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Disparity Between Boys' And Girls' Academic Achievement

Laura M. Harris

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Disparity Between Boys' and Girls' Academic Achievement

BY

Laura M. Harris

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Specialist in School Psychology

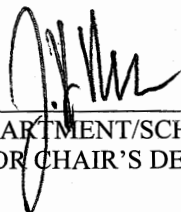
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Running Head: BOYS' ACADEMIC ACHIEVEMENT

Disparity Between Boys' and Girls' Academic Achievement

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2009

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Abstract

The purpose of this study was to identify the factors that contribute to the disparity between the academic achievement level of boys and girls in the school setting. Current literature indicates that while boys have historically outperformed girls in the area of math, girls have all but closed this achievement gap.

One hundred and twenty-four fourth and fifth grade students (71 girls, 53 boys, predominantly Caucasian) from a school in the Midwest region of the United States participated in the study. Gender and living with a male role model were found to have no relationship with academic achievement. These results may be understood in the context of the sample studied. In contrast to the national and state data, the community participants from which participants came had above-average educations, intact families, and incomes. Children who come from such a background have been known to do well in school. Future studies may be designed to replicate the current study with a more representative sample as well to continue to explore the role of father involvement in achievement.

Factors Contributing to the Disparity Between Boys' and Girls' Academic Achievement

Introduction

The main purpose of this study was to understand the factors that contribute to the disparity between boys' and girls' academic achievement in school. Currently, there are many concerns regarding boys' school performance as well as their academic scores. According to the National Center for Educational Statistics (NCES) (2004), boys ages five to 12 are more likely to have repeated a grade level than girls of their age. In 1999, 8% of boys had repeated a grade while only 5% of girls had been retained. Of all students who were suspended in the United States in 2000, 71% were boys while only 29% were girls (NCES, 2003). Also, according to the Child Trends Data Bank (2004), 10% of boys and 6% of girls ages three to 17 had been diagnosed with a learning disability. Further, at the college level, enrollment data show more women than men attending college (NCES, 2004, p. 70). This trend has raised concerns among educators and has been the focus of the news media. It is thus important to identify factors that may contribute to the disparity between achievement levels of boys and girls for the purpose of preventing the trend.

Before discussing the factors that may contribute to boys' underachievement, it may be helpful to examine in more detail the current school experiences of boys in comparison to girls in terms of retention, suspension/expulsion, learning difficulties, and grades, as well as provide a historical perspective. As mentioned before, boys are more likely than girls to be retained in school. Retention, or being retained, in this sense is the act of a child repeating a grade level when expectations are not met. While parental education level played a role in the retention rate of students, it did not change the fact

that boys consistently showed higher percentages of retention. In fact, 14% of boys and 12% of girls whose parents had completed less than high school had been retained as compared to 5% of boys and 2% of girls whose parents had received a bachelors degree or higher. The literature is clear as to the effects of grade retention. Jimerson (1999) found that students retained in early grades were more likely to drop out of high school than a group of low-achieving but promoted students. Another statistic was presented by the National Center for Educational Statistics (1995). It showed that of all the 16- to 24-year-old students who had been retained (13.3%), 24.1% had dropped out of school, while only 10.1% of those students who had not been retained dropped out. Interestingly, in the 1970's, drop-out rates were comparable for both boys and girls (14% to 15%). These percentages have declined throughout the years, but boys now are more likely to drop out of school than their female age-mates (12% to 9%) (NCES, 2004).

Suspension statistics were not in favor of boys according to the 2003 National Center for Educational Statistics data. These data showed that of all students who were suspended in the United States in 2000, 71% were boys, while only 29% were girls. Also, of those students who were expelled, 77% were boys, while 23% were girls (NCES, 2003). These suspension and expulsion rates are alarming because these students are being taken out of the classroom's academic time. This could lead to their decline in academic achievement (West, 1999a).

Another finding suggests that in children grades first through fifth, boys are more likely than girls to be identified by parents as having a disability (NCES, 2004, p. 42). In 1996, 24% of boys' parents claimed their child had a disability, while 17% of girls' parents reported their daughter had a disability. In 1999, the percentages were 21% to

14%, respectively. More specifically, learning disability, emotional disturbance, and speech impairment were all more common in boys than girls. Another study estimated that 10% of boys and 6% of girls ages three to 17 had been diagnosed with a learning disability (Child Trends Data Bank, 2004).

According to Cole (1997), girls on average outperform boys on school grades in all major subjects. The difference between the grades of each gender shows up most in the subject of language arts; however, girls receive higher grades in social studies, science, and math as well. Cole discussed the possibility that grades were likely measuring "studenting skills," which include such skills as "persistence, follow-through, doing required work, participating, and performing in different contexts (homework, class participation, teacher tests, etc)" (Cole, 1997, p. 19). As Younger et al. (1999) found, teachers view boys as less likely to prioritize school work, less motivated, and more disordered, which indicates a lack of "studenting skills." Therefore, if grades are truly measuring "studenting skills," boys are at a disadvantage.

While all these data indicate a decline in boys' academic achievement, boys still outperform girls on college entrance tests such as the SAT. Current information on the SAT Critical Reading scores from College Board SAT (2008) reports a mean scaled score of 504 with a standard deviation of 114 for boys, while the mean scaled score for girls was 500 with a standard deviation of 110. In the area of Math, a mean of 533 with a standard deviation of 118 was found for boys, and a mean of 500 with a standard deviation of 111 was found for girls. While these differences appear to be rather small, boys still score slightly higher. Regardless of the reason for boys' underachievement,

history points to a social movement, discussed next, that might have contributed to girls catching up with and exceeding boys in academic achievement.

History

In 1960, more men than women attended college. In fact, 54% of boys who graduated from high school went on to college as compared to 38% of girls. By 2001, these numbers had changed to 58% of boys to 64% of girls (NCES, 2004, p. 70). In fact, in 2000, women made up 56% of the undergraduate student population (NCES, 2004, p. 70). Some scholars have put this phenomenon in the context of history.

