THE EFFECTS OF A COLLEGE PREPARATORY PROGRAM ON SOCIAL CAPITAL, STUDENT ACHIEVEMENT, AND COLLEGE MATRICULATION

by

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ABSTRACT

VICTOR BURGESS MACK. The effects of a college preparatory program on social capital, student achievement, and college matriculation. (Under the direction of DR. DAVID PUGALEE)

With an unstable economy and non-diverse populations in STEM-related majors and fields, the United States of America is faced with unprecedented challenges in meeting the growing demands of a technical society. The lack of minorities in STEM-related fields yields untapped human resources for solving many of society's challenges. Diversity in the workforce provides different perspectives, methods, and cognitive abilities for addressing many cultural, social, economic, and technical challenges that are present in today's global world. Social capital represents a convergence of social networks and resources that is a worthy paradigm of continued exploration within the context of STEM educational outcomes. The purpose of this study was to examine the impact of a college preparatory program on social capital and student achievement as secondary students prepare for college. This study investigated the following: the reliability and validity of the survey used to collect social capital and demographic data; whether there was a difference in social capital for students who participate in a pre-college program versus students with similar backgrounds who do not participate in the program; and if there is a relationship between social capital and student achievement. The findings supported the literature. The survey was a reliable and valid instrument. Students who participated in a pre-college program had higher levels of social capital than non-participants. No significant results were found linking social capital and student achievement.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I: INTRODUCTION

America's ability to maintain a high standard of living for its citizens is directly related to its ability to educate each generation to address the needs of its emerging technical society. As manufacturing and other industries vacate American shores for new and expanding foreign economies that are more profitable for various transnational corporations, the United States faces an employment vacuum that diminishes entry-level positions that only require a high school diploma. Because of these circumstances, President Barak Obama during the 2011 State of Union Address stated that the country's first step in winning the future is by fueling American innovation (The White House, 2011). The creativity and imagination of American citizens have provided the foundation for modern transportation, communication, and exploration. These advances would not be possible without education.

In an effort to delineate America's state of education, President Obama stated that approximately 50 % of all new professions in the next decade will require post-secondary education, and yet, 25 percent of precollege students are not completing high school graduation requirements (The White House, 2011). President Obama continued to emphasize the need for fueling American innovation in education by comparing the proportion of young people with college degrees with other world powers. The United States ranked ninth. He reminded the nation that our educational dilemma falls on the shoulders of teachers, school personnel, parents, extended family and community

stakeholders – both individually and collectively. Each player should work toward common goals: to instill the love of learning in children; to foster safe learning environments; to have high expectations; to require optimal performance; and to be responsive to the needs of all children (The White House, 2011).

President Obama's address provides only a glimpse into the current educational abyss, especially for minorities. A review of statistics for North Carolina attests to the pervasiveness of the nation's educational dilemma. The North Carolina Department of Public Instruction (NCDPI) reported that for the 2009-2010 end-of-grade tests, only 47 % of African-Americans passed reading and mathematics compared to 78 % for Whites and 51 % for Hispanics. In science, 49 % of African-Americans passed the assessment with 83 % of Whites and 58 % of Hispanics (NCDPI, n.d.). In 2007, the National Assessment for Educational Progress (NAEP) reading assessment revealed that 43 % of White students were at or above the proficiency level, while 14 % of Blacks and 17 % of Hispanics were at or above proficiency (NCES, n.d.). Similarly, the NAEP mathematics assessment of 2009 showed a 51 % proficiency rate for Whites, 22 % for Hispanics, and 16 % for Blacks. African-Americans had the lowest percentage of fourth grade students scoring at or above the proficient level (NCES, n.d.).

The achievement gap and disparity in college matriculation rates between minority and non-minority groups serve as the rationale for college preparatory programs (US Department of Education, n.d.). African-American students have traditionally performed below Whites and other groups on standardized achievement tests (Ballantine & Spade, 2008; Kozol, 2005; & Anyon, 2005). Many researchers have attributed these differences to poor pedagogy, curriculum disconnect, lack of educational resources, and

poor funding (Ballantine & Spade, 2008; Carnoy, 2007; & Moses, 2001). Similar to previous research, Social capital was investigated in this study to identify its influence on academic performance and high school success (Beudoin & Thorson, 2006; Farmer-Hinton, 2006; Bourdieu, 1986). Social capital refers to resources that are available to an individual or group within the context of a social network (Bourdieu, 1986; Coleman, 1988). Researchers explained the difference between social capital and cultural capital cautioning that they are often confused (Bourdieu & Passeron, 1977; Bourdieu, 1986). They referred to cultural capital as language skills, cultural knowledge, mannerisms, and other attributes that are derived from parents and define an individual's class status. The Pre-College Social Capital Survey, or PCSCS, was administered to two comparison groups. One group was comprised of middle and high school students that participate in a college preparatory program. The other comparison group consisted of students that do not participate in the program from a local middle and high school. The results were examined to identify programmatic effects upon social capital as students prepare for college.

The names of groups that participated in this study have been changed to ensure the participants' anonymity. However, the names designated for each group was intended to acknowledge specific African-American women for their contributions to the Civil Rights Movement and to education. These entities from the southeastern region of the United States are referred to as: Ella Baker City Schools (EBCS); Fannie Lou Hamer High School; Vivian Malone Jones Middle School; the Dr. Mae Jamison Science, Technology, Engineering, and Mathematics (STEM) Pre-College Program; and Mary McLeod University.

Purpose of the Study

The purpose of this study was to examine the impact of a college preparatory program on social capital and student achievement as middle and secondary students prepare for college. The goal of many college preparatory programs is to provide high quality, rigorous academic activities through the development of individual student strengths, talents and interests (US Department of Education, n.d.). Common program components include academic support, role model interactions, cooperative learning activities, parental involvement, and college preparation (SAT/ACT preparatory courses, activities on college campuses, etc.). Program success is largely dependent upon implementation of leadership, instruction, funding, and program culture. Each component necessary for program success plays crucial roles in student growth and development. Although there are a multitude of factors that influence student performance, the researcher believes that college preparatory programs fulfill a distinct service to minority populations who traditionally do not have the resources and capital to facilitate successful matriculation to college. One such program that has demonstrated effectiveness is the Dr. Mae Jamison Science, Technology, Engineering, and Mathematics (STEM) Pre-College Program. This pre-college program is one of nine programs housed at a state-supported university system institution. It has successfully prepared students to pursue not only college, but STEM majors for over 25 years. The first, three initiatives sponsored by the Department of Education, Upward Bound, Talent Search, and Student Support Services, gave rise to what is now designated the federal TRIO programs. The TRIO programs currently include eight programs that serve low-income youth, first-generation college students, and individuals with disabilities to progress through secondary education to post-baccalaureate programs (U.S. Department

of Education, n.d.). Although there is extensive research related to the federal TRIO programs and their impact on minority college preparation, there has not been a study on the relationship between the pre-college program, social capital, and student achievement. This study investigated whether a significant difference in student achievement was a result of participation in the pre-college program. This research further explored if there was a significant difference in social capital for students who participate in the pre-college program and similar students, i.e., race, grade-level, and gender who did not participate in the pre-college program.

Research Questions

The abundance of intervention programs across the United States illuminates a growing disparity between students as it relates to race, ethnicity, and socio-economic status (U.S. Department of Education, 2009). Previous studies indicated many of these intervention programs target minority populations because they traditionally have low graduation rates from high school and low enrollment rates into college. Research also noted that often the focus of many intervention programs is curriculum, pedagogy, and anticipated student outcomes. This study extended this emphasis to include an analysis of the social capital students possess intrinsically and acquire through programmatic activities.

Specifically, this study investigated the following questions:

1) What are the reliability and validity statistics associated with the Pre-College Social Capital Survey?

2) Is there a significant difference in social capital for students who participate in the pre-college program versus students with similar backgrounds who do not participate in the program?
3) Is there a relationship between social capital and student achievement for students who participate in the pre-college program and non-participants?

These questions were answered by administering the Pre-College Social Capital Survey (PCSCS) survey to current pre-college program participants and middle and high school students who did not participate in the program. The pre-college program participants served as a comparison group. Middle and high school students from the local school district who did not participate in the pre-college program will serve as the other comparison group. All data submitted were self-reported through the survey, including achievement data.

Conceptual Framework

A review of the literature on social capital revealed three major paradigms for analysis within this study. Pierre Bourdieu's (1986) research entitled, "The Forms of Capital," delineates how three forms of capital (economic, cultural, and social) define social interactions and exchanges within the social world and lay the foundation for social reproduction. "Social Capital in the Creation of Human Capital" by James Coleman (1988) captures how obligations and expectations, information channels, and social norms are the cornerstones for social exchange, stability, and promotion within the context of education. Robert Putnam (2000) contributes to the social capital paradigm by incorporating themes of civic responsibility, trust, and engagement for individuals, groups, and nations. Each of these theorists delineates the role of social capital in

society, specifically: how social capital is an indispensable component of any economy (Bourdieu, 1986); the parameters of the social exchange (Coleman, 1988); and the expansion of the social capital theory from individuals to groups (Putnam, 2000). These concepts apply to this study in the examination of student relationships with peers, parents, and professionals within the context of their neighborhood, school, home, and college preparatory program. The feedback from the participants rendered a composite, social capital index score for analysis. Also, analysis rendered insight into how well the pre-college program promotes bridging social capital for its participants.

Bridging social capital represents social networks between individuals and/or groups who have inconsistent interactions (Woolley et al., 2008). Bonding social capital refers to relationships that are firmly established and consistent interactions between individuals (Woolley et al., 2008). Coleman (1988) described strong social ties as relationships with family and friends where individuals have consistent contact and weak social ties are relationships predicated on information sharing and formal exchanges that facilitate a specific purpose. Homophilous relationships describe individuals establishing relationships with individuals with similar socioeconomic backgrounds and perspectives (Perna & Titus, 2005). Conversely, the heterophilous principle refers to individuals seeking relationships with individuals with higher social status in order to access additional resources (Perna & Titus, 2005). Since schools and college preparatory programs represent microcosms of society, they present unique opportunities for analyzing social structures and the context in which they exist. College preparatory programs such as federal TRIO programs and the Dr. Mae Jamison STEM Pre-College Program represent opportunities for secondary students to be exposed to the cultures and

resources of college campuses. This exposure provides opportunities for students to establish formal and informal relationships with professionals and peers who have access to college-entry processes and personnel who can support successful matriculation to higher education institutions. College preparatory programs foster weak social tie relationships in conjunction with academic enrichment in an effort to minimize deficit theories that support the achievement gap between Whites and minorities (Coleman 1988; Perna & Titus, 2005).

Significance of the Study

The United States of America is currently faced with unprecedented challenges to meet the growing demands of a technical society with an unstable economy and the lack of a diverse population in STEM majors and careers. These circumstances represent the degenerative condition of education, as school districts struggle to adequately educate today's youth with shrinking school budgets. Also, the lack of minorities in STEM-related fields yields untapped human resources for solving many of society's demands. Diversity in the workforce provides different perspectives, methods, and cognitive abilities in addressing many cultural, social, economic, and technical challenges that are present in today's global world.

Historically, African-Americans have underperformed on national achievement tests in various disciplines (Ballantine & Spade, 2008). The achievement gap between the dominant culture and minority groups has spawned numerous initiatives and legislation such as America 2000 and No Child Left Behind (NCLB) to address these disparities (Perry et al, 2003). Unfortunately, even after the abolishment of Jim Crow Laws and the Civil Rights Movement, the achievement gap is still a glaring reflection of

the differences between the privileged and groups who do not have full access to societal resources (Anyon, 1997).

For 2006-07, the Ella Baker City Schools district reported that 46 % African-American students passed both the reading and math end-of-grade tests in comparison to 85 % for Whites, and 52 % for Hispanics. Only 51 % of African-American students passed the end-of-course tests while 85 % of Whites and 56 % of Hispanics passed the same examinations (NC School Report Cards, 2008). End-of-grade tests are a part of the school-based management and accountability program implemented by the state department of public instruction.

The National Center for Education Statistics reported that in 2007, only 17 % of African-American eighth grade students in public education passed the national mathematics assessment while 58 % of Whites and 19 % of Hispanics passed the same examination. For reading, African-Americans had a 17 % pass rate in comparison to 58 % for Whites and 18 % for Hispanics. African-Americans and Hispanics both had a 17% pass rate in science compared to 60% for Whites. (National Center for Education Statistics, 2008).

Perna and Titus's (2005) analysis shows a significant disparity among racial groups who enrolled in four-year institutions after graduating from high school: African-American (38%); Hispanics (30%); Whites (46%); and Asians (51%). Two-year college enrollment rates after high school graduation reflected 32 % for Hispanics, 27 % for Asian Americans, 25 % for Whites, and 21 % for African Americans. Perna and Titus's (2005) analysis revealed a higher probability of African-Americans and Hispanics enrolling in a four-year institution than Whites after controlling for student- and school-

level variables. Racial/ethnic group differences were the primary reasons for the lower observed four-year college enrollment rates for Blacks and Hispanics versus Whites. Perna and Titus (2005) further revealed that the frequency of parent-initiated contact with the school about educational matters and the probability of enrolling in a four-year college or university are of greater magnitude for African Americans than for high school graduates of other racial/ethnic groups.

