unpopular ones. Is it nature or nurture? Research supports the naturalists. However, society continues to analyze the effects of the environment. Theorists assemble their studies around factors such as economic resources, family structure, ethnic background, marriage success rates and a plethora of other societal factors. This study provides my school district with valuable information pertaining to common factors evident among the students in our Basic Skills population.

What began as a study designed to examine the relationship between academic achievement and four environmental factors evolved into a descriptive investigation. With the help of colleagues and information collected from parent surveys, four factors were considered: family structure, ethnic background, socioeconomic circumstances and family size. Data pertaining to each factor was acquired using teacher surveys and parent contact sheets. State and federal guidelines were used when identifying children for Basic Skills Instruction and free or reduced lunch.

#### **Discussions**

As with any research project the results of the study reflect the configuration of the sample population. The school district used in this study draws from a very diverse community. The residents are variant economically as well as racially. This researcher believes the data collected represents the total population correctly. The district is growing each day and becoming more diverse and challenging. In a single school year a teacher may

have a classroom with 10 children whose parents may be home due to unemployment as well as 10 children whose non-working parent is home by choice and fortunate enough to have the time and resources to volunteer in school. Preparing the children for a future filled with education and exploration becomes harder each day. The children enter Kindergarten at extremely different functioning levels. Heterogeneous classes are created at every grade level due to the exceptional amount of time and effort the staff contributes. Every member of the staff endeavors to provide an appropriate education for each child, whether the child be in fourth grade reading on a second grade level or in fourth grade reading on a sixth grade level. It requires constant program and technique evaluation to ensure that the children receive an appropriate education.

This project made aware the growing number of children entering this school system speaking English as a second language. This researcher was unaware of the increased number of families moving into this area unable to communicate in English. Next year this school will be integrating a foreign language into our curriculum as mandated by the state. This challenge brings uncertainties and enthusiasm. The focus of concern is staff training. The enthusiasm grows from being able to communicate and involve so many families that have felt alienated in the past.

### **Conclusions**

The results of this investigation indicated a slight relationship between environment and academic achievement. The percentages of children in the Basic Skills population living with a single parent and receiving free or reduced lunch were almost double those among the general population. These figures indicate that some type of intervention should be created to prevent these children from becoming part of the 'at risk' population. Another factor that

should be considered an indication of academic uncertainty is ethnic background. For reasons not clear, children coming from an African-American background are not achieving academically as well as their white peers.

However, when you examine the number of children recorded in each group exclusively, the facts change. The comparable percentages show little contrariety. Further research regarding the influence of each environmental factor exclusively will provide a more solid base for intervention.

Numerous studies provide support for the idea that environment effects academic achievement. The data collected from this particular sample advocates intervention at an early academic level.

Implications for further research pertaining to environmental factors suggest an inquiry conducted with a much larger sample population. A different, more detailed, survey should be constructed isolating the factors and providing a precise description of each student. This type of study requires much more cooperation and time from teachers.

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# **APPENDICES**

## APPENDIX I

December 2, 1997

Dear Dr. Novembre,

I am seeking permission to conduct my research project using some of the Hess School statistics. The purpose of my project is to explore if any relationship exists between low academic achievement and these four factors: family size, ethnic background, family structure, and socioeconomic circumstances. Family size being the number of siblings in a family, ethnic background determined by race (African-American vs. Caucasian), family structure being the number of parents living in the household, and socioeconomic circumstances determined by free and reduced lunch criteria. Family size and ethnic background information will be collected when the teachers question their students. Family structure data will be gathered using the contact sheets that the families complete at the start of the school year. I will be using the free and reduced lunch statistics to report any information about the socioeconomic background of the population I will be studying. The students themselves will not be directly involved and of course, no names will be printed in the final thesis. There will be no cost to the district and I do not see any cause for disruption in the regular instruction schedule.

I am conducting my research as a requirement to earn my masters degree in school psychology at Rowan College. The project will be evaluated based on the process I used collecting and interpreting my data. This thesis may provide valuable information to the Hess School by analyzing the factors that may cause children to struggle academically. Programs may then be created to provide these children with the extra support they may need to become successful.

If you have any other concerns or questions please contact me so that I may provide the information you need. Thank you in advance for allowing me to conduct my research project.