In the 1960s and 1970s, there was a great women's movement, which fought for equality in many areas, including the work force and educational settings. Statistics from this time period showed that school-aged girls were typically outperformed by their male classmates in the area of math (Cole, 1997; Hyde et al., 1990). In a meta-analysis of studies on mathematics achievement conducted by Hyde et al. (1990), 100 studies were divided into two groups, those conducted before 1973 and those conducted after 1973. There was a small to medium effect size of boys achieving higher than girls in the studies before 1973 ($d=0.31$), while there was a small effect size in the group after 1973 ($d=0.14$). This shows that the girls began closing the mathematics achievement gap during this time.

Other data collected from 1971 to 1999 show that boys tend to outperform girls in the areas of mathematics and science (NCES, 1999). These statistics were alarming to many individuals, supporting the claim that girls were at a disadvantage in the educational setting as well as the job market. However, over the 28-year period in which data were collected, girls made considerable progress in closing the gap, and only a small

gap remains in these areas of achievement. This gap in mathematics achievement, as measured by the ETS Gender Study, was found to be statistically smaller than it was nearly 30 years prior (Cole, 1997). Additionally, a new study by Hyde et al. (2008) found that for grades two through 11, the general population no longer shows gender difference in math skills.

Additional data from the NCES (1999) show that girls consistently outperform boys on tests of reading and language arts. In fact, unlike the mathematics and science gap, this gap has remained mostly consistent over the 28-year period. Results from the General Certificate of Secondary Education (GCSE) examination in schools throughout England yield similar concerns regarding the gap between the reading and language arts scores of boys and girls (Younger & Warrington, 2005). These data indicate two things: (1) the interventions to improve girls' scores in math and science have been largely successful and (2) boys are in need of similar attention in order to improve their school achievement, particularly in reading and language arts, because reading and language skills are prerequisites for practically all learning. Given the foregoing, the concern about boys' underachievement is realistic. A few potential contributing factors are discussed below.

Potential Contributing Factors to Boys' Underachievement

Feminization of Schools: While teaching has always been predominantly dominated by women, females now account for 98% of preschool and kindergarten teachers, 79% of elementary and middle school teachers, 59% of secondary teachers, and 46% of postsecondary teachers (U.S. Census Bureau, 2004). Special Education is also predominately taught by women. In fact, the U.S. Census Bureau (2004) reported that

87% of all Special Education teachers were women. Some researchers pose that the presence of high percentages of women teachers could be detrimental to the success of boys.

Research has indicated that teachers prefer female students in the classroom because they are more attentive, cause less disruption, and are easier to communicate with. Teachers reported seeing boys as “more disordered, more demotivated, and less willing to prioritize school work” (Younger et al., 1999, p. 328). Additionally, teachers claimed boys were more vocal, more boisterous, more easily distracted, and less mature than their female classmates. Despite these concerns reported by teachers, Younger et al. (1999) found that teachers still held the belief that they treated boys and girls equally in the classroom. Further, boys received 90% of the reprimand in the schools studied.

Jones and Myhill (2004) conducted a study based on teacher interviews and stated, “The responses given by teachers in their interviews suggest that perceptions shaped by constructions of gender are confirming and reinforcing the conceptualization of underachievement as an issue about boys” (p. 558). In fact, when keeping tallies of positive and negative comments made towards each gender, teachers made 54 positive comments about the girls as opposed to 22 negative comments. The opposite was true for boys. Teachers made 32 positive comments about the boys as compared with 54 negative comments. The boys appeared to be viewed in terms of things they could not, would not, and did not do as opposed to the girls, who were viewed in terms of things they had achieved as well as their compliant behavior. Overall, there were two primary “norms” that emerged in this study: the “overachieving girl” and the “underachieving boy.” Boys

who were high achievers were viewed as different from the norm, while girls who were underachievers were often overlooked or ignored.

It is important to note the psychological processes that may help explain the relationship between feminization of schools and boys' underachievement. The psychological principle of the self-fulfilling prophecy, as coined by Robert K. Merton, could possibly explain part of the reason feminization of schools may be related to the lagging achievement of boys. Merton (1994) stated, "Plausible but ill-founded beliefs develop into social realities through the mechanism of the self-fulfilling prophecy" (p. 16). In this scenario, teachers believe the girls are easier to teach; therefore, they may call on them more often, reinforce answers and participation, and thus get more compliant students. On the other hand, they may expect boys to be more rambunctious and harder to get along with; therefore, they see any sign of difficulty as a problem (Younger et al., 1999). Ultimately, this could lead to reinforcement of boys' ideas that teachers are discriminating against them, which could in turn lead to a decrease in participation and achievement. Consequently, teachers' perspectives of the students may be rather influential in the students' success.

Similarly, like all other individuals, students operate on the basic principles of reinforcement. Skinner (1969) believed that "given the right conditions, men will learn – not because they want to, but because, as a result of the genetic endowment of the species, contingencies bring about changes in behavior" (p.96). Skinner also claimed that "the classroom is a kind of community, with a culture of its own, and we can design such a culture while respecting the standards of dignity and freedom which we value in the world at large" (p. 100). Therefore, if the teacher reinforces a student when he or she

answers a question, the student will be more likely to answer questions in the future. However, when teachers do not reinforce participation, students may be less likely to participate in the future. Therefore, if it is easier for teachers to ignore boys due to their rowdy behavior, then boys will be less likely to participate in the future.

As discussed above, although female teachers' differential treatment of boys appears to be rather alarming, it was determined not to include this component in the current study. The primary reason for this decision was that teaching has been a field predominantly dominated by women since the early 1900s. In fact, in 1930, there were five times as many female teachers as male teachers. The percentage of male teachers in the United States increased slightly during the Great Depression and rose to around 25%. However, in World War II, the percentage of male teachers fell again and then rose again after the war. By the 1980s, two-thirds of all teachers in the United States were females. Therefore, the statistics have remained mostly consistent over the years; however, the achievement levels have not. This would indicate that something else other than the feminization of schools may be contributing to the current disparity of achievement between boys and girls (Provenzo & Renaud, 2008). This something else may be "masculinity."

The Perception of Masculinity and Achievement: The term masculinity can sometimes be thought of as synonymous with "maleness"; however, while maleness is a biologically determined state, masculinity is a socially, politically, and historically determined gender identity (Leach, 1994). Therefore, masculinity, according to Leach (1994) is "...the cultural interpretation of maleness, learned through participation in

society and its instructions” (p. 36). Various theories help to account for the development of the concept of masculinity.