Suburban schools typically have active parent-teacher organizations, properly trained and credentialed staff, proven remedial programs and strategies that are beneficial to their students. Urban, public schools try to address the individual needs of students and overcome resource deficits by implementing precollege programs to bridge the achievement gap and encourage the building of social networks conducive to student achievement for underrepresented groups.

These circumstances reflect the current status quo of education in America. The percentage of American students pursuing STEM majors is dwindling, especially for minorities. The number of foreign-born students pursuing graduate degrees in this country is declining. The achievement gap in K-12 education between Whites and other minorities reflects the disparity in college matriculation rates among the same groups. With the growing demands of a technical society and the rise in foreign competition to secure talented professionals in STEM-related fields, the United States cannot-afford to ignore an untapped resource that consists of racial and ethnic minorities who currently populate its public schools.

How does the United States address the needs of a constantly evolving society? What will be the composition of the 21st century workforce in this country? How can this

country maximize its current human capital to fulfill the needs of its future? Scholarly contributions to the body of research in these areas assist in providing potential paths for not only closing the achievement gap and increasing minority engagement in STEM majors, but will also lead to greater diversity in the workforce. Research focused on a college preparatory program and its role in the development of social capital for minority students represents a significant contribution to the body of literature associated with the issues previously cited.

Many researchers recognize the importance of early exposure to rigorous mathematics and science content in K-12 education (Monahan, 2005; Stiglitz, 2002; Stromquist & Monkman; 2000). Enrollment in higher level mathematics and science courses during pre-college years provides a foundation for success in college and subsequent careers. Unfortunately, African-Americans and other minorities are not enrolling in advanced-level mathematics and science courses during their high school years. For this reason, they are decreasing their chances for success in college and employment prosperity. The value of social capital has been revealed in many studies that focus on school and home settings. The current body of research has not emphasized the importance of college preparatory programs with a STEM-focus in generating social capital for minority students. Also, the current body of literature on social capital is predominantly qualitative in nature.

The findings of this study render quantitative statistics that may assist community stakeholders in determining strategies to address the following issues: the achievement gap; minority enrollment in advanced-level STEM courses; and minority pursuit of STEM-related majors and careers. The focus of this study is the role of college

preparatory programs and institutional agents in developing social networks that influence educational outcomes, particularly for minorities. The study will make a significant contribution to the body of literature focused on these topics.

Limitations of the Study

This study was limited to a combined 457 students from: the Dr. Mae Jamison STEM Pre-College Program (housed at Mary McLeod University), Vivian Malone Jones Middle School, and Fannie Lou Hamer High School. The participating students do not reflect the background characteristics, attitudes, and beliefs of all students of color who participate in the pre-college program or non-participant, middle and secondary Ella Baker City Schools students. Consequently, the findings from this study may not be applicable to other students in other settings.

Gay, Mills, and Airasian (2006) believed that quantitative researchers must be aware of several validity threats to research instruments. The threats cited are as follows: "unclear test directions; confusing and ambiguous test items; vocabulary too difficult for test takers; overly difficult and complex sentence structures; inconsistent and subjective scoring methods; untaught items included on achievement tests; failure to follow standardized test administration procedures; and cheating, either by participants or by someone teaching the correct answers to the specific test items" (pp. 138-139). As a result, in this study, every effort will be made to minimize the previously listed threats. Feedback from school and program officials will be considered and used constructively to strengthen the collection of data through the instrument being used.

Definition of Terms

The terms used in this study are defined as follows:

1. Bonding social capital consists of the interactions among neighborhood residents (Woolley et al., 2008, p. 134).
2. Bridging social capital is the connections between neighborhood residents and outside groups or organizations (Woolley et al., 2008, p. 134).
3. Capital is accumulated labor that may take the form of material or may be embodied in an individual, and has the potential capacity to produce profits for an individual or group (Bourdieu, 1986).
4. Charter Schools are primary or secondary schools that receive public funding but do not adhere to the same rules and regulations that apply to traditional public schools in exchange for some type of accountability for producing specific results, delineated within the school's charter (NCDPI, n.d).
5. Closure represents a constituency that embraces the same set of ideals, values, code of conduct, trust, and norms that represents its membership.
6. Collective social capital stresses aspects of and benefits accumulated by communities, with a multitude of "civic spirit" indicators being emphasized (Portes, 2000, pp. 1-5).
7. Comer schools are schools that are focused on several different areas of child development and also focus on high levels of parental involvement (US Department of Education, 1998; Putnam, 2000).
8. Economic capital is resources directly convertible to money and/or property (Bourdieu, 1986).

9. Financial capital is quantified by wealth or income and facilitates the appropriation of physical resources that support achievement such as learning aids and a physical environment conducive to studying (Coleman, 1988).
10. Flow is as “a state of emergent motivation” or “deep absorption in an activity that is intrinsically enjoyable (Shernoff, 2010).
11. Habitus is the set of dispositions and preferences that subconsciously define an individual’s reasonable actions and can only be defined within the setting in which students interact with one another and with members of the community (Perna & Titus, 2005).
12. Heterophilous principle refers to individuals seeking relationships with individuals with higher social status in order to access additional resources (Lin, 2001A).
13. Homophilous principle refers to individuals establishing relationships with individuals with similar socioeconomic backgrounds and perspectives (Lin, 2001A).
14. Human capital is represented by skills and training attained by a person who also facilitates productivity within a social context (Coleman, 1988).
15. Individual social capital is focused upon individuals or small groups as the subjects for analysis and stresses the benefits amassed by individuals or families associated with their ties with others (Bourdieu, 1986; Coleman, 1988).
16. Institutional agents are teachers, counselors, and middle class peers who have access to resources conducive to college matriculation (Stanton-Salazar, 2001).

17. Intergenerational closure refers to a form of closed network that reinforces the norms and traditions of a group and specific culture (Coleman, 1988).
18. Multiplex relationships refers to original social structures being used to address new challenges and issues as the needs of group members evolve over time (Coleman, 1988).
19. Physical capital is defined by tools, machines, and other creations that facilitate productivity in society (Becker, 1964).
20. Social action is an act which considers the actions and reactions of individuals (Bourdieu, 1986).
21. Social Capital is "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectively-owned capital, a "credential" which entitles them to credit, in the various senses of the word" (Bourdieu, 1986, p. 249).
22. Vouchers are certificates issued by local and/or federal government agencies for parents to use for tuition at a private school in lieu of a public institution that their child may be assigned (NCDPI, n.d).

With a growing disparity in achievement between Whites and minorities in public education, consideration must be given to multiple factors that influence educational success. One such factor is social capital which represents the social networks and resources that can facilitate learning and knowledge acquisition. The following chapter is a literature review of social capital, its three forms, and social capital indicators that are

used in the research instrument for this study. Coleman (1988) stated that the three forms of social capital are obligations/expectations, information channels, and social norms. The survey instrument used in this study has nine subscales that are also social capital indicators. These indicators include the following: association membership, parental involvement, peer relationships, teacher involvement, school counselor involvement, mentors, media use, school environment, and residential stability

CHAPTER 2: REVIEW OF LITERATURE

The conceptual framework for this study was social capital, with emphasis on the research conducted by Pierre Bourdieu (1986), James Coleman (1988), and Robert Putnam (2000). In consideration of the many interpretations and misconceptions surrounding social capital, the researcher has provided the following information: an analysis of the economic and intellectual theories that have influenced the social capital paradigm; an examination of capital, its different forms, and its permutations throughout society; definitions and components of cultural capital as a result of its confusion with social capital; and definitions and components of social capital as they relate to individual and collective entities.

Economic Theory versus Intellectual Theory

Social action, an act which considers the actions and reactions of individuals, has been analyzed within the context of two main streams of thought, intellectual and economic, in an effort to conceptualize rational action (Lemert, 2004; Coleman, 1988). The intellectual stream of research associated with social action prioritizes environmental influences as the primary rationale for man's actions, thus his behaviors a by-product of environmental inputs. This stream of thought has largely been dismissed (Wrong, 1961). Conversely, the economic stream of research stresses the individual's desire for capital attainment that is achieved within the social context of "norms, interpersonal trust, social

networks, and social organization" which directly influences society and its economy (Coleman, 1988). Supporting the economic stream of thought is Baker's (1983) research on the Chicago Options Exchange as trades were directly influenced by the relationships of the floor traders. Granovetter (1985), using a functionalist approach, further demonstrated the dependence of economic activity on what he termed the "embeddedness" of institutional economics as trust, expectations and norms among agents that influence economic productivity.

For the purpose of this study, factors of the intellectual and economic theories of social action, i.e., relationships and environments, were embraced in considering the influence of a college preparatory program on the social capital of its participants. The pre-college program should be considered as an environmental input influencing social action. Also, the goal of the program and its participants must be considered. Enrollment is for the purpose of college preparation which not only encompasses acquisition of knowledge, but development of social dispositions, skills, and networks that facilitate successful college matriculation. Successful analysis of social capital is contingent upon the environmental context in which social action takes place; thus, this study's focus on relationship factors and environmental context.

Capital

According to Bourdieu (1986), capital is accumulated labor that may take the form of material or may be embodied in an individual and has the potential capacity to produce profits for an individual or group. Bourdieu (1986) also noted the five following characteristics of capital: significant time investment to accumulate; identical reproduction capacity in its original or expanded form; persistence in existence; and

presence of “a force inscribed in the objectivity of things so that everything is not equally possible or impossible” (p. 241). Bourdieu (1986) stated that the infrastructure for capital exchange mirrors the structure of the social world. The parameters for exchange, in each realm, govern function in a durable way, therefore, determining the probability for success in each exchange (Bourdieu, 1986). Bourdieu (1986) further reported that it is impossible to effectively analyze the structures and functions of the social world without accounting for capital in all its forms. Capital has three forms: economic, cultural, and social (Bourdieu, 1986). Economic capital is directly convertible to money and/or property (Bourdieu, 1986). Cultural capital is convertible to economic capital under certain conditions and is represented by educational qualifications (Bourdieu, 1986). Social capital is also convertible to economic capital under certain conditions, is represented by social obligations within networks, and is recognized in society under titles of nobility (Bourdieu, 1986). For example, it is assumed that the mayor of a city would possess a high degree of social capital as a result of his title and stature in the community. This status would serve as the basis for services he would be able to secure for himself, his constituents, and the community.

Social Capital

Social capital’s fundamental premise is that actors within society have access to resources and goods that are at their immediate disposal or accessible through relationships with other actors in society. It is defined by its function and access within various social structures (Bourdieu, 1986; Coleman, 1988). As a form of capital, social capital is productive in facilitating an intended purpose or goal, but differs from other forms of capital, such as human and physical capital, because it is less tangible and

difficult to quantify (Bourdieu, 1986; Coleman, 1988; Putnam, 2000). Physical capital is defined by tools, machines, and other creations that facilitate productivity in society (Becker, 1964). Human capital is represented by skills and training attained by a person who also facilitates productivity within a social context (Coleman, 1988). Both physical and human capital share a common thread because both represent changes in raw materials (people) in producing a public good (Bourdieu, 1986; Coleman, 1988). Social capital also shares the "productive activity" attributes of human and physical capital. Social change throughout history such as the Civil Rights Movement has been dependent upon groups of people developing a sense of trust and common purpose which is the crux of social capital. "The function identified by the concept of "social capital" is the value of these aspects of social structure to actors as resources that they can use to achieve their interests" (Coleman, 1988, p. 101).

Adding to the social capital paradigm, Bourdieu (1986) defines social capital in the following manner:

> "… the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectively-owned capital, a "credential" which entitles them to credit, in the various senses of the word" (p. 249).

Quantifying social capital possessed by an individual requires examination of the two following parameters: (a) the size of the network of connections the agent can effectively utilize; and (b) the volume of capital (economic, cultural, or symbolic resources

possessed by the individual) that is of value to those within the agent's network (Bourdieu, 1986). Extensive social networks are the products of formal and informal investment strategies that are created with the purpose of establishing and reproducing relationships that are beneficial within the short- or long-term (Bourdieu, 1986). These relationships are contingent upon durable obligations that promote subjective feelings such as gratitude, respect, camaraderie or established rights within a society. Adherence to this social structure and the exchange of various gifts (information, services, or capital) is a by-product of social reproduction taught by families in early childhood and reinforced within the school setting (Bourdieu, 1986). A continuous series of exchanges that are characterized by constant recognition lays the foundation for the reproduction of social capital. The labor involved in this reproduction requires time and energy that are often integrated with specific knowledge and skill that will not render immediate economic returns, but theorized to do so in the long-term (Bourdieu, 1986).