Sincerely,  
Leah Shaffer  
2nd grade teacher  
Hess School

## APPENDIX II

December 17, 1997

Dear Colleagues,

I am currently writing my thesis and could really use your help in gathering information for my research project. Could you please take a few minutes of class time and ask your students how many siblings they have? I've attached a chart that should contain the names of your students. Please add or delete a student's name if necessary. Could you also fill in the ethnic background that you believe the student originates? I've listed a key to ease the process. Please put a check in the BSI and/or free/reduced lunch column if a student receives these services.

Thank you for taking time out. I know we're all very busy, but I'd like to organize my data over our winter break. Could you please send them back to me by Friday, December 19th?

Thank you,  
Leah Shaffer  
Room A107

A = African American

C = Caucasian

O = Other

See Attached:

Teacher's name, grade, and room number				
Student names	Ethnic background	#of siblings	BSI	Free/reduced lunch
XXXXXXXX*				
XXXXXXXX				
XXXXXXXX*				
XXXXXXXX				

# APPENDIX III

## EMERGENCY CONTACT SHEET

DEAR PARENTS:

WE NEED THE BELOW INFORMATION TO UPDATE OUR SCHOOL RECORDS. PLEASE  
FILL OUT THE INFORMATION AND RETURN THIS FORM TO YOUR CHILD'S TEACHER AS  
SOON AS POSSIBLE.

STUDENT'S NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

PO Box (if applicable) \_\_\_\_\_

HOME PHONE \_\_\_\_\_ TEACHER \_\_\_\_\_ GRADE \_\_\_\_\_

### PARENT OR GUARDIAN WITH WHOM STUDENT LIVES

Name \_\_\_\_\_ Name \_\_\_\_\_

Relationship to student \_\_\_\_\_ Relationship to student \_\_\_\_\_

Occupation \_\_\_\_\_ Occupation \_\_\_\_\_

Name of employer \_\_\_\_\_ Name of employer \_\_\_\_\_

Home phone \_\_\_\_\_ Home phone \_\_\_\_\_

Work phone \_\_\_\_\_ Work phone \_\_\_\_\_

Work hours \_\_\_\_\_ Work hours \_\_\_\_\_

Male-Female  
(circle one)

Race \_\_\_\_\_  
(optional)

PERSON TO CONTACT IF ABOVE CANNOT BE REACHED:

NAME \_\_\_\_\_

RELATIONSHIP TO STUDENT \_\_\_\_\_

OCCUPATION \_\_\_\_\_ EMPLOYER \_\_\_\_\_

HOME PHONE \_\_\_\_\_ WORK PHONE \_\_\_\_\_

ADDRESS \_\_\_\_\_

COMMENTS REGARDING CONTACT INFORMATION \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**INSTRUCTIONS FOR USE - The Income Eligibility Guidelines must be used to determine eligibility for free or reduced price meals or free milk.**

To determine eligibility, find the child's household size and compare the total household income to the free column and to the reduced price column. If the income falls below the free column, the child is eligible for free meals or free milk. If the income is above the amount listed in the free column but does not exceed the amount listed in the reduced price column, the child is eligible for reduced price meals.

**EFFECTIVE FROM JULY 1, 1997 TO JUNE 30, 1998**  
 (As announced by the United States Department of Agriculture.)

HOUSEHOLD SIZE	FREE MEALS OR MILK			REDUCED PRICE MEALS		
	Annual	Monthly	Weekly	Annual	Monthly	Weekly
1	10,257	855	198	14,597	1,217	281
2	13,793	1,150	266	19,629	1,636	378
3	17,329	1,445	334	24,661	2,056	475
4	20,865	1,739	402	29,693	2,475	572
5	24,401	2,034	470	34,725	2,894	668
6	27,937	2,329	538	39,757	3,314	765
7	31,473	2,623	606	44,789	3,733	862
8	35,009	2,918	674	49,821	4,152	959
Each Additional Household Member	+3,536	+295	+68	+5,032	+420	+97

When weekly income is reported on free and reduced price applications, the amount must be multiplied by 4.33 to determine the monthly income. 7CFR Part 245.2(e)

When bi-weekly income is reported on free and reduced price applications, the amount must be multiplied by

**APPENDIX IV**