One theory that could help explain why boys adopt socially constructed characteristics of masculinity is social learning theory (Bandura, 1977). When boys see older boys or men acting in consistently patterned ways, they begin to adopt the behaviors and ideas. As the boys begin behaving like the older boys or men, they begin to be reinforced, whether directly or indirectly. For example, if a young boy sees an older boy playing with toy guns and in turn sees him be praised and admired by his peers, the young boy is likely to try that behavior in the future. Similarly, if a young boy watches an older boy play with a Barbie doll and then sees his peers make fun of him, the young boy is likely to learn that that is not a behavior that is positively reinforced. As Bussey and Bandura (1984) found that boys tend to model behavior after same-sex models, this may become a cyclical trend where masculinity is learned from older male peers or adults and in turn will only change with the societal and cultural views.

Today's society is much different from that of previous generations. Information is only seconds away, thanks to the Internet, and one is bombarded by visual and auditory stimuli at every corner. One study conducted in 1999 found that 72% of children, regardless of sex, said “violent” was an adjective that described men well (Heintz-Knowles, Li-Vollmer, Chen, et al., 1999). This study also found that children did not expect to see boys or men cry or be vulnerable on television. This portrayal of masculinity in combination with the lack of true male role models could be potentially hazardous to the development of young boys.

Further, ideas of masculinity and laddishness tend to contribute to social group rules for boys. According to Warrington and Younger (2006), "These pressures are powerful, and they represent a central challenge which schools must overcome if they are to address 'underachievement' issues" (p. 270). Swain (2004) added that the construction of the concept of masculinity is "inextricably linked to establishment of status within the peer group" (p. 182). Swain found that boys' athletic ability was the major factor influencing their status in the peer group. As found in previous generations, acting tough was one of the primary means to achieve peer status, and along with that, a "masculine" persona (Swain, 2004; West, 1999b).

Another means of finding a place in the social status was the use of humor. At times, Swain found that humor could be used in a positive way to facilitate relationships with teachers and other peers. However, humor was also used to disrupt academic time, put other peers down, and bolster one's own status. Fashionable clothing was also used to construct concepts of masculinity in one school where uniforms were not required. Of the three English schools Swain studied, one school viewed achievement as a feminine trait while the other two viewed achievement as a gender neutral trait. In this school, more weight was placed on a boy's ability to talk about football and computer games.

A central issue to the concept of masculinity is that it is not an innate trait, but rather a characteristic that continually has to be proven (West, 1999). As West points out, the question to ask is, "Proven to whom?" The answer is likely to other men, to peers, to women, and to oneself. Young boys are very attentive to what society expects of them as they grow older and become men. One study conducted by Stoddart and Turiel (1985) found that young children and adolescents view the crossing of stereotyped

gender behaviors as more wrong than moral, personal, or conventional transgressions. These age groups expressed a strong commitment to maintaining sex-role regularity. Therefore, the pressure for young boys to conform to the cultural view of masculinity appears to be quite apparent. However, the expectation of being masculine may be confusing and difficult to achieve for some young men.

This component was not included in the current study for various reasons. Masculinity is not a new concept that has developed in recent years. After examining the literature, this author concluded that boys wanting to be masculine was not the cause of their underachievement, but rather it is the lack of male role models to teach them how to be masculine in a positive way. As the literature clearly indicates, boys tend to seek out a same-sex role model, and therefore, without fathers or close adult males in their lives, they may be forced to model their behavior after others. The biggest change in recent years is the changing dynamic of the American household, mainly the absence of fathers. Therefore, the lack of positive male role models is the most likely cause of the underachievement in boys and is thus the focus of the current study.

Absence of Father Figures / Lack of Male Role Models: In the United States, it has become more common for households to be without a male figure and led by women. The U.S. Census Bureau (2003) reported that in the year 2000, 12% of households were led by women without a man present. This percentage is the highest ever recorded. In 1960, only 7.9% of all households were led solely by women. Additionally, out of all households with children under the age of 18, one of four was led by a single-parent. Further, out of all single-parent homes, three times as many are led by women (U.S.

Census Bureau, 2001). These changes in the American family unit have led to a greater concern for the roles fathers play in children's well-being.

Research indicates that children who live in single-parent families tend to display more behavioral problems than those living with both parents (Teachman et al., 1998). Additional research further indicates that boys without a male role model exhibited more problematic behavior than those who identified a male role model (Bryant & Zimmerman, 2003). Furthermore, in a study of African American adolescents, Bryant and Zimmerman found that boys who reported having a father or brother male role model rather than no male role model were associated with a better school attitude. Similarly, those who identified a father male role model compared to extended family or no role models had higher grade point averages. Those without male role models also were found to have higher truancy rates. It is important to note that regardless of which male role model the male adolescent identified (father, brother, uncle), problem behavior was less than those without a male role model. Another interesting finding indicated that boys in the study were more likely than girls to report a parent as their role model. This could potentially indicate that boys without a parent may suffer from a lack of support and advice.

Furthermore, children who have fathers who eat meals, spend free time, or do activities around home together with them, or help them with academic tasks such as reading or homework tend to have better academic performance than those whose fathers do not engage in these activities (Cooksey & Fondell, 1996). While activities such as meals and homework time may seem trivial, they appear to contribute in one way or

another to academic success. Therefore, children who have access to a father figure who is involved appear to have an advantage.

Although it is beyond the scope of this study to discuss the role of male role models in girls' development, it suffices to say that the absence of the father figure appears to affect boys and girls differently (Bryant & Zimmerman, 2003; Santrock, 1970). Preschool boys without a father figure have been found to be more feminine, less aggressive, and more dependent on adults than boys with a father figure present (Santrock, 1970). However, preschool girls in the study did not display differences as categorized by those with or without a father figure. This may be because girls' gender identification is with the mother figure; and the absence of a male role model affects them in a different way, e.g., relating to a boy or a man. Therefore, the presence of a father figure is likely influential on boys' development from the beginning. With households led by females rising to 12% (U.S. Census Bureau, 2003), the absence of fathers could be impacting a large population of boys. One theory that explains the processes by which the absence of father figures is related to boys' performance is discussed below.