Obligations and Expectations

Building upon the economic philosophy of social action, in order to disclose the relationship parameters within schools, communities, and society in general, Coleman (1988) examined three forms of social capital: obligations and expectations, infiromation channels, and social norms. In an effort to demonstrate the roles of obligations, expectations, and trustworthiness of social structures, consider the political relationships of senators and congressmen in the United States government. Hypothetically, if a senator provides a service for a congressman and the senator trusts the congressman to reciprocate in the future, this action establishes an expectation in the senator and an obligation on the part of the congressman. The congressman's obligation to the senator

may be viewed as a credit slip that may be "cashed in" as needed. This relationship is supported by two distinct factors: (a) trustworthiness of the social environment facilitating repayment, and (b) the extent of obligations held. Without a high degree of trustworthiness among the members of the group supporting reciprocity, the relationships of the senators and congressmen would cease to be beneficial and potentially stall the passing of legislation and other governmental actions. Agents in social structures with numerous outstanding obligations have more social capital that they can depend on when needed. The density of outstanding obligations to the senator translates into tangible resources within his social network that can fulfill future needs.

"A society characterized by generalized reciprocity is more efficient than a distrustful society, for the same reason that money is more efficient than barter" (Putnam, 2000, p. 21). If we don't have to balance every exchange instantly, we can get a lot more accomplished. Trustworthiness lubricates social life (Putnam, 2000). Frequent interactions among a diverse set of people tends to produce a norm of generalized reciprocity. Civic engagement and social capital entail mutual obligation and responsibility for actions. As L.J. Hanifan and his successors recognized, social networks and norms of reciprocity can facilitate cooperation for mutual benefit (Putnam, 2000). When economic and political dealings are embedded in dense networks of social interaction, incentives for opportunism and malfeasance are reduced. This is why the diamond trade, with its extreme possibilities for fraud, is concentrated within close-knit ethnic enclaves. As Putnam (2000) explained, "Dense social ties facilitate gossip and other valuable ways of cultivating reputation - an essential foundation for trust in a complex society" (p. 21).

Information

Many social networks are based on the transmission of information from one person to another. High school seniors who are interested in receiving college enrollment information may rely on "weak ties" with an admissions counselor or friend who is already enrolled in college. Professionals seeking employment with a specific institution may contact a "friend of a friend" who may have hiring information related to a position of interest. These examples demonstrate a sharing of information to facilitate action. Unlike the reciprocity valued in the obligations/expectations relationship described earlier, the information provided represents the capital exchanged in these relationships (Coleman, 1988).

Social Norms

Enforcement of social norms and sanctions is dependent upon high levels of social capital within a group or community. Norms come into existence to limit negative external effects or encourage positive behaviors. Members within the group must share similar values and goals in an effort to control the behaviors of its constituents. Neighborhood Watch committees deter crime and violence within their communities because of increased vigilance and participation in neighborhood affairs. School stakeholders who support high achievement through recognition and rewards promote a culture of excellence, a norm conducive to civic mindedness and community responsibility (Coleman, 1988). Each of these examples demonstrate how individuals may forgo their immediate needs to provide support for the collective, thus increasing their social capital. Unfortunately, as these norms are enforced, they may restrict other behaviors that are typically acceptable in society. For example, curfews that are

implemented within certain communities may prohibit responsible parties from having their desired freedom within the context of their community. School stakeholders who reward only high achievement may build resentment and indirectly foster negative behaviors in defiance of such policies (Coleman, 1988).

Weak and Strong Ties

Accessing social capital is largely dependent upon the strength of relational ties, i.e., weak or strong, and the intended objective. These objectives include Coleman's (1988) focus on information acquisition, enforcement of norms, and/or relationships predicated on reciprocal obligations and expectations. Closure is an integral component of social relationships and impacts the strength of relationships in a dramatic way. The political power of legislators, the school reform influence of parent/teacher organizations, and the economic impact of a business conglomerate are dependent upon closure to bolster their influence within their respective realms. Closure represents a constituency that embraces the same set of ideals, values, code of conduct, trust, and norms that represents its membership. For example, the National Football League Players Union (NFLPU) represents a closed network of players and former players who played in the NFL and collectively work together to secure better pay, health benefits, and other services specific to this cadre of professionals. The NFLPU's social structure supports effective norms and trustworthiness "that allows the proliferation of obligations and expectations" (Coleman, 1988, p. 107). Reputation cannot evolve in an open structure; thus, union member activities become independent and non-reciprocal in an open social structure, which is anti-union. As the needs of group members evolve over time, the original social structure can be used to address new challenges and issues, creating what

Coleman (1988) termed a multiplex relationship. The group addresses not a single issue, but addresses information and service needs as appropriate. Coleman (1988) spoke specifically about intergenerational closure, a form of closed network that reinforces the norms and traditions of a group and specific culture. An example of intergenerational closure was demonstrated within the context of Catholic schools because their members were not only invested in the academic institution, but also in the religious entity that supports the school's operations, curricula, ideals, and values. Coleman (1988) stated that because of these common threads, there is a higher likelihood of parents from different families being able to collaborate and work together in the best interests of their children regarding their education, general being, welfare, growth and development. Families with students in private or public schools are less likely to develop intergenerational closure because fewer opportunities for parents and students to interact and build relationships exists.

Lin's (2001b) social capital theory focused on obtaining resources through the mechanisms and processes embedded in individual social networks. Coleman (1988) and Bourdieu (1986) both supported network closure as a means to promote communication and enforcement of social norms. Intergenerational closure is prevalent within most social networks as a means to preserve shared expectations, goals, and values according to Coleman (1988). Bourdieu considered social capital as a tool of dominant culture to maintain its superiority in society, thus making network closure a necessity (Lin, 2001b). Contrary to Bourdieu's postulate, Lin (2001a, 2001b) believed that network closure is not a requirement. Lin (2001b) suggested that closed networks and strong ties may effectively protect capital, whereas, weak ties may afford an individual access to

resources that are not available through strong ties. These weak ties may serve as a "bridge" to networks that possess resources that differ from those that are facilitated by strong ties (Granovetter, 1973; Lin 2001b). Lin (2001a) supported the homophilous principle, wherein individuals generally establish relationships with individuals with similar socioeconomic backgrounds and perspectives. Some individuals, however, seek relationships with individuals with who have higher social status in order to access additional resources (such as the heterophilous principle). Homophilous and heterophilous relationships play a significant role in educational outcomes for youth (Perna & Titus, 2005). Carbonaro (1998) found that the likelihood of a child dropping out of high school decreased significantly upon consideration of homophilous relationships, after controlling for certain attributes such as parental expectations, school attendance, suspensions, and number of friends who did not complete high school. Hofferth et al. (1998) found that weak ties were positively related to college attendance for students from high socioeconomic status families, whereas homophilous relationships were not related to college attendance regardless of family income. Within the Hofferth et al (1998) study, weak and strong ties were defined as parent access to emergency financial assistance from friends and/or other sources.

Stanton-Salazar (1997) theorized that there are school structural barriers prohibiting college matriculation. Institutional agents such as teachers, counselors, and middle class peers have access to resources conducive to college matriculation, but the school environment does not allow working-class minority students to develop "strong ties" with institutional agents. Bureaucratic processes, the dual role of teachers and

counselors as mentors and gatekeepers, and the short-term duration of interactions restrict the growth of social capital for working-class minority students (Stanton-Salazar, 1997).

Social Capital Indicators

Putnam's (2000) social capital index has five components and fourteen specific variables. The social capital index components include measures of community organizational life, engagement in public affairs, community volunteerism, informal sociability, and social trust. These components, along with the variables inherent in each component, serve as markers of social behaviors and attitudes. These markers of social behaviors and attitudes are then examined relative to an array of social and political outcomes. The central claim is where there is aggregate social capital, there is a greater sense of community. and perhaps more significantly, markedly better social outcomes (Putnam, 2000). Although sense of community and better social outcomes are emphasized in *Bowling Alone*, an important spillover effect – a strong link between social capital and equality, especially certain dimensions of equality – is also asserted (Putnam, 2000.

Once again, the conceptual framework for this study is social capital, with its foundation rooted in the works of Pierre Bourdieu (1986), James Coleman (1988), and Robert Putnam (2000). There are a myriad of social capital indicators that have been operationalized in research, namely: parent-teen discussion, family structure, parental expectations and aspiration, parental terminal degree, and intergenerational closure (Dyk & Wilson, 1999; Israel et. al., 2001; McNeal, 1999; Muller & Ellison, 2001; Parcel & Dufur, 2001; Pribesh & Downey, 1999; Qian & Blair, 1999; Smith-Maddox, 1999; Sun, 1999; White & Glick, 2000; Wright et al., 2001; Yan 1999). Some researchers have

analyzed the effects of teen interactions with people outside of the immediate family, including discussions with other adults about educational advancement and careers (Muller & Ellison, 2001; Pribesh & Downey, 1999), same school attendance of close friends (Morgan & Sorensen, 1999), teacher involvement (Muller, 2001), and extracurricular activities (Fritch, 1999a, Fritch, 1999b; Israel et al., Pribesh & Downey, 1999; Sun, 1999). Certain school characteristics such as teacher/student ratio, school type, and school climate have been examined (Parcel & Dufur, 2001).

For the purposes of this research study, the Pre-College Social Capital Survey (PCSCS) was administered to students in the Dr. Mae Jamison STEM Pre-College Program housed at Mary McLeod University, Fannie Lou Hamer High School, and Vivian Malone Jones Middle School. The PCSCS is a variation of the Differential Status Identity Scale developed by Drs. Michael T. Brown, Mindi Thompson, and Nadya Fouad (Thompson & Subich, 2011). The instrument has 63 items using a Likert-type scale consisting of the following: strongly disagree; disagree; neither agree/not disagree; agree; and strongly agree. There are nine sections to the survey that serve as social capital indicators that include the following: association membership; parental involvement; peer relationships; teacher involvement; school counselor involvement; mentoring; media use; school environment; and residential stability. The PCSCS also measures pre-college program participation and satisfaction. Demographic information such as race, grade point average, grade level, and gender are also requested as per the instrument. In consideration of the said social capital indicators being measured, a subsequent review of literature for these variables is provided.

Association Membership

The first known use of the social capital concept according to Robert Putnam (2000) was in 1916 by L. J. Hanifan, practical reformer of the Progressive Era and state supervisor of rural schools in West Virginia. As Putman (2000) noted, Hanifan stated that social capital embodies tangible substances that account for daily interpersonal interactions such as goodwill, fellowship, sympathy, and social intercourse within a social unit. Social capital is accumulated by daily interactions that strengthen individual and collective relationships for the general welfare for all participants. Society as a whole will benefit by the cooperation of all its parts, while the individual will prosper through his associations and actions.

Bourdieu and his successors are credited for their theoretical spadework in establishing the individual social capital thesis (Portes, 2000). The sources of individual social capital were clearly linked to a person's networks, including networks that one explicitly established for the purpose of material gain and/or intrinsic acquisition (McLanahan and Sandefur, 1994; Hagan et al., 1996). There was a clear distinction between these outcomes and the social structures responsible for their production (Portes, 2000). Neither collective social capital nor civic responsibility distinctly separates social ties and their outcomes (Portes, 2000). Cities and nations possess collective social capital and it is believed to promote effective governance and policies. The inference here is that these two conditions occur simultaneously, therefore, if cities and nations have effective governance and policies, they also have collective social capital (Portes, 2000).

Participation in nonpolitical organizations may be considered as an indicator of collective social capital (Putnam, 1996). Portes (2000) believes that collective social

capital is circular in nature as the causal relationship between social structures and their outcomes are non-linear within the paradigm. Association membership, which is measured as the level of participation in youth groups, clubs, organizations, sports, and other extra-curricular activities, also serves as an indicator of individual and collective social capital. Participation in these activities reflects an individual's desire to (a) acquire and/or strengthen relations with peers and professionals with similar interests, (b) develop and enhance particular knowledge and skill related to the activity, (c) acquiesce to social norms, and (d) to comply with social obligations and expectations. Extra-curricular activities, previously cited as a social structure, serve as mediums that facilitate the growth and development of social capital for adolescents. Parcel and Dufur (2001) identified involvement in after-school activities as an indicator of social capital. Sun (1998, 1999) found participation in school and community organizations impacted social capital in a positive manner. Additionally, relationships and activities outside the family, including involvement in organizations, are positively linked to educational aspirations (Pribesh & Downey, 1999).

Parental Involvement

Individual social capital focuses on individuals or small groups as the subjects for analysis and stresses the benefits amassed by individuals or families associated with their ties with others (Bourdieu, 1986; Coleman, 1988). Typically, individual social capital is defined as a combination of the following: family structure (where the traditional nuclear family is prioritized and the number of siblings is considered); parental involvement (parent interactions within the context of education and community); and parental

networks (parent association with their children's friends' parents) (Israel et al., 2001; Morgan and Sorensen, 1999; Portes, 2000; Smith-Maddox, 1999).

Coleman (1988) delineated the role of social capital in the family and demonstrated the impact of human and financial capital on family structure and on the growth and development of children. Financial capital is quantified by wealth or income. It facilitates the appropriation of physical resources that support achievement such as learning aids and a physical environment conducive to studying (Coleman, 1988). Putman (2000) regarded social capital as being more important than financial capital. Parents' educational levels and provisions for cognitive learning environments that support learning are descriptors for human capital (Coleman, 1988). Coleman stressed the importance of human and physical capital in the growth and development of children, stating that human capital strongly affects student outcomes under certain conditions. Positive student outcomes are based on the relationship(s) the children have with their parents and other members of their family. Coleman (1988) believed that the social capital of the family reflects the relations between parents and children. The human capital possessed by the parent is irrelevant to the child's educational growth and development if it is not incorporated into family relations (Coleman, 1988). Social capital in the family is dependent on the child's access to human capital in the family which is facilitated by parental physical presence in the home and attention given to the child by the parents. Coleman (1988) examined several factors influencing dropout rates for tenth and twelfth grade students after controlling for human and financial capital in each family. These variables included: parent presence in the home (one or two parents); additional children (number of siblings); ratio of parents to children (two parents, one

sibling versus one parent, four siblings); and mother's expectation for child's education (college expectations). Dropout percentages were lower for two parent households, one sibling versus four siblings, and mothers with college expectations for their children. The number of siblings is a critical factor because it has an impact on the amount of parental attention each child receives. Cumulatively, the data indicate that social capital in the family is a resource for student matriculation through primary, secondary and collegiate institutions (Coleman, 1988).

Parental involvement is conceptualized as a form of social capital that facilitates access to resources that support college enrollment (Bourdieu, 1986; Coleman, 1988; and Lin, 2001a, 2001b). According to Morrow (1999), social capital emphasizes social networks and methods of sustainability. Portes (1998) believed that social capital is accumulated through individual relationships that are facilitated by membership in social networks and other social contexts. Most educational researchers have adopted Coleman's (1998) social capital thesis stating that it communicates the norms, trust, authority, and social controls that an individual must comprehend and accept in order to succeed (Dika & Singh, 2002). Coleman suggested two types of relationships that build social capital through parental involvement: the parent-child relationship; and the parental relationships with other adults, specifically, adults affiliated with the school that the child attends (Dika & Singh, 2002). Coleman's (1988) thesis maintained that parents have a primary role in building social capital. Conversely, Bourdieu's (1986) research emphasized differential access to resources often facilitated through social networks for racial/ethnic, gender, and other groups. Bourdieu (1986) and Lin (2001b) suggested that individual college enrollment cannot be fully understood without examination of high

school characteristics, and the context in which the school promoted parental involvement in education. Also, consideration must be given to the volume of resources available through social networks and the homogeneity of the social networks at the school. The amount of social capital an individual gains is largely dependent upon the size of the person's social networks as well as the amount of economic, cultural and social capital individuals within the network possess (Bourdieu, 1986). Social capital is a resource students may call on as needed to increase productivity (Coleman, 1988), perpetuate upward mobility (DiMaggio& Mohr, 1985; Lamont & Lareau, 1988), and actualize economic returns (Lin, 2001b). Coleman (1988); Hofferth, Boisjoly, & Duncan (1998); Lin (2001b); Morrow (1999); Portes (1998); and Stanton-Salazar & Dornbusch (1995) believed that the primary function of social capital is to facilitate access to human, cultural, and other forms of capital including institutional resources and support. According to Putnam (2000), high civic involvement influences high levels of parent support which influences lower levels of student misbehavior.

Parental relationships with other parents and community stakeholders support Coleman's (1988) intergenerational closure theory because students benefit from social norms that govern conduct, information gathering that supports positive school outcomes, and reciprocity in securing educational resources. These relationships can be damaged or even severed if a family relocates to another community, therefore limiting access to resources proven to be beneficial to student achievement. Consequently, Coleman (1988) determined family transience to be a determining factor in family social capital since the percentage of dropouts increased in direct correlation to the number of times a family moved.

Families that enjoy close social bonds and parents who instill the value of reciprocity in their children are more likely to gain a greater degree of compliance and adherence to their values (Putnam, 2000). One outcome is less truancy, even when you consider other demographics.

Research is limited in regard to racial/ethnic differences where parental involvement is a form of social capital that promotes college matriculation. After controlling for other variables, McNeal (1999) documented a reduction in high school dropout and truancy rates among African-American, Hispanic, and Asian American students when there was parental involvement. Qian and Blair (1999) found a positive relationship between parental involvement and college aspirations for Blacks, Hispanic, and White high school seniors after controlling for individual characteristics such as socioeconomic status. Lopez, Scribner, and Mahitivanichcha (2001) found that a child's social, economic, and physical needs had to be addressed before meaningful parental involvement in the child's education could take place. Regarding Bourdieu's (1986) thesis, race, class, and gender differences will influence access to societal resources and will influence the impact of parental involvement as a form of social capital on college matriculation (Dika & Singh, 2002). Horvat (2001) also conceptualized race as a mitigating factor for acceptable actions or habitus. Habitus is the set of dispositions and preferences that subconsciously define an individual's reasonable actions (Perna & Titus, 2005). According to Freeman (1997), Black students are not encouraged to pursue college enrollment by their parents or other adults. In contrast, Lin (2001b) suggests that racial/ethnic differences in resource procurement through school social networks directly affects college enrollment. There is a pyramidal shape that depicts the social structures

within schools and the access to resources available to certain groups within the hierarchy. Disadvantaged students in society unfortunately "mirror" their position and access to resources within the school environment. Thus, African-American and Hispanic students disproportionately rely on heterophilous interactions to access resources conducive to college enrollment (Lin, 2001b).

Peer Relationships

Robert Putnam (1993, 1995) reintroduced the social capital thesis as a "stock" possessed by communities and nations and its effects on their growth and development. Social capital was thus considered a collective entity, instead of an individual possession (Portes, 2000). Portes (2000) makes the distinction between individual and collective social capital and the divergence in subsequent literature. Unfortunately, this divergence was never explicitly theorized, in turn, creating confusion about the meaning of the concept (Portes, 2000). The rewards of a National Basketball Association player receiving the highest value contract within his league affirms his high social capital as a result of the managers, lawyers, and/or sports agents who are able to negotiate on his behalf. But, at the same time, the NBA player's high contract has diminishing returns on the team and league he plays for as the collective social capital of these organizations may not support adequate salaries for the player's teammates to win and potentially influence contract negotiations with other high performing players in the same league (Portes, 2000).

Consideration must be given to peer groups and relationships outside of the family that influence social capital acquisition. A student's peer group post-secondary plans significantly impact a student's enrollment in a two-year or four-year institution of

higher learning. If a significant portion of the student's peer group attends a two-year college, it significantly increases the likelihood of the student attending a two-year college but negatively impacts the probability of attending a four-year institution (Perna & Titus, 2005). If a significant portion of the student's peer group attends a four-year college, it significantly increases the likelihood of the student attending a two-year and four-year college (Perna & Titus, 2005). Peer group academic values and influence are positively related to social capital (Muller & Ellison, 2001; Pribesh & Downey, 1999). Also, the number of close friends attending the same school and peer group values were found to be an indicator of social capital that are positively linked to educational aspirations (Morgan & Sorenson, 1999; Muller & Ellison, 2001).

Teacher Involvement

Teachers play a crucial role in the growth and development of pre-college students and lay the foundation for future success in college and careers. Teachers, as institutional agents, have relatively high-status and authority in an adolescent's life and can act directly to transmit or negotiate the transmission of highly-valued resources on behalf of the student (Stanton-Salazar, 2001). The capacity of institutional agents to empower students is dependent upon the infrastructure of their own social networks, as well as their orientation toward effective networking. Here, school leadership plays a critical role in establishing a culture of collaboration and collective responsibility. Institutional agent interactions with students must be multi-faceted in order to facilitate post-secondary advancement. Although primary responsibilities with students are instructional, teachers must have high expectations to ensure success academically and socially, as the two paradigms are not mutually exclusive but are very co-dependent. The

general public recognizes and supports the need for effective pedagogy in the classroom. The general public, however, tends to overlook the influence of the instructor in providing counseling for the whole child. College and career expectations, peer relationships, home, and school life represent a myriad of factors that influence learning and student success.

To gain perspective, younger students have higher educational and career aspirations than their older counterparts. Environmental factors such as access to academic resources, peer success in school, and access to human and fiscal capital influence educational aspirations as students get older (Kerchoff, 1976; Hanson, 1994). Michelson (1990) found that student educational expectations are a by-product of the opportunities available within their respective social context. Students with lower academic expectations tend to develop counter-productive attitudes, aspirations, and activities that reflect limited opportunities (Bourdieu, 1973). Ogbu (1978) concluded that student academic failure among underrepresented groups result in student shutdown, as students do not continue to try to complete the assigned tasks. At-risk students benefit from personal connections to faculty who provide access to resources, knowledge, and encouragement conducive to achievement (Stanton-Salazar, 2001). Institutional agents such as counselors and teachers reinforce student autonomy over their education and future social mobility (Stanton-Salazar, 2001).

DiPaula (2010) strongly advocates the building of student self-efficacy and social capital to increase the percentage of students graduating from high school who are prepared for college and other training programs. At-risk students, who may have limited or no contact with adults who have benefited from a college education, may find it hard

to conceptualize the benefits of studying and the rewards from post-secondary education (DiPaula, 2010). Academic counseling, tutoring, sports, clubs, and extra-curricular activities, supported in conjunction with the school's academic program, contribute to student social capital, especially for students with limited access to resources at home (Croninger, 1997). The activities given above are typically facilitated by a teacher, making their interactions with students multi-dimensional. Mounting evidence supports students with a non-parental adult in their social circle "have better psychological wellbeing, more rewarding relationships with parents and others, academic success, higher school completion, better employment experiences, and fewer problems with peers" (Stanton-Salazar, 2001, p. 1071). As students interact with teachers in more than one capacity, more opportunities arise for teacher-student relationships to form, facilitating formal and informal inquiries into student interests and aspirations. These interactions permit the transmission of information, reinforcement of social norms, and fulfillment of obligations/expectations that social capital is predicated (Coleman, 1988).

School Counselor Involvement

School counselors are instrumental in college counseling for pre-college students (McDonough, 2005 a, 2005b; Trusty & Niles, 2003). Access to school counselor personnel facilitates student acquisition of college enrollment information, processes, and program offerings (Hawkins & Clinedinst, 2007; McDonough, 2005a). Many school counselor training programs do not incorporate college counseling as a component of their professional development, therefore, leaving a dramatic deficit in college access services for the neediest students, traditionally underserved minorities who do not matriculate to college. Specifically, current research suggests that high school counselors

have an enormous amount of influence on college planning with minority students. However, non-traditional college-bound students are not only least likely to have access to school counselors but are more likely to have access to non-credentialed counselors. They are also more likely to have counselors who are assigned to tasks that are not college admissions-related (McDonough, 2005b; Plank & Jordan, 2001). Additional research revealed that counselors in predominantly African-American schools have higher counselor-student ratios, less access to college planning materials and training, and working conditions non-conducive to facilitating college access (Corwin et al., 2004).

Bryan, Moore-Thomas, Day-Vines, and Holcomb-McCoy (2011) found that gender, academic achievement, parental involvement, and school size were significant predictors of students applying to college after examining data from the 2002 Educational Longitudinal Study (ELS). They also found that when students received free or reduced lunch, the ethnicity, socio-economic status, student aspirations, and mother post-secondary aspirations for these students were significantly related to them applying to two or more institutions of higher learning (Bryan, et al., 2011). A positive relationship was found between the number of school counselors and students applying to two or more schools. Students in schools with higher numbers of school counselors were more probable to apply to two or more universities. No significant relationship was found between the number of school counselors and applications to one college or none (Bryan, et al., 2011).

Mentoring

Mentors are non-parental adults who serve as role models and actively engage in the lives of youth (Erickson, McDonald, & Elder, 2009). They help facilitate the transition to adulthood by providing emotional support and advice to adolescents, sometimes outside of their professional roles. Erickson, McDonald, and Elder (2009) examined the National Longitudinal Study of Adolescent Health (Add Health) and the Add Health Academic Achievement study (AHAA) to determine: (a) the impact of informal mentoring on the educational success of pre-college students; (b) the specific types of mentors who have the greatest influence on educational attainment and performance; (c) the relationship between educational success and informal mentoring within the context of a broader set of potential resources (including those that are linked to social background , parents and peers, school , and the individual). Even after controlling for access to other resources, Erickson, McDonald, and Elder (2009) found that mentors have a strong positive impact on both performance in high school and educational attainment overall. Their findings also revealed that mentoring may be a compensatory or complementary resource for youth. Young people with access to multiple resources are more likely to form mentoring relationships; therefore, emphasizing the complementary role that mentoring plays for the socially advantaged. Mentoring effectiveness is dependent upon level of access to resources. Relatives serving as mentors have a more positive influence on educational attainment for socially advantaged youth than disadvantaged youth. Relatives of advantaged adolescents are more likely to have valuable expertise pertinent to education and career advancement. Research has revealed that young African-Americans in disadvantaged, urban

environments have limited access to adults in their communities who serve as role models and provide guidance (Newman, 2000; Wilson, 1987). Thus, Erickson, McDonald, and Elder (2009) found that teacher mentors have a dramatic effect upon educational attainment for at-risk students.