Research on social learning theory and sex role development supports the notion of the importance of the father figure for boys (Bussey & Bandura, 1984). Social learning theory states that people learn by observing others' attitudes, behaviors, and consequences of those behaviors. Bandura (1977) said, "Fortunately, most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action" (p22). Therefore, without the presence of

fathers after whom to model behavior, boys must seek other persons as models. Bussey and Bandura (1984) found that boys are far more likely to pattern their behavior around same-sex models than opposite-sex models. Additionally, they found that while boys learned extensively from models of both sexes, they were selective in what they expressed.

In summary, because boys have been found to model their behavior after same-sex role models, it could be proposed that the loss of the father-figure or significant male in the household could affect boys. Boys no longer have persons after whom to pattern their behavior. As Cole (1997) suggests, boys may see "studenting skills" such as persistence and follow-through as feminine traits.

Significance of Present Study: Current literature is clear that boys only slightly outperform girls in areas of math and science. Girls have all but closed the gap in these areas. The literature also shows that while boys have lost the advantage in these two subjects, they have remained behind girls in the areas of reading and language arts (Cole, 1997; NCES, 1999). While the literature identifies various potential contributing factors -- feminization of schools, the perception of masculinity and achievement, and lack of a father-figure or male role model -- there are no definite answers. Further, only two studies in the literature have collected data from the children's perspective. Therefore, the general purpose of this study was to gain some understanding of the contributing factors, specifically from children's perspective.

The current study attempted to determine (1) whether the presence of a male role model is positively correlated with the academic achievement of fourth- and fifth-grade students; (2) whether having a male role model affects boys and girls differently; and (3)

whether the quality of the relationship with the male role model was positively correlated with the academic achievement of students.

Research Questions and Hypotheses

As boys' achievement in school has become a concern not only in American schools but also in Australian and English schools, it is important that the factors that contribute to boys' failure or success in school are well understood. The present study was guided by the following predictions:

1. The presence of a male role model would be a predictor of higher levels of academic achievement in students. Previous literature has indicated that children from single-parent homes have been found to have lower reading and mathematics scores (Teachman et al., 1998).
2. The presence of a male role model would be a better predictor of academic achievement in boys than girls. Previous research has indicated that boys without a male role model from their family have lower academic performance, reading and math scores, and school attitude (Bryant & Zimmerman, 2003).
3. It is expected that the stronger the quality of the relationship with the role model, the higher the achievement would be. Previous research has indicated that children who have fathers who eat meals with them, spend free time together, do activities around home together, or help them with academic tasks such as reading or homework tend to have better academic performance than those whose fathers do not engage in these activities (Cooksey & Fondell, 1996).

Method

Participants

All boys and girls in fourth and fifth grade from a school in the Midwest region of the United States were recruited for this study. There were a total of 410 eligible participants, 200 in fourth grade and 210 in fifth grade. Of all the eligible participants, 124 students (30%) obtained parental consent. Of these participants, 57% were girls and 43% were boys; and the majority (97%) were Caucasian. All of these students voluntarily agreed to participate, signed personal assent, and were included in the study.

Materials

Various measures were used to collect data for this study. These were the student's Illinois Standardized Achievement Test (ISAT) scores in the areas of reading and math; classroom math grades; Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency scores; Student Ability Index (SAI), as measured by the Otis-Lennon School Ability Test – Seventh Edition (OLSAT-7); and a student questionnaire.

Illinois Standardized Achievement Test (ISAT) Scores: Schools throughout the United States are now required to assess children in grades three through eight in the areas of reading and mathematics. In the state of Illinois, schools use the ISAT as a way to assess these areas. This assessment was designed by teachers and curriculum experts in cooperation with the Illinois State Board of Education. It is Illinois' way of measuring how well students are meeting the Illinois Learning Standards. The Illinois Learning Standards define what students in public schools should know and be able to do by the time they graduate from high school. Items are written, selected, reviewed, and

assembled by educators and administrators. Additional items are included from the Stanford Achievement Test, Tenth Edition (SAT-10) in order to provide a national normative comparison (ISAT Technical Manual, 2006).

Reliability information states that internal consistency is adequate and coefficient alphas in the areas of reading ranged from .88 for eighth grade to .91 for third grade. In the subject of mathematics, coefficient alphas ranged from .92 in third grade to .98 in eighth grade.

ISAT scores in the areas of reading and math are reported for several subscales and then an overall scaled score is derived from all the reading standard areas. In the area of reading, four standards are being assessed: Vocabulary Development, Reading Strategies, Reading Comprehension, and Literature. Students receive a score for the number of items correct in each standard. All of these scores factor into one total Reading scaled score. The Reading scaled scores are divided into four categories: Academic Warning, Below Standards, Meets Standards, and Exceeds Standards. These categories are labeled as the students' Performance Level.

A similar procedure is used for math. There are five standards which are assessed: Number Sense, Measurement, Algebra, Geometry, and Data Analysis, Statistics, and Probability. As with reading, students' scores are reported in each of these standards. These scores combine to make up the Math Scaled Score. The Math Scaled Score is also divided into the four categories of Academic Warning, Below Standards, Meets Standards, and Exceeds Standards. For the purpose of this study, students' ISAT Reading Performance Level and ISAT Math Performance Level were used as a measure of their academic achievement. All students in the school district take the ISAT in

March. Therefore, the scores used in this study were the students' scores from March of the previous school year, 2008.

DIBELS Oral Reading Fluency: The DIBELS oral reading fluency measure is an individually administered test of reading fluency on grade-level text passages. DIBELS oral reading fluency scores have been found to be positively correlated with various reading measures, such as the Arizona Instrument to Measure Standards (AIMS) ($r = .741$), the Ohio's Fourth Grade Reading Proficiency Test ($r = .609 - .654$), and the Florida Comprehensive Assessment Test ($r = .80$) (Vander Meer, Lentz, & Stollar, 2005; Wilson, 2005; Shaw & Shaw, 2002). The school district included in this study administers benchmark passages three times per year: fall, winter, and spring. Each student reads three assigned passages aloud to an examiner for 60 seconds each. Each passage is then scored to obtain the total number of words read correctly per passage. The mean score is recorded. For the purpose of this study, the fall benchmark was used as an indicator of each student's oral reading fluency.

Student Academic Grades: Students' math classroom grades were recorded as a measure of their academic achievement. The letter grades were recorded as A, B, C, D, or F. All plus or minus grades, such as A+ or A-, were simply recorded as the letter grade.