There are many after-school programs and interventions designed to compensate for the lack of access to resources and role models who support educational attainment for youth. These programs have a diverse range of services, from focusing on specific populations, topics, and subject-matter, to skill sets. As the achievement gap between class and race widens, these programs serve as one of many tools used to help limit the deficit between disadvantaged students and youth with access to multiple resources.

College Preparatory Programs.

A description of one of the federal TRIO programs, Upward Bound, is provided for reference followed by a detailed summary of the Dr. Mae Jamison STEM Pre-College Program at Mary McLeod University. These descriptions incorporate program goals, initiatives, evaluations, student outcomes, and other components. in an effort to demonstrate programmatic efforts to prepare students for college matriculation.

Upward Bound.

The Upward Bound program is one of several federally funded programs that aim to prepare participants for post-secondary education. Activities are focused on middle and high school achievement and college preparation. The program targets middle and secondary students from disadvantaged families whose parents did not graduate from college. It also targets students from low-income, first-generation military families. The goal of the Upward Bound program is to increase high school graduation rates for

participants and facilitate their successful college matriculation and graduation (US Department of Education, 2009).

Upward Bound activities include academic instruction that encourages excellence in the liberal arts, sciences, and mathematics. Services such as tutoring, internships, mentoring, counseling, and cultural awareness are integrated within the program structure. Also, assistance and instruction are provided to aid in completing college entrance and financial aid applications and in preparing for college entrance exams (US Department of Education, 2009).

A 2004 report entitled, “Report Highlights: The Impact of Regular Upward Bound: Results from the Third Follow-up Data Collection,” reported the following facts about the program:

- Upward Bound had no impact on enrollment at colleges/universities or college credits earned by students overall; an estimated six percent increase was revealed regarding enrollment at four-year colleges, but the evidence was not statistically conclusive. The study revealed an increase in enrollment at four-year institutions was offset by reduced enrollment at two-year community colleges.
- Upward Bound has a sizable effect on secondary and college outcomes for certain demographics. Upward Bound consistently displayed a positive impact on college applicants who, when applying to Upward Bound, did not expect to complete a college degree. Although these Upward Bound participants with "lower educational expectations" are approximately 20% of the program population, participation in this outreach initiative increases the total number of academic credits program members earn in secondary education (two credits) as well as

academic placement (AP) credits (0.7). More importantly, the program more than doubles, from 18% to 38%, the probability that these participants will matriculate to a four-year college, and increases their precollege persistence as indicated by total credits earned (11 additional credits).

- Upward Bound has minimal impact on students' academic readiness for postsecondary education. Although Upward Bound marginally elevates the amount of math credits earned (0.2 credits), the program has no effect on credits earned in other disciplines, total post-secondary credits, AP course-taking, high school graduation or grade point average.
- Students who participate in Upward Bound for longer periods increase their probability for better academic outcomes. The average length of program enrollment is 19 months. Every year that a student stays in Upward Bound is associated with a nine percentage point increase in enrollment at a college or university (US Department of Education, 2004).

In 2005, the Upward Bound program at San Diego State University facilitated a study that focused on social support components conducive to student achievement for 30 first-generation, low-income Latino students. In an effort to support the varying ability levels of the students and their needs, students were divided into three programs. The divisions were as follows: (a) Math/Science; (b) STAR; and (c) Classic Upward Bound. The Math/Science students were the high achievers. The STAR students were English Language Learners (ELL) and the Classic students were the underachievers (Lockey-Carlson, 2005).

Survey and interview data revealed that significant peer networks were established for each category of students. Math/Science and STAR students on average, established 3.9 new peers from their Upward Bound participation. Classic students established, on average, 3.6 new Upward Bound peers as a result of their participation in the program. Non-Upward Bound average peer networks for Math/Science, STAR, and Classic students were 4.3, 2.2, and 2.4 respectively. STAR and classic students benefited greatly in comparison to Math/Science students in establishing new peer networks within the program. Similar results were evident in the identification of kinship and educational networks which support academic advancement in college (Lockey-Carlson, 2005).

The Dr. Mae Jamison STEM Pre-College Program.

The goal of the Dr. Mae Jamison STEM Pre-College Program at Mary McLeod University, one of nine state pre-college program sites, is to broaden the pool of students pursuing mathematics-based and science-based majors and careers. The McLeod University Jamison STEM Pre-College Program actively recruits and prepares students of average to above average ability in grades 6-12 from numerous school districts surrounding each site location. The pre-college program considers the following criteria for admission: evidence of student interest and aptitude for rigorous mathematics and science courses; counselor and teacher recommendations; student grades; low-income, disadvantaged background; unique extracurricular activities, talents, and volunteer/community involvement; evidence of leadership abilities; potential to be a first-generation college student; and students from under-performing schools (NC-MSEN, 2009).

Nine programs comprise the state-wide pre-college program. Each site is located at a state-supported institution of higher learning. The program has been very successful with facilitating academic success for its students during their secondary education and has positively influenced college matriculation. The program's successes include:

- Ninety-seven percent of pre-college program students enroll in a four-year institution after high school graduation;
- Eighty-two percent of pre-college program graduates declare STEM majors (science, technology, engineering, or mathematics);
- Eighty-eight percent of pre-college program graduates have a 3.0 GPA or higher;
- Ninety-seven percent of pre-college program scholars have taken an accelerated course in mathematics or science before high school graduation; and
- Ninety-nine percent of pre-college program participants have completed Algebra I prior to tenth grade (NC MSEN, 2009).

Parental and student commitment to excellence accounts for the numerous successes the program has experienced through the years. The parents, students, administrative staff, and teachers continually strive to provide opportunities to enhance abilities and to develop skills that will enable the students to recognize and achieve their potentials. The pre-college program is composed of four major components: the Summer Scholars Program; the Saturday Academy; the Precollege Research Experiences Program (PREP); and the Parents Involved for Excellence (PIE Club) organization (NC-MSEN, 2009).

The Summer Scholars Program offers students interactive experiences that refine the skills, knowledge, and attributes related to mathematical and scientific careers. The

students are engaged in instructional content in math, science, and communications for four weeks during the month of July. Students also participate in a college day, career day, and a number of educational field trips (NC-MSEN, 2009).

The Saturday Academy Program consists of 12, five-hour days during the academic year. During each of the Saturday Academy sessions, the students are engaged in various hands-on activities in math, science, communications, and career awareness. Students also participate in field trips and many other educational opportunities off and on the campus of the host university.

The PREP program is a paid internship opportunity for high school students in the pre-college program who have a keen interest in science. Mentors from STEM departments provide supervision for the participating students for six weeks during the summer on an independent research project. Students are responsible for producing a research paper, PowerPoint presentation, photo essay, and presentation board related to their research. Participants are also responsible for presenting their research at local and state regional forums and are expected to compete in the regional science fair competition.

Parental commitment is a vital component to the success of students involved in the pre-college program. The PIE Club meets at McLeod University. Attending these meetings affords parents opportunities to stay abreast of upcoming program events, participate in student activities, engage in workshops that promote parent involvement in their child's education, and provide input regarding programmatic planning.

Based on the previously cited descriptions of college preparatory programs, the researcher formulated the following preliminary generalizations:

1) There would be a significant difference in student achievement as a result of participation in the pre-college program; and
2) Concurrently, there would be a significant difference in social capital for students who participate in the pre-college program versus students with similar backgrounds who do not participate in the program.

College preparation program administrators, researchers, and policy analysts support parental involvement as an integral component of successful pre-college programs (Shernoff, 2010). These programs are often used as a means to increase minority enrollment rates at higher education institutions (Shernoff, 2010). The federal TRIO programs, active since the 1960's, and the 1998 establishment of the GEAR-UP program (Gaining Early Awareness and Readiness through Undergraduate Preparation) exemplify these initiatives (Shernoff, 2010). Perna and Titus (2005) stated, "These programs are designed to promote educational attainment among disadvantaged groups of students by developing the skill, knowledge, confidence, aspirations, and preparation that are needed to enroll in and graduate from college" (p. 486). Research has revealed that successful college preparation program integrate a parental involvement component (Swail & Perna, 2000; Tierney, 2002). More than two-thirds (70%) of pre-college programs that target underrepresented minority groups have a parental involvement component. Moreover, parent participation is required for one-third of all college preparatory programs according to a 1999 College Board survey (Perna, 2002). Unfortunately, parent participation in many of these programs is superficial at best as a result of poor funding, a lack of adequate staff, and a lack of time (Tierney, 2002).

Parental involvement is associated with numerous positive outcomes for youth and college attendance. Cabrera & La Nasa (2000); Horn (1998); Hossler, Braxton, & Coopersmith (1989); Hossler, Schmit, & Vesper (1999); and Perna (2000) found that parental involvement increases youth aspirations to attend college and actual enrollment. Higher grades (Lee, 1993; Muller, 1993; Zick, Bryant, & Osterbacka, 2001), higher eighth grade mathematics and reading achievement (Lee, 1993; Zick, Bryant, and Osterbacka, 2001), lower rates of behavioral problems (Lee, 1993; Zick, Bryant, & Osterbacka, 2001), and lower likelihood of high school dropout and truancy (McNeal, 1999) are positively associated with parental involvement.

Shernoff (2010) explored two major questions regarding after-school programs, social competence, and academic performance: (a) Does program quality of experience impact social competence and academic performance for participants? (b) Among program participants, are variations in program quality of experience versus alternative after-school settings related to higher academic performance and social competence? Indicators of social competence were goal setting and planning, conflict resolution, non-conformity, teamwork, and perspective taking. Academic performance indicators were end-of-course grades. Shernoff (2010) suggested that in predicting student outcomes, program quality may be a more influential factor than the amount of experience.

Vandell, Shumow, and Posner (2005) found that teenagers benefited more emotionally and academically from participating in high-quality, after-school programs than from participating in less structured environments after school. Research also associated participation in extra-curricular activities and after-school programs with students having greater social competence (Durlak and Weissberg, 2007; Fredricks and

Eccles, 2006a, b; Larson and Brown, 2007) and higher academic achievement (Darling, 2005; Durlak and Weissberg, 2007; Fredricks and Eccles, 2006b; Mahoney et al., 2005). According to Shernoff (2010), however, there is limited research to determine how engagement and other related factors in after-school programs impact social and academic outcomes. Program quality has become the mitigating factor in determining program effectiveness as researchers continue to argue the benefits of after-school programs (Shernoff, 2010).

Research has rendered numerous positive associations among after-school activities and social and academic outcomes. Students were found to have enhanced personal confidence and social skills based on extensive participation in out-of-school environments (Bohnert et al., 2007; Dubas and Snider, 1993; McHale et al., 2001). Youth have reported learning the principles of teamwork and cooperation during extracurricular and community-based activities (Hansen et al., 2003; Jarrett, 1998; Rogoff et al., 1995). Dworkin et al. (2003) found that many students benefited from increased empathy and understanding essential to perspective taking as a result of their participation in after-school programs. Darling et al. (2005) linked school-based extracurricular activities and after-school programs to better psychosocial adjustment and social skills for participants versus non-participants. Enhanced peer/adult relationships and improved social competence were the by-product of student participation in organized after-school programs (Durlak & Weissberg, 2007; Eccles & Gootman, 2002). Research has also found that youth who participated in after-school programs earned higher achievement test scores and grades than non-participants (Cooper et al., 1999; Darling, 2005; Fredricks and Eccles, 2006b).

Many studies have examined the quality of experiences in after-school programs and activities that render positive phenomenological states. Examples of participation by-products are given below:

> "…heightened engagement, enjoyment, intrinsic motivation, personal satisfaction, flow, and initiative (Csikszentmihalyi and Kleiber, 1991; Csikszentmihalyi and Larson; 1984; Hansen et al., 2003; Vandell et al., 2005), and reductions in negative emotions such as alienation (Bohnert et al., 2008) and depressed mood (Mahoney et al. 2002)".

Shernoff (2010) defines flow as "a state of emergent motivation" or "deep absorption in an activity that is intrinsically enjoyable." High school students reporting flow-like activity in their respective mathematics and science classes had higher grades in college (Shernoff and Hoogstra, 2001). Compared to other settings after school, middle school student participants in after-school programs reported a higher quality of experience such as more positive moods, increased skill utilization, and feeling more challenged in comparison to other settings after school (Shernoff, 2010).