Otis-Lennon School Ability Test – Seventh Edition (OLSAT-7): The OLSAT-7 is a group administered intelligence test. This test is made up of multiple choice questions which assess verbal comprehension, verbal reasoning, pictorial reasoning, figurative reasoning, and quantitative reasoning skills which are most important to academic learning. Scores are reported in the form of a Nonverbal standard score and a Verbal

standard score. These two areas are then combined into one Total standard score, known as the *School Ability Index (SAI)*. The SAI is a normalized standard score that has a mean of 100 and a standard deviation of 16 (Otis & Lennon, 1997). For the purpose of this study, only the Total SAI was used as an indicator of a student's learning abilities. This score was used as the control variable when statistical comparisons were made. Students' SAI scores were extracted from the district's archival database.

With regards to reliability, internal consistency was determined by using the Kuder-Richardson procedures. This procedure found the reliability coefficient to vary between .90 and .94, depending on the level of the test. Additionally, alternate form reliability was used to verify reliability. Two forms of the OLSAT-7 were developed and equated in a research study. This procedure found reliability coefficients ranging from .82 to .92 (Otis & Lennon, 1997).

Student Questionnaire: In this study, a student questionnaire was used to obtain demographic information, such as gender, grade level, and race. The other items included whether or not students could identify a significant male role model, whether or not they lived with that role model, and assessment of the quality of this relationship.

The Father Presence Questionnaire, developed by Krampe & Newton (2006), was used as a framework for the questions regarding students' relationship with a significant male role model. This questionnaire has 10 scales (e.g., Feelings about the Father and Mother's Support for Relationships with Father). For the purpose of the current study, only items from the Feelings about the Father Scale and the Perception of Father's Involvement Scale were used. One reason for this decision was the ability of fourth- and fifth-grade students to answer questions. Participants in the current study were at least

six years younger than the participants the scale was designed for. Another reason only two scales were used in this questionnaire is that when Krampe and Newton (2006) conducted a confirmatory factor analysis, they found two higher-order factors (Relationship with Father and Beliefs about the Father) and seven first-order factors. Of these seven first-order factors, Feelings about the Father and Perception of Father's Involvement had the highest loadings on Relationship with Father (.922 and .983 respectively).

The Father Presence Questionnaire was designed to measure a child's relationship with his/her biological father. Krampe & Newton (2006) view father presence as a "psychological construct in the offspring rather than as a reference to paternal characteristics or behavior" (p. 161). Therefore, they view father presence as a quality in or characteristic of the child. For the purpose of the current study, it was decided to extend this definition of "father" to any significant male role model in the child's life. Therefore, the child could identify a grandfather, uncle, guardian, or other close male role model instead of his or her biological father.

A study conducted on the Father Presence Questionnaire included 685 adults aged 18 to 88. Four cities located in the Northeastern, Southeastern, central plains, and Northwestern regions of the United States were included in the study. Of this sample, 46.5% were male and 67.9% were Caucasian. African Americans (22%), Hispanics (1.9%), Asians (2.4%), Native Americans (1.4%), and Pacific Islanders (0.8%) were also included in the sample. Participants who were adopted were excluded from the study.

In order to make the questions appropriate for the current study, the term "this man" was used in place of "father." Students were asked whether or not they could

identify at least one adult male, i.e., "this man," to whom they could look. Another change for this study was that only six questions from the Feelings about the Father Scale and seven questions from the Perceptions of Father's Involvement were used. Questions which most resemble the purpose of this study were selected based on face validity. One final change was that questions were shifted from past- to present-tense. Because many questions were designed to measure the adult's childhood experience with his or her father, most questions were framed in the past-tense. For the purpose of this study, students answered questions on current situations.

Following Krampe and Newton (2006), questionnaire items had five possible responses: *never*, *seldom*, *occasionally*, *frequently*, and *always*. Each student was asked to circle the most appropriate response. Unlike the Father Presence Questionnaire, each student in the current study was asked at the beginning of the questionnaire if he or she could identify an adult male to whom he or she looked up. If the student was unable to identify such a figure, he or she skipped the questions about the relationship with the male role model and only answered questions not related to personal experiences with male role models.

Each student was asked to respond to items that asked whether or not he or she believed having an adult male role model was helpful to school performance and whether or not he or she lived with his or her role model. Additionally, each student was asked to identify any adults living in his or her household. This information showed whether or not an adult male was present in the home. The finalized version of the questionnaire, now titled Student Questionnaire, is found in Appendix A.

Procedure

Prior to data collection, permission to complete this study was obtained from the Assistant Superintendent of the school district. After the school district gave consent, an application was submitted to the Institutional Review Board (IRB) at Eastern Illinois University. The IRB assures that all ethical guidelines are followed. Once the IRB approved the study, parental consent forms were sent home for all students in grades four and five (See Appendix B). A thorough explanation of the purpose of the study, an explanation of data that would be collected, and an explanation on the voluntary and confidential nature of participation were provided in writing along with the consent form. Parents were then given the opportunity to sign the consent forms.

Additionally, because students in fourth and fifth grades are old enough to self-report, they were also given a personal choice of whether or not to participate in the study. Therefore, students with signed parental consent were divided into groups of around 20. The researcher briefly explained the study to each group and then gave out Students Assent forms (Appendix C) to sign if they chose to participate. Only those students who had a signed parental consent form as well as a signed student assent form were included in the study.

In order to gain insight from the children's perspectives, questionnaires were then given to all children who participated in the study. Children completed the questionnaires based on their own ideas and assumptions. Because these children were old enough to self-report reliably, each child was responsible for the completion of his or her own questionnaire. The researcher did read through the questionnaire in its entirety with each group of students in order to eliminate problems with completion due to

reading difficulties. Therefore, data were gathered directly from the students rather than from secondary informants such as parents and teachers. At the completion of the administration of the questionnaire, all participants were debriefed by the researcher in order to provide access to a counselor if any bad feelings were caused as a result of the questionnaire.

All information collected in this study was kept confidential and was only viewed by the researcher conducting the study. As data were collected, (ISAT scores, DIBELS Oral Reading Fluency scores, math classroom grades, Otis-Lennon SAI, and the questionnaire responses), they were entered into a computer spreadsheet using assigned student identification numbers. Original documentation, e.g., consent and assent forms, which had student names were filed in a locked cabinet. Further, the name of the school remained anonymous. Therefore, neither student names nor the name of the school were used. No other identifying information was used that would enable persons to identify the school and or students who participated in the study. Only aggregate data were reported.

The most recent math classroom grades were obtained from the teachers. Originally, it was the intent to use the most recent classroom reading grades; however, the grading scale was not consistent between classrooms or grade levels. Therefore, the most recent DIBELS oral reading fluency scores were used in place of the classroom reading grades. These were obtained from the school's database. ISAT scores and Otis-Lennon School Ability Index were collected from the Assistant Superintendent in the district. This information is kept electronically for all students in the district.

Additionally, students were given the questionnaire in a classroom format. The examiner scheduled a time with each classroom teacher and administered the questionnaire to those students who were eligible to participate. Those students who were not eligible to participate read silently or worked on a writing assignment in a separate room. As stated before, the researcher read all items aloud to the students as they responded in order to eliminate confusion based on reading difficulties. When the questionnaires were completed, the researcher collected them and took the students back to their classrooms.

Results

In this study, it was hypothesized that the presence of a male role model would be associated with higher levels of academic achievement in fourth- and fifth-graders. The demographic population of this study did not allow for this comparison to be made because 98.4% identified a male role model. It was then determined to follow Bryant and Zimmerman's (2003) research and divide the sample into two groups: those students who chose their fathers as their role models and those who chose extended family members or non-family members. Achievement levels of these two groups were then compared.

Additionally, the majority of students chose their fathers as their role models (69.4%). Students who chose other family members, such as their grandfathers, uncles, or brothers, accounted for only 21%. Further, only 8.1% of participants chose non-family members. These data did not allow for a comparison of this nature to be made.

Therefore, it was determined to test for a significant difference in the achievement of students who lived with their male role models compared to those who did not, as well as for gender differences. The majority of students lived with their role models (70.2%).

There were no significant findings when testing the effect of living with the role model or comparing gender with the students' ISAT Reading scaled scores, ISAT Math scaled scores, and DIBELS oral reading fluency, or math classroom grades.

The first analysis of covariance was conducted on the ISAT Reading scaled scores using the Otis-Lennon score as a covariate. At an alpha level of .05, results show that there was no significant interaction between gender and whether or not the students lived with the role models, $F(1, 107) = 1.08, p = .30$. Likewise, there were no significant differences in the ISAT Reading scaled scores between boys and girls, $F(1,107) = 1.13, p = .29$. Additionally, there were no significant differences in the ISAT Reading scaled scores of students who lived with their role models versus the students who did not live with their role models, $F(1,107) = .51, p = .48$. Table 1, ANCOVA Summary: ISAT Reading Scaled Scores displays the results from these comparisons.

The second analysis of covariance was conducted on the ISAT Math scaled scores using the Otis-Lennon score as a covariate. At an alpha level of .05, results show that there was no significant interaction between gender and whether or not the students lived with the role models, $F(1, 107) = .87, p = .35$. Likewise, there were no significant differences in the ISAT Math scaled scores between boys and girls, $F(1,107) = .49, p = .49$. Additionally, there were no significant differences in the ISAT Math scaled scores of students who lived with their role models versus the students who did not live with their role models, $F(1,107) = .003, p = .96$. These results are displayed in Table 2, ANCOVA Summary: ISAT Math Scaled Scores.

A third analysis of covariance was conducted on the DIBELS oral reading fluency scores using the Otis-Lennon score as a covariate. At an alpha level of .05, results show

that there was no significant interaction between gender and whether or not the students lived with the role models, $F(1, 109) = .17, p = .68$. Likewise, there were no significant differences in the DIBELS oral reading fluency scores between boys and girls, $F(1,109) = .14, p = .71$. Additionally, there were no significant differences in the DIBELS oral reading fluency scores of students who lived with their role models versus the students who did not live with their role models, $F(1,109) = .32, p = .57$. Results for these comparisons are displayed in Table 3, ANCOVA Summary: DIBELS Oral Reading Fluency Scores.

The final analysis of covariance was conducted on the classroom math grades using the Otis-Lennon score as a covariate. At an alpha level of .05, results show that there was no significant interaction between gender and whether or not the students lived with the role models, $F(1, 109) = 1.18, p = .28$. Likewise, there were no significant differences in the classroom math grades between boys and girls, $F(1,109) = .17, p = .68$. Additionally, there were no significant differences in the classroom math grades of students who lived with their role models versus the students who did not live with their role models, $F(1,109) = .02, p = .90$. These results are found in Table 4, ANCOVA Summary: Classroom Math Grades.

The third, and final, hypothesis was that the quality of the relationship with the role model would be associated with higher levels of achievement. An overall quality of relationship score was obtained by combining questions 4 through 16 (See Appendix A) from the questionnaire into a new variable labeled "Quality of Relationship". Because each of these questions used a Likert scale of 1 to 5 (Never = 1, Seldom = 2, Occasionally = 3, Frequently = 4, Always = 5), an average score from questions 4

through 16 was found for each participant. The mean for the sample was $M = 4.33$, indicating high quality of relationship.

A series of partial correlations were conducted in order to test this hypothesis while using the Otis-Lennon as a covariate. Contrary to the proposed hypothesis, results showed that quality of relationship was not correlated with the ISAT Reading Scaled Score ($r = .08, p = .65$), the ISAT Math Scaled Score ($r = .09, p = .35$), the DIBELS oral reading fluency score ($r = .10, p = .29$), or the classroom math grade ($r = .06, p = .52$).

Discussion

The present study sought to discover whether the presence of a male role model is positively correlated with the academic achievement of fourth- and fifth-grade students. This study also attempted to determine whether having a male role model affects boys and girls differently, and whether the quality of the relationship with the male role model was positively correlated with the academic achievement of this population. This effort was based on the literature that has indicated for several years that there is a disparity between boys' and girls' academic achievement.