Shernoff (2010) and Fredrickson (2006) researched associations between quality of experiences and social and academic outcomes and found that positive emotions and experiences increase a student's behavioral repertoires, and in the process develop their personal resources and social skills. Salovey, Rothman, Detweiler, and Steward (2000) found positive mood to be a mediator of healthy relationships and interactions. Additionally, positive interactions and relations with others relate to the ability to experience and manage emotions (Grewal and Salovey, 2006). Shernoff (2010) concluded that the quality of experience in programs is a more precise predictor of

academic performance versus the quantity of experience in after-school programs. Further, psychological engagement, instead of number of contact hours devoted to enrichment, serves as a superior indicator of community involvement and social responsibility (McGuire and Gamble, 2006; Shernoff, 2010).

Media Use

Previous research has revealed significant relationships between social capital and mass media use. Social capital is positively associated with news use (Beaudoin & Thorson, 2004; Norris, 1996, 2000; Putnam, 2000; Shah, Kwak, & Holbert, 2001). Individuals who read the newspaper and view television news frequently have higher levels of social capital indicators, including social trust, civic engagement, neighborliness, and association membership (Beaudoin & Thorson, 2006). Newspaper readership is significantly related to civic engagement (Brehm & Rahn, 1997). Conversely, viewing television for entertainment is negatively associated with social capital (Beaudoin & Thorson, 2004; Brehm & Rahn, 1997; Norris, 1996, 2000; Shah et al, 2001). Civic participation is reduced by 10% for each additional hour of television viewing according to Putnam (2000). Putnam (2000) further stated that civic participation and social interactions declined as a result of increased television viewership.

Newton (1999) found that mass media offer information that may serve as an impetus to civic engagement. This is critical to the development of social capital. Shah, McLeod, and Yoon (2001) found that new media provide the public with opinions, facts, and ideas that may initiate civic engagement, discussion, and deliberation. Theoretically, news media establish a sense of community identity, promotes public collaboration, and cultivates confidence and self-efficacy (Beaudoin & Thorson, 2006). Through its

promotion of public collaboration, news, as a shared experience, galvanizes social norms by reflecting our social interactions through the media.

School Environment

An individual's actions cannot be fully examined without consideration of the social context in which those actions occur (Bourdieu & Wacquant, 1992; Lin, 2001b). Differences in academic performance between Blacks and Whites have been attributed to school quality and access to resources and personnel that promote student achievement. foster (Card & Krueger 1992; Ferguson, 1998; Kozol, 1992; Wenglingsky, 1997). The biased treatment explanation emphasizes the importance of race-linked signals about ability and diligence that teachers and schools communicate to students, with varying degrees of discreteness (Alexander et al. 1987; Ehrenberg et al. 1995; Ferguson, 2003; Jussim et al. 1996; Oakes, 1982; Oates, 2003).

Oates's (2009) research revealed that school quality and biased treatment were the primary explanations for differentials between Black and White high school assessment performance. Access to high quality schools and receipt of interpersonal cues from gatekeepers who are influenced by racial and socioeconomic privilege proved to be definitive. Essentially, the explanation for the performance gap between Black and White students emphasizes what they "bring to" high school (such as academic engagement, cultural and social capital) is not as influential on the performance differentials as is "what happens" to them (such as quality of education provided and race-contingent treatment received) when they arrive (Oates, 2009).

High schools with high average levels of family income and parental educational attainment increase the probability of their students attending a two year college (Perna &

Titus, 2005). The probability of enrolling in a two-year or four-year college decreases as the percentage of parent expectation for child to receive a bachelor's degree decreases (Perna & Titus, 2005). As the number of previous school graduates who attend a two-year or four-year college increases, the probability of future graduates attending a two-year or four-year college increases (Perna & Titus, 2005).

Social capital is highly correlated with standardized test scores (Perna, 2000; Putnam, 2000). The effects of social capital are evident even after accounting for racial composition, affluence, economic inequality, adult education levels, poverty rates, educational spending, teachers' salaries, class size, family structure, and religious affiliation, private school sector (Putnam, 2000). Putnam (2000) described social capital as the single most important explanatory factor for educational outcomes, child growth, and development. For some outcomes, particularly SAT scores, the impact of race, poverty, and adult education levels is only indirect (Putnam, 2000). Community involvement increases school success. Coleman (1988) revealed that low dropout rates at Catholic and other religiously-based high schools were the result of social structures comprised of multi-stranded interactions with parents and students at the school, church, and community level that resulted in positive student outcomes. Private school students are two times more likely to drop-out of school and public school students are three times more likely to drop-out of school than Catholic school students (Putnam, 2000). Coleman (1988) also credited Catholic school success to the allocation of social resources for at-risk students and how the social structure of the school insulated the institution from pressures to water-down the curriculum to meet the students where they are. Smaller schools also outperform larger schools because of levels of engagement by all

stakeholders (Putnam, 2000). Anthony Bryk and Raudenbush (1992) report that "communal" social capital and "relational trust" combine in providing most schools an edge in their outcomes. Catholic schools, in general, are small, promote high quality relationships with students and teachers in diverse settings, support wider range of interactive extracurricular activities, and are characterized by high level of internal agreement about the school's mission and values (Putnam, 2000). Bryk and Raudenbush's (1992) research supported Coleman's (1988) findings. Comer schools, schools that are focused on several different areas of child development, were also focused on high levels of parental involvement (US Department of Education, 1998; Putnam, 2000). Charter schools and vouchers are popular now as they promote communal orientation, a group disposition of interdependence (Putnam, 2000). Charter schools are primary or secondary schools that receive public funding, but do not adhere to the same rules and regulations that apply to traditional public schools in exchange for some type of accountability for producing specific results, delineated within the school's charter (NCDPI, n.d). Vouchers are certificates issued by local or federal government agencies for parents to use for tuition at a private school instead of the public institution where their child may be assigned (NCDPI, n.d). Supporters argue that putting schooling into the invisible hand of the free market will improve quality for everyone because schools will be forced to compete for improved outcomes (Putnam, 2000). "School reform initiatives that encourage children to attend smaller, more communal schools may have the unintended result of increasing both student and parental involvement in clubs, classroom activities, governing bodies, and education lobbying groups" (Putnam, 2000,

p. 305). More civic engagement or increased inequalities between groups are potential by-products of this movement.

Residential Stability

There are numerous publications that address the impact neighborhoods and living standards have on student achievement and social outcomes (Anderson, 1999; Anyon, 2005, Kozol, 2005). Habitus, or the set of dispositions and preferences that subconsciously define an individual's reasonable actions, can only be defined within the setting in which students interact with one another and with members of the community (Perna & Titus, 2005). Collective social capital stresses aspects of and benefits accumulated by communities while emphasizing a multitude of "civic spirit" indicators (Portes, 2000, p. 5). These relationships and interactions must be examined within the environment where they take place (the neighborhood and school) with consideration given to state and local trends in education. Defining the different types of social capital (bridging and bonding) and explaining how these social networks directly impact student achievement, will contribute to this study significantly.

Bridging social capital is the connections between neighborhood residents and outside groups or organizations, whereas bonding social capital consists of the interactions among neighborhood residents (Woolley et al., 2008, p. 134). Woolley, Grogan-Kaylor, Gilster, Karb, Gant, Reischl,, and Alaimo (2008) found that increased levels of neighborhood bonding social capital and lower levels of poor physical conditions were predictive of higher student scores on achievement tests in math and reading. In addition, as children progressed from the first through the eighth grades, the

magnitude of the effect of bonding social capital and poor neighborhood physical conditions on school achievement increased.

Neighborhoods with high levels of social capital might act as a protective factor promoting positive outcomes. By contrast, risk factors such as poor physical conditions and low economic resources in neighborhoods threaten school outcomes (Richman, Bowen, & Woolley, 2004; Woolley & Grogan-Kaylor, 2006). The collective socialization perspective would suggest that children's attitudes, behaviors, and beliefs such as the importance of school and the need to work hard to succeed in school are partly shaped by social interactions with parents and adults within the neighborhoods where the children live (Jencks & Mayer, 1990; Mayer & Jencks, 1989). Adult neighbors, who engage in positive social interactions with members of the community, increase the level of social capital available to neighborhood children and, by exhibiting successful educational and occupational characteristics, might create an environment in which those behaviors become shared norms for neighborhood children (Ainsworth, 2002).

Woolley and Grogan-Kaylor (2006) found that even after including measures of parenting, family functioning, teacher support, and school climate, positive neighborhood social interactions were predictive of higher levels of school coherence. When there is school coherence youth believe that school is important and that they can succeed at school. Woolley and Bowen (2007) reported that increased numbers of supportive adults in the neighborhood, at school, and at home were associated with increased behavioral and psychological engagement in school among middle school students. Plybon Edwards, Butler, Belgrave, and Allison (2003) found that higher levels of neighborhood social cohesion were associated with higher levels of school self-efficacy among African-

American adolescent girls. Similarly, Ainsworth (2002) found that neighborhood social variables, such as higher educational achievement and type of employment, were related to increased time spent on homework and higher reading and math test scores.

Meyers and Miller (2004) found that parental reports of neighborhood distress (partly measured by the number of abandoned and run-down buildings, the frequency of crime and violence, and the lack of adequate policing) were associated with parent reports of adolescent school problems. Garner and Raudenbush (1991) found a significant negative effect on school achievement when there was socioeconomic deprivation in neighborhoods. Similarly, Ensminger, Lamkin, and Jacobson (1996) found students in Chicago high schools were three and one-half times more likely to drop out of school and lived in neighborhoods with fewer than 40% of residents employed in white collar jobs if they were African-American male. Duncan (1994) found that the percentage of affluent neighbors was predictive of staying in school, except for African American boys who only benefited from affluent neighbors if those neighbors were African-American. Vartanian and Gleason (1999) reported African American student who lived in a neighborhood with greater average household incomes, or higher percentages of two-parent households, demonstrated higher graduation rates. Ainsworth (2002) reported that students in neighborhoods with a higher percentage of high-status residents, evaluated by educational achievement and employment, indicated more time was spent on homework. They also achieved higher reading and math test scores.

Putnam (2000) made the following observations of Elijah Anderson's (1999) ethnography entitled, *Code of the Streets*, in which Anderson made conjectures about the demise of generational leadership in urban areas. Anderson (1999) delineated the steady

erosion of “moral cohesion” in inner-city neighborhoods as a result of numerous economic and social factors. The decline of social capital in these neighborhoods is directly linked to the decline of financial and human capital. Factors that contribute to urban despair and apathy included the following conditions: the exodus of middle class African-Americans from inner-city neighborhoods; the diminishing role and influence of elder men and women; and the proliferation of drugs, violence, and crime contribute. Neighbors no longer look after the best of interests of other men, women, and children who live in the community as a result of these circumstances, further widening the disparity in resources for members of different race and class. As neighborhoods lose their social cohesion caused by the lack of engagement by its stakeholders, positive outcomes for students from these neighborhoods also diminish, leaving a void in societal contributions by diverse groups.

This chapter has demonstrated that education is influenced by a myriad of environmental and social factors. Association membership, parental involvement, peer relationships, teacher involvement, school counselor involvement, mentoring, media use, school environment, and residential stability represent the crucial components of the social capital paradigm as it relates to educational attainment. Each of these variables influences the transmission of societal norms, information, and obligations/expectations between individuals and collective entities such as schools and work environments. The next chapter explores the process used for collecting data associated with the variables previously discussed and the analysis associated with this data collection. Attention will be given to the population participating in the study, data security, and steps taken to reduce circumstances that traditionally threaten results.

CHAPTER 3: METHODOLOGY

In an effort to determine a relationship between participation in the Dr. Mae Jamison STEM Pre-College Program, social capital, and student achievement, the Pre-College Social Capital Survey (PCSCS) was administered to students in the pre-college program and similar students from a middle school and high school. Participating schools were Vivian Malone Jones Middle School and Fannie Lou Hamer High School. The pre-college program recruits students throughout the region, including students from these two schools. Initially, teachers and administrators at the participating schools and program were provided paper copies of the survey and consent forms. They also received instructions for access to the consent forms and survey through the Internet. Paper copies of the parental informed consent form had the website address for the on-line form for parents to review the PCSCS and, if desired, have their child complete it on-line. The on-line version of the PCSCS required parents to provide their electronic signature or name, email address, and child's name. The pre-college program coordinator and officials from Vivian Malone Jones Middle School and Fannie Lou Hamer High School emailed parents a description of the study and a link to complete the informed consent form. The database that captured consent and survey information was secure and confidential. This database was deleted when the study was completed. After the parents completed the parental informed consent form, a confirmation page provided a link for the survey. Parents were asked to share the link with their children for

completion of the survey on-line. Each survey item required a response for the survey to be submitted. No identifiers, except for Internet Protocol (IP) address numbers, were collected when the survey was completed. The IP address was used to determine if there were repeated submissions from the same computer terminal. Anonymity was maintained throughout the study. Repeated submissions from the same terminal were not included in the study.