Data indicate that girls consistently score higher than boys on tests of reading and language arts (NCES, 1999). Girls also outperform boys on school grades in all major subjects (Cole, 1997). Although statistics from the 1960s and 1970s indicate that boys outperformed girls in the area of math, girls have made considerable progress in closing the gap in math achievement and only a small gap remains (Cole, 1997; Hyde et al., 1990). In fact, one new study by Hyde et al. (2008) found that the general population no longer shows gender difference in math skills. Therefore, the study sought to explore reasons for the current disparity between boys' and girls' academic achievement.

While the current literature clearly demonstrates a disparity between the academic achievement levels of boys and girls, this difference was not demonstrated in the current study. Also, while statistics from the state and national levels show that many children are growing up in homes without an adult male present, 92.7% of participants in the current study reported having an adult male and female present in the home. Further, 98.4% of the participants in the current study were able to identify a male role model. Finally, participants in this study reported high quality of relationship with their male role models.

Much of the literature which demonstrates the disparity between boys' and girls' academic achievement was obtained through the National Center for Educational Statistics (1995, 1999, 2003, & 2004). This literature draws upon a wide range of published and unpublished statistical materials to present an overview of the educational status of students in the United States. Therefore, it is possible that the current study differed from the literature as well as the national and state population in terms of demographic characteristics.

One explanation for these results points to the sample of the study. It should be noted that the demographic characteristics of this sample were not representative of the United States as a whole. In this study, demographic characteristics such as the family structure, education level, income level, and ethnicity of the village in which the participating school is located (sample community) appear to have some implication for the result of the study as discussed below.

For instance, regarding family structure, the U.S. Census (2000) indicated that 9.4% of family households in the sample community were led by females with no male

present as compared to 12.3% at the state level. In contrast, in the current study, 92.7% of the sample reported having both an adult female and adult male present in the home. Out of all households in the sample community, 70.9% were married couples as compared to 51.3% at the state level.

In terms of education and income level, the sample community has a median family income of \$61,063 as compared to the Illinois median family income of \$55,545. Additionally, 82.3% of housing units are owner-occupied as compared with the state percentage of 67.3%. Another factor indicating higher than average socioeconomic status is the fact that 25% of the village population has a bachelor's degree and another 12.3% has a graduate or professional degree; the state percentages are 16.5% and 9.5%, respectively. Of the total village population, 5.1% of the population and 3.5% of families are below the poverty line (U.S. Census, 2000). The national poverty rate in 2000 was 11.3% (U.S. Census Bureau, 2000). While discussion exists as to the nature of the correlation between SES and academic achievement, many researchers agree that there is typically a positive correlation between the two (Bradley & Corwyn, 2002).

Additionally, the participating district has much higher achievement scores than average schools in Illinois. According to the Illinois School Report card for the 2007-2008 school year, 90.5% of fourth and fifth grade students scored in the "Meets standards" or "Exceeds standards" categories on the ISAT Reading assessment compared to the state average of 73.35%. Similarly, 94.35% of fourth and fifth graders in this study scored in the "Meets standards" or "Exceeds standards" category on the ISAT Math assessment compared to the state average of 83% state (Illinois School Report Card, 2008). Further, the attendance rate in the participating district is 96% as compared to the

state average of 93.3%. With achievement scores and attendance at this level, it is likely that different results would have been obtained if the student body was more typical of Illinois schools.

In conclusion, results would have likely been different if data were collected from a more representative sample. Participants in this study appear to come from educated, majority intact, middle class families, and the great majority is Caucasian. Almost all (98.2%) of the sampled community was reported as White while the state percentage of White individuals was 73.5. The second most prevalent race was African Americans, which accounted for only 0.14% compared to the state percentage of 15.1 (U.S. Census Bureau, 2000). This less representative sample is considered to be the main limitation of the study.

Incidentally, although not the focus of this study, some of the results of this study are consistent with the current literature, which shows a relationship between children's academic achievement and educated, resourceful, involved parents (Davis-Kean, 2005). Participants in this study come from educated and involved middle income families; and they met or exceeded the academic achievement standards of Illinois as indicated by their ISAT scores discussed above.

Also, it is important to note that a self-report measure was used to collect data. Participants may have given a socially appropriate response, particularly on items as sensitive as their relationship with their role model, which for the great majority of participants was their father in this study.

While results from this study did not confirm the current hypotheses or find significant results, the literature indicates that there is a relationship between boys'

achievement and the presence of a male role model. Therefore, it would add to the literature if future studies replicate the current study with a sample that is more representative of the typical population. To do so, data should be collected from multiple sites. It is important that research in this area continues in order to better understand the factors that contribute to the disparity between the academic achievement of boys and girls in today's society. It will not be possible to take a preventative approach to this problem until the literature is clearer on where the problem emanates.

For now, the presence of fathers in their children's lives is believed to be so critical that there is currently a federally funded initiative from the United States Department of Health and Human Services promoting father involvement called Promoting Responsible Fatherhood. Additionally, there are several national organizations promoting father involvement, such as the American Coalition for Fathers and Children, Mother and Father-Involvement Initiative, and the National Center for Fathering. Based on research that shows that when "both parents are actively and positively involved in their children's lives, children are more likely to lead healthy and productive lives," these initiatives now encourage fathers to get involved with the lives of their children (NCCIC, 2009). Although these organizations assume that fathers' presence is critical in the overall development of the child, which includes school learning, the research is inconclusive. Future studies should continue to explore the subject of father involvement and academic achievement.

This thesis presents a thorough review of the literature, which showed that the mechanisms for understanding boys' underachievement is complex because of its suspected association with yet other complex factors, such as feminization of schools,

perception of masculinity and achievement, and the absence of role models. While the demographic sample for this study did not allow for several comparisons to be made, it does appear to support literature which shows a relationship between children's academic achievement and educated, resourceful, involved parents (Davis-Kean, 2005). Using this study as a framework, future researchers could replicate this study using a more diverse sample population as well as continue research in the area. This would help researchers better understand the issues related to boys' underachievement and also develop preventative measures.