To further encourage participation and to also capture student feedback from students who may not have on-line access at home, hard copies of the parental informed consent form were disseminated to the students to share with their parents for completion. Students who returned the hard copies of the parental consent form were given the survey for completion. Incentives were given to parents of students at all levels of participation to encourage the completion of the required forms and surveys. For pre-college participants, incentives for successfully meeting the goal ranged from tours of the biology, chemistry and motorsports labs to participation in the program evaluation process. These incentives were provided to the grade level having the most respondents. Likewise for the middle and high school parents, the incentives awarded were information about the pre-college program that outlined program enrollment procedures and an application fee waiver for the program.

On-line collection of data was prioritized to prevent student removal from classroom instruction and programmatic activities. Also, in the event of an absence, teachers referred students to the website for completion. Parent participation was critical to the response rate of the study and reflected an integral component of social capital to be measured which was parental involvement in student activities. Unfortunately,

because of the low return rates for the parental consent forms (electronically and hard copy) from both comparison groups, the school system and university approved an amendment to the study waiving parental consent.

Collected data was analyzed using Statistical Package for the Social Sciences or SPSS software to determine the following parameters: (a) the reliability and validity statistics associated with the PCSCS; (b) the differences in social capital for pre-college program participants and non-participants; and (c) the relationship between student achievement and social capital, if any existed. Collected data from the pre-college program participants were compared with non-participants to determine the relationship between social capital, college preparatory program participation, and student achievement.

Purpose of the Study

The purpose of this study was to investigate the impact of a pre-college program on social capital and student achievement. College preparatory programs specialize in a variety of disciplines that typically mirror the host institution's strongest programs in an effort to recruit middle and secondary school students. These initiatives incorporate non-traditional learning activities and expose participants to college environments and resources that promote familiarity and comfort upon enrollment after high school. Program success is largely dependent upon leadership, pedagogy, funding, and culture. The researcher believes that college preparatory programs fulfill a distinct service to minority populations who traditionally do not have the resources and capital to facilitate successful college matriculation. The Dr. Mae Jamison STEM Pre-College Program at Mary McLeod University is one of nine college preparatory programs in a state-

supported system. This program has successfully prepared students to pursue college and also investigate science, technology, engineering, and mathematics (STEM) majors for over 25 years. Also, the federal TRIO programs are comprised of eight initiatives that include the three original programs, Upward Bound, Talent Search, and Student Support Services. TRIO programs support low-income youth, first-generation college students, and individuals with disabilities as they complete their education from the secondary level to post-baccalaureate programs. Although there is extensive research related to the federal TRIO programs and their impact on minority college preparation, there has not been a study relating the Dr. Mae Jamison STEM Pre-College Program, social capital, and student achievement. This study sought to determine if significant differences exist in social capital and student achievement among students that participate in pre-college programs when compared to students who did not participate in pre-college programs.

Research Questions

The prevalence of after-school programs across the United States highlights an emerging disparity between students as it relates to race, ethnicity, and socio-economic status (US Department of Education, 2009). The majority of these programs target minority populations as they traditionally represent low graduation rates from high school and low enrollment rates into college. Many intervention programs focus on curriculum, pedagogy, and college entrance. This study extended this emphasis to include an analysis of the social capital students possess intrinsically and acquire through programmatic activities.

This study investigated the following questions:

1. What are the reliability and validity statistics associated with the Pre-College Social Capital Survey?
2. Is there a significant difference in social capital for students who participate in the Dr. Mae Jamison STEM Pre-College Program versus students with similar backgrounds who did not participate in the program?
3. Is there a relationship between social capital and student achievement for students who participate in the pre-college program and non-participants?

The Pre-College Social Capital Survey (PCSCS) survey was given to current pre-college program participants and middle and high school students who did not participate in the program.

Hypotheses

The researcher hypothesized:

H_1: There is a significant difference in social capital for students who participate in the Dr. Mae Jamison STEM Pre-College Program versus students with similar backgrounds who did not participate in the program.

H_0: There is no significant difference in social capital for students who participate in the Dr. Mae Jamison STEM Pre-College Program versus students with similar backgrounds who did not participate in the program.

H_2: There is a relationship between social capital and student achievement for students who participate in the pre-college program and non-participants.

H_0: There is no relationship between social capital and student achievement for students who participate in the pre-college program and non-participants.

Design

This investigation was a causal-comparitive, quantitative study (Gay, Mills, Airasian, 2006). Also, this study design is referred to as a static-group comparison (Gay, Mills, & Airasian, 2006). The pre-college program students and the Fannie Lou Hamer High School/Vivian Malone Jones Middle School students represent two, non-randomly formed groups. Consistent with this type of design, one comparison group receives a new or unusual treatment, in this case it was participation in the pre-college program. The students from Fannie Lou Hamer High School and Vivian Malone Jones Middle School were non-participants in the pre-college program. In an effort to determine a significant difference in social capital and student achievement between the two groups, the participants were matched for analysis using demographic data such as grade level, gender, and ethnicity. Demonstrating this equivalence between the groups showed the impact of the pre-college program on social capital and student achievement. Unfortunately, posttest differences may be attributed to initial group differences in selection, maturation, and selection interactions, rather than pre-college program participation effects. Attrition is another factor, but history was controlled for since all events occuring outside of the experimental setting equally affected both groups (Gay, Mills, & Airasian, 2006).

The researcher attempted to determine the cause, or reason, for existing differences between groups in causal-comparative, or ex post facto, research. For this study, the researcher hypothesized that the pre-college program participants had higher rates of social capital and student achievement versus similar non-participants.

Sample Selection

Determining factors for participation in this study were: (a) parent/student access to the internet; (b) parent/student cooperation necessary to complete the on-line parental consent form and survey; and (c) pre-college program and school staff support. There were approximately 400 students participating in the pre-college program at the host university. The PCSCS was emailed to one parent for each student participating in the program. Over sixty students per grade level, six through twelve, were targeted at the participating middle school and high school in this study, therefore, providing a comparable number of participants for the comparison groups. Selection of students at the participating middle and high school was contingent upon enrollment in specific grade level English/Language Arts classess. Participating schools in the study had similar demographics to the program, with specific emphasis on race. Approximately 90 % of pre-college program participants are African-American.

Participants

The pre-college program predominantly serves underrepresented groups in STEM from a major metropolitan region. Surrounding school systems provide support for student participation by providing bus transportation for pre-college scholars during the Saturday Academy and Summer Scholars programs. Although most students are enrolled in area public schools, private and home school students are invited to participate. Criteria for enrollment include grade level, grade point average, school conduct, school attendance, qualifying for free/reduced lunch, family considered low income, first generation college, learning disability, physical disability, special education courses, English language learner (ELL), gifted/talented courses, and exceptional child

designation. The pre-college program had 178 students in grades six through twelve participating in the study.

Vivian Malone Jones Middle School has a total enrollment of 898 students. For 2009-2010, the state department of public instruction rated Vivian Malone Jones Middle School as an "Honor School of Excellence, High Growth." Schools with this designation have at least 90% of students performing at grade level and the school made adequate yearly progress (AYP). Seventy percent of the student body is African-American, with 88 % of this population passing both end-of-grade tests in reading and mathematics (NC School Report Cards, 2011).

Fannie Lou Hamer High School has a total enrollment of 2,333 students. For 2009-2010, the state department of public instruction rated Fannie Lou Hamer High School as a "School of Distinction, High Growth." Schools with this designation have at least 80% of students performing at grade level. Seventy-two percent of the student body is African-American, with 86% of this population passing the end-of-grade tests (NC School Report Cards, 2011). Two-hundred and sixty-one students from Vivian Malone Jones Middle School and Fannie Lou Hamer High School completed the PCSCS.

Instrumentation

The Pre-College Social Capital Survey (PCSCS) has 63 items it incorporates a Likert-type scale that consisting of five responses that include: (a) strongly disagree; (b) disagree; (c) neither agree/not disagree ; (d) agree ; (e) and strongly agree. There are eleven subscales, each section has three to ten items, in the PCSCS that include association membership, parental involvement, peer relationships, teacher involvement, school counselor involvement, mentoring, media use, school environment, residential

stability, pre-college program participation, and demographics. Each of these subscales are social capital indicators (Dika & Singh, 2002).

The PCSCS is a variation of the Differential Status Identity Scale (DSIS) developed by Drs. Michael T. Brown, Mindi Thompson, and Nadya Fouad (Thompson & Subich, 2011). The DSIS is an instrument designed to access the psychological impact of belonging to a specific social status. Four hundred and fifty-four college students participated in the DSIS study. The internal consistency reliability (alpha) of the DSIS total score was .97. For each of its subscales, it had the following alpha scores: economic resources-amenities subscale (.95), economic resources-basic needs subscale (.95), social power subscale (.94), social prestige subscale (.92). The subscale intercorrelations ranged from .61 to .68, indicating above average relations among the four subscales within the DSIS. Criterion validity was investigated by analyzing the four DSIS subscale scores for African-American and White participants in the study. Substantial differences were hypothesized between these groups and univariate analyses yielded significant effects for social power, F (1, 203) = 8.00, $p < .01$; social prestige, F (1, 203) = 15.73, $p < .001$; economic resource-amenities, F (1, 203) = 8.02, $p < .01$; but not for economic resources-basic needs, F (1, 203) = .33, $p > .05$. African-American students scored lower than White students on all four subscales of the DSIS.

Operationalized Definition of Variables

The PCSCS measures nine survey variables. These variables include: association membership, parental involvement, peer relationships, teacher involvement, school counselor involvement, mentoring, media use, school environment, and residential stability. Each item is measured using a Likert-type scale that has five responses. The

responses are (a) strongly disagree; (b) disagree; (c) neither agree/nor disagree; (d) agree ; and (e) strongly agree. Association membership was operationalized through eight items that measure how often participants engage in religious organizations, charity or volunteer organizations, ethnic or racial organizations, a neighborhood association, school-related organizations, political clubs or organizations, social clubs, and youth groups. Parental involvement, peer relationships, teacher involvement, school counselor involvement, and mentoring variables measured discussions between the child, each respective institutional agent, parents, and friends on course, college, and career options. Parental involvement incorporated parental activity with the child and socialization with others. The peer relationships subscale used the same six items from the parental involvement section.

Teacher involvement included guest speakers being invited to the classroom and group assignments. Tutoring options were part of the composite measure of school counselor involvement. Doing school work with mentor, socialization with other role models, job-shadowing activities, and regular mentor engagement were included in the measurement of mentoring. Media use was operationalized through 10 items as to whether the following are used for information or entertainment: television, newspaper, internet, radio, and books. School environment was assessed by evaluating education delivery, extra-curricular activities, and school safeguards. Residential stability is measured by neighborhood violence, stability, and friendliness.

The independent variable, pre-college program participation, was measured by a yes or no response. Using the Likert-type scale implemented earlier in the instrument, scholars responding in the affirmative regarding pre-college program participation were

asked to complete five additional questions including how well the pre-college program prepares the student for college, increases student social network/number of friends, increases student access to mentors, exposes students to potential college majors and careers, and assists the student academically.

The social capital index for each participant, the dependent variable, is a composite average of the means for each of the previously mentioned variables.

Data Collection

Data collection involved the administering of the PCSCS to the pre-college program participants and similar non-participants from Fannie Lou Hamer High School and Vivian Malone Jones Middle School. The pre-college program coordinator distributed hard copies of the parental consent forms and the student assent forms during the 2011-2012 Saturday Academy. Consent forms were also disseminated to students to share with parents at Fannie Lou Hamer High School and Vivian Malone Jones Middle School. The consent forms had a website link provided for the convenience of participants who wanted the option to complete the consent forms and survey on-line. Hard copies of the PCSCS were delivered to each of the schools to be administered by select teachers, English/Language Arts teachers, determined by the school principal. These teachers were responsible for returning all completed forms to the school administrator for the researcher to collect.

The collection of data through paper-and-pencil and the Internet is supported by research (Das et al., 2011). When using multiple methods of data collection, the modes must produce the same results, therefore, demonstrating equivalence and the ability to combine data into one data set (Das et al., 2011). Equivalence can only be established by avoiding differential questionnaire construction and by using equivalent questionnaires

for each mode (Das et al., 2011). Both modes, paper-and-pencil and Internet surveys, are self-administered questionnaires and share the same benefits such as absence of interviewer effects, visual presentation, lower social desirability bias, and respondent self-pace (Das et al., 2011). Differences between the two modes include accessibility, susceptibility to multi-tasking, and respondent interface with the questionnaire (Das et al., 2011).

Bergstrom (1992) determined no negligible differences between computerized and paper-and-pencil tests based on 15 studies of adults and secondary students. Mead and Drasgow (1993) had similar results except for one notable circumstance. They found that there were significant differences between measures without a time limit and tests that measure cognitive processing speed between high school students and adults. Mead and Drasgow (1992) referred to this difference as the "Nintendo effect" as secondary students have more contact and usage of comptuer applications than previous generations. Meta-analyses by Kim (1999), Wang, Jiao, Young, Brooks, and Olson (2007, 2008) confirm that for high school students computer-assisted and paper achievement tests are equivalent.