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Table 1

ANCOVA Summary: ISAT Reading Scaled Scores

<i>Source of Variance</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Significance</i>
Otis-Lennon (Covariate)	25,006.63	1	25,006.63	81.90	.000 *
Gender	345.72	1	345.72	1.13	.29
Live With / Not Live With	155.68	1	155.68	.51	.48
Gender x Live With/Not Live With	328.23	1	328.23	1.08	.30
Within Groups	32,671.25	107	305.34		

* $p < .01$

Table 2

ANCOVA Summary: ISAT Math Scaled Scores

<i>Source of Variance</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Significance</i>
Otis-Lennon (Covariate)	30,194.29	1	30,194.29	80.31	.000 *
Gender	182.44	1	182.44	.49	.49
Live With / Not Live With	1.20	1	1.20	.003	.96
Gender x Live With/Not Live With	325.40	1	325.40	.87	.35
Within Groups	40,231.16	107	375.00		

* $p < .01$

Table 3

ANCOVA Summary: DIBELS Oral Reading Fluency Scores

<i>Source of Variance</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Significance</i>
Otis-Lennon (Covariate)	22,537.19	1	22,537.19	18.56	.000 *
Gender	174.56	1	174.56	.14	.71
Live With / Not Live With	392.09	1	392.09	.32	.57
Gender x Live With/Not Live With	203.50	1	203.50	.17	.68
Within Groups	132,377.49	109	1,214.47		

* $p < .01$

Table 4

ANCOVA Summary: Classroom Math Grades

<i>Source of Variance</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Significance</i>
Otis-Lennon (Covariate)	12.88	1	12.88	29.74	.000 *
Gender	.07	1	.07	.17	.68
Live With / Not Live With	.008	1	.008	.02	.90
Gender x Live With/Not Live With	.51	1	.51	1.18	.28
Within Groups	47.20	109	.43		

* $p < .01$

APPENDIX A

Student Questionnaire

Grade Level: _____

Gender: Male Female

Please answer the following questions to the best of your ability. There are no wrong answers

1. Can you identify at least one adult male in your life that you look up to? Please circle Yes or No. This individual must be someone you know well and have regular contact with (not a celebrity of some sort). **Please circle one.**

Yes

No

If you answer No, go to item no. 17

2. What is your relationship with the man you look up to, you identified above, for example, is he your father, guardian, grandfather, close uncle, and so on? **Please write in below:**

3. Do you live with the man that you look up to?

Yes

No

For the following items, circle the best answer for you. Think about the man you look up to, you identified in Item No. 2 above; then circle the choice that describes your relationship with him best. Again, there are no wrong answers.

4. I can talk to this man about anything.

Never

Seldom

Occasionally

Frequently

Always

5. I feel close to this man.

Never

Seldom

Occasionally

Frequently

Always

6. This man is very important to me.

Never

Seldom

Occasionally

Frequently

Always

7. I feel like this man is behind me and supports my choices or activities.

Never

Seldom

Occasionally

Frequently

Always

8. I look up to this man.

Never Seldom Occasionally Frequently Always

9. This man and I enjoy being together

Never Seldom Occasionally Frequently Always

10. This man helps me with schoolwork when I ask him.

Never Seldom Occasionally Frequently Always

11. This man attends my school functions.

Never Seldom Occasionally Frequently Always

12. This man and I participate in activities or hobbies together.

Never Seldom Occasionally Frequently Always

13. I can go to this man for advice or help with a problem

Never Seldom Occasionally Frequently Always

14. This man helps me to think about my future.

Never Seldom Occasionally Frequently Always

15. This man teaches me right from wrong.

Never Seldom Occasionally Frequently Always

16. This man encourages me.

Never Seldom Occasionally Frequently Always

17. Do you think having an adult man to look up to helps with school (like with good grades)? Please circle one.

Yes

Sometimes

No

18. I am (**Please circle one**).

African American

Asian American

Caucasian

Hispanic

Native American

Other

19. I live with (**Please write in**, for example, father and mother, mother alone, father alone, stepfather/mother, stepmother/father, grandparents, and so on):

Thank you for your participation!

APPENDIX B**Parent Consent Form**

You are invited to participate in a research study, entitled Boys' and Girls' Academic Achievement, being conducted by Laura Harris, the school psychology intern at Lincoln Trail Elementary. Ms. Harris is a graduate student at Eastern Illinois University and will be completing this study to fulfill the requirements of her Specialist Degree in School Psychology. Dr. Assege HaileMariam, Associate Professor of School Psychology at Eastern Illinois University, will be supervising this study. All students in fourth and fifth grade at Lincoln Trail Elementary are invited to participate. The purpose of the study is to determine if having a role model has any relationship to boys' and girls' academic achievement. By participating in this study you will advance knowledge about the role of role models in children's life.

Ms. Harris will look at archival information of participants, such as last year's ISAT scores and classroom grades in the areas of reading and math from the current school year. Participants will also complete a questionnaire during the school day at Lincoln Trail Elementary. Participants will not miss academic time to complete the questionnaire. The questionnaire should take students about 15 minutes to complete. All information will remain anonymous (only the primary researcher will see records). Student names or the school will not be reported in any documentation of the study. The study is voluntary, and participants or parents/guardians can choose to withdraw from the study at any time.

If you have any questions or concerns about the treatment of human participants in this study, you may call or write:

Institutional Review Board
Eastern Illinois University
600 Lincoln Ave.
Charleston, IL 61920
Telephone: (217) 581-8576
E-mail: eiuirb@www.eiu.edu

You will be given the opportunity to discuss any questions about your rights as a research subject with a member of the IRB. The IRB is an independent committee composed of members of the University community, as well as lay members of the community not connected with EIU. The IRB has reviewed and approved this study.

(Please detach the bottom portion of this consent and return it to your child's classroom teacher.)

I hereby consent to the participation of _____,
(Please print child's name)

a minor subject in the investigation herein described. I understand that I am free to withdraw my consent and discontinue my child's participation at any time.

Signature of Minor Subject's Parent or Guardian

Date

I, the undersigned, have defined and fully explained the investigation to the above subject.

Signature of Investigator

Date

APPENDIX C

Student Assent

Your parents have agreed to help Ms. Harris with a research project for her school. To do so, you will be asked to answer some questions (fill out a questionnaire). By signing below you are agreeing to fill out the questionnaire to the best of your ability.

If you have any questions about this study at any time, please call Laura Harris at (314) 346-5287.

I voluntarily agree to participate in this study. I understand that I am free to stop my participation at any time. I have been given a copy of this form.

Printed Name of Participant

Date

Participant's Signature

Date

I, the undersigned, have defined and fully explained the investigation to the above subject.

Signature of Investigator

Date