When non-cognitive instruments were used, equivalence was also established between computerized and paper-and-pencil measures. A meta-analysis of 65 studies by Gwaltney, Shields, and Shiffman (2008) comparing electronic and paper-and-pencil self-reported patient outcome measures produced equivalent scores.

In general, multiple studies revealed support for mixing computerized and other forms of sef-administered surveys. Respondents typically use the same cognitive processes when completing Internet and paper-based questionnaires. However, these

determinations are predicated upon strict migrations from one mode to the other without significant changes in context or format. Equivalence is not guaranteed if drop-down boxes and other alternative means of response are implemented versus traditional responses through paper-and-pencil.

Dillman, Smyth, Christian, and O'Neil (2008) found that offering potential respondents a choice between modes does not increase the overall response rate. Also, Richman, Kiesler, Weisband, and Drasgo (1999) found in their meta-analysis of social desirability instruments that anonymity must be assured to all respondents . They found that when respondents were not confident of the assurance of anonymity, participants were less likely to reveal personal weaknesses, in particular, in the computerized format than with paper-and-pencil.

The PCSCS in paper format and in computerized form was a strict migration from one to the other. No identifiers were assigned to either format and anonymity was prioritized. Although there were no direct benefits for offering multiple modes for completing the PCSCS, the researcher believed that it would be beneficial. The researcher believed that using multiple modes for submission would (a) assist with accounting for respondent absences when the paper form was administered, (b) be convenient for teachers and students with access to the Internet, and (c) reduce disparities in administration where some school leaders were reluctant to commiting classroom time for survey completion.

Data Analyses

All analyses were conducted using Statistical Package for the Social Sciences Version 15.0, or SPSS 15. In order to determine the Pre-College Social Capital Survey's,

(PCSCS's) reliability, a reliability coefficient was calculated for each variable using Cronbach's alpha. Validity for the PCSCS was determined by calculating the magnitude and direction of the association between the subscales within the PCSCS. A Pearson *r* was calculated between each variable for analysis. In order to calculate difference in social capital between pre-college program students and Fannie Lou Hamer High School/ Vivian Malone Jones Middle School students, a one-way analysis of variance (ANOVA) was used. To make a determination regarding the relationship between social capital and student achievement, a correlation coefficient was calculated between social capital, pre-college program enrollment, and grade point average (gpa).

Threats to Internal Validity

There are several threats to internal validity that can affect the extent to which a researcher can trust his results. These factors include maturation, history, attrition, selection, regression, testing, and instrumentation. Because this study is a static-group comparison based on a single questionnaire administered only once, the aging/development of the target population over time is not relevant. Environmental factors such as the time between student participation in the Summer Scholars program, a component of the pre-college program, and the start of the Saturday Academy (another pre-college program component), can influence student responses to the survey. The PCSCS was administered to pre-college program participants on the first day of its Saturday Academy during the 2011-2012 academic year. To help combat this effect of history on these respondents, the PCSCS is offered through the Internet and the survey was administered again on the first Saturday Academy to minimize the time elapsed between these two major components of the program. The probability that a percentage

of the target population will not complete the program was very high. Crucial to maintaining internal validity was the selection of representative members from each target group who were needed to examine program effects.. Selection of representative members of each target group to examine program effects was crucial to maintaining internal validity. Survey responses that were outside of the norm were not included in the analysis. Also, students from each comparison group were matched according to grade level, gender, and race. Regression to the mean was minimized as a result of the current structure of the study, participants were only given the survey once. The effect of testing refers to differences in behavior as a result of the observation technique. Since the survey was only administered once and confidentiality was maintained, this effect was minimized. Evaluation consistency remained objective as point values were pre-determined for the Likert-type scale being used within the instrument.

Threats to External Validity

Potential threats to external validity that can influence the results of this research study include: selection-treatment interaction; multiple-treatment interference; specificity of variables; treatment diffusion; experimenter effects; and reactive arrangements. As previously stated, the comparison groups were only involved in one self-administered questionnaire, and thus, were not predisposed to assessment topics as a respondent would be in a pre-test/post-test design. The non-random or volunteer selection of participants could possibly limit the applicability of the findings. But, the use of a comparison group during the analysis offset any influence of selection-treatment interaction. The purpose of this study was to determine whether or not the pre-college program influences social capital and student achievement. Even though participation in the pre-college program

was the only treatment being measured, other prior treatments and environmental influences such as quality of education, socio-economic status, race, class, gender, and participation in other extra-curricular activities similar to the pre-college program had an impact on student social capital. Multiple-treatment interference was limited by the questionnaire and the concept being measured. Social capital is comprised of multiple factors and the PCSCS took into consideration many of these factors.

Poorly operationalized variables can make it difficult to interpret data and procedures for generalization. The PCSCS is comprised of these ten variables: association membership; parental involvement; peer relationships; teacher involvement; school counselor involvement; mentoring; media use; school environment; and residential stability. Each of these variables were operationalized since each section had a composite score. The social capital index was the composite average/mean of each of the variables. Analysis included identification of outliers and a determination as to participant/respondent inclusion depending on the severity of extremes.

Treatment diffusion occurs when treatment groups communicate and adopt pieces of each other's treatment, altering the initial status of the treatments' comparison. In this study, this possibility was highly unlikely. Respondents were participants in the pre-college program or non-participants from a local middle school and high school. Although the two groups may have had contact, there was no potential for sharing aspects of the treatment or program participation.

Experimenter effects were limited during the administration of this study. Because the PCSCS was a self-administered questionnaire, conscious or unconscious actions by the researcher had little to no effect upon respondent performance and

responses. Item clarity and simplicity were prioritized for items related to pre-college program participation and demographics that were not included in the original instrument.

Simply being in a study can influence respondents in such a way that they may not provide authentic information. Since this study was a self-administered questionnaire and does not require face-to-face interactions that are prevalent in interviews and observations, the researcher believes this potential threat was minimized.

Measures to Control Internal and External Validity

Randomization is the ideal method used to simultaneously control for many extraneous variables. Within experimental research, the use of randomly formed treatment groups minimizes the effects of many environmental factors. Unfortunately, this control factor is not plausible within causal-comparative research. If subjects are assigned by chance to groups, there is no reason to believe that there are systematic differences in between groups.

Certain environmental factors can be minimized by keeping them constant for all groups. These variables may include time, learning materials, prior exposure, experience, location, and time in which activities are conducted. Controlling these variables is very important to the research process. In the event randomization is not an option, there are procedures available to try to equate groups. These methods include matching, comparing homogenous groups or subgroups, and analysis of covariance. For this study, comparison groups were matched one-to-one with participation in the pre-college program being the discriminant. Grade level, gender, and race were used as matching criteria.

Data Gathering

The researcher presented information to parents and students about the study at a morning assembly during a spring 2011 Saturday Academy. Hard copy information about the study was also given to the parents during a Parents Involved for Excellence (PIE Club) meeting in spring 2011. Both presentations were prior to email dissemination of the informed consent forms and survey. Based on school counselor/administrator feedback, information about the survey was announced during daily announcements at the respective schools and the parental consent form was disseminated for students to share with their parents prior to email distribution of the on-line forms. Neither school had an active parent organization. The target population consisted of approximately 250 middle and high school students in the pre-college program and 250 middle and high school students who did not participate in the program, for a combined total of 500 prospective participants. The following procedures were implemented for the study:

1. The researcher provided an overview of the study to prospective parents, students, and school personnel and distributed hard copies of the parental consent form with the website address for the parental consent form and the PCSCS.
2. Participants were encouraged to complete the forms within a two-week timeframe.
3. An amendment was submitted by the researcher and approved by the host institution and the school system waiving the need for parental consent because of a low response rate. The school system approved the request and granted a waiver for parental consent. Hard copies of the PCSCS were distributed to

teachers at each respective institution for completion during Saturday Academy/school day activities.

4. The researcher monitored responses through feedback from program/school personnel.
5. The researcher disabled the on-line consent form and survey after two weeks.
6. The researcher collected completed hard copies of the PCSCS from each participating entity.
7. The researcher used SPSS 15 to determine the reliability (Cronbach alpha) and validity (Pearson *r*) of the PCSCS. A one-way analysis of variance (ANOVA) was calculated to determine if there is a significant difference between the independent variables, association membership, parental involvement; peer relationships, teacher involvement, school counselor involvement, mentoring, media use, school environment, residential stability, and the dependent variable (pre-college social capital index, a composite variable derived from all responses on the survey). Also, analysis involved determining whether student achievement (grade point average) and social capital (social capital index) were correlated.
8. A report was provided to the pre-college program coordinator and the school administrators who facilitated the survey for their review. Subsequently,rewards for participation were given. College laboratory tours were provided during the 2012 Summer Scholars Program for the grade-level with the highest number of respondents from the pre-college program. An application fee waiver for the pre-college program was disseminated through email to the parents from the participating middle and high schools.

Treatment of the Data

Data collected were kept confidential. No identifiers were used for data analysis and/or reports. Participant names only appeared on the informed consent forms which were not matched with the completed survey. The data were stored electronically with only the researcher having access to the data. The informed consent form information was stored digitally on a secure server.

This chapter shared the procedures and methodology used for this study. Attention was given to the purpose of the study, research questions, and hypotheses that guided the identification of the sample and the research instrument used. The survey contains subscales that are supported in research literature for measuring social capital. Procedures were provided for data collection, security, and analysis. The next chapter shares the results from the analysis in relation to the research questions and hypotheses that guided this research.

CHAPTER 4: RESULTS

The purpose of this study is to examine the impact of a college preparatory program on social capital, student achievement, and college matriculation as middle and high school students prepare for college. The sample used in this study consisted of 457 middle and high school students with 178 participants from the Dr. Mae Jamison STEM Pre-College Program at Mary McLeod University and 279 participants from Fannie Lou Hamer High School and Vivian Malone Jones Middle School combined. Participation in the pre-college program was the determining factor for comparison and analysis between the two groups. Both groups represent students from a large, metropolitan, southeastern United States school district. The pre-college program provides mathematics, science, technology, and engineering (STEM) enrichment for students who have been traditionally underrepresented in these fields of study. The purpose of the program is to facilitate successful matriculation to college and pursuit of STEM-related majors and careers.

The school administrators and the pre-college program coordinator were given the option of using paper-and-pencil surveys or an electronic form for disseminating the instrument to the participants. Only 22 electronic surveys were completed and all of these forms were completed by pre-college program participants. The school administrators favored the paper surveys because they believed this method would yield a higher rate of return. The Pre-College Social Capital Survey, or PCSCS, assessed student

social capital in relation to education attainment and college matriculation, and how the multiple factors of social capital related to their demographic information. Demographics included grade level, gender, and grade point average. More importantly, the survey was used to identify differences in social capital among pre-college program participants and non-participants and to verify social capital's relationship with student achievement, operationalized as grade point average.

The data collected from the comparison groups were used to answer the following research questions:

1. What are the reliability and validity statistics associated with the Pre-College Social Capital Survey?
2. Is there a significant difference in social capital for students who participate in the Dr. Mae Jamison STEM Pre-College Program versus students with similar backgrounds who do not participate in the program?
3. Is there a relationship between social capital and student achievement for students who participate in the pre-college program and non-participants?

This chapter has five major sections. The first section consists of an overview of the descriptive statistics of the dependent variables and statistical analysis associated with determining the reliability and validity of the PCSCS. The second section provides descriptive statistics and independent variable data regarding the participants in the study. The third section highlights whether or not there is a difference in social capital for students who participate in the pre-college program versus non-participants. The fourth section delineates any relationship determined between social capital and student

achievement among the comparison groups. The last section will provide a summary of the data analysis and findings that are related to the analysis.

Dependent Variables

All analyses were conducted using Statistical Package for the Social Sciences Version 15.0, or SPSS 15. The mean and standard deviation were calculated for each of the dependent variables which included association membership, parental involvement, peer relationships, teacher involvement, school counselor involvement, mentoring, media use, school environment, residential stability, program effect, and social capital. The average mean score is 3.62 and the average standard deviation is 0.72 for the dependent variables. A complete listing of means and standard deviations are provided in Table 1.

Table 1

Descriptive Statistics for Dependent Variables

	Mean	Standard Deviation	Reliability Coeficient
association	3.35	0.74	0.81
parent	3.79	0.75	0.80
peer	3.92	0.72	0.81
teacher	3.47	0.72	0.77
counselor	2.77	1.11	0.93
mentor	2.69	0.54	0.98
media	3.80	0.54	0.69
school	4.28	0.64	0.75
resident	4.13	0.85	0.90
pcscs	3.53	0.48	0.92
program_effect	4.09	0.81	0.90

N=457

Reliability and Validity

In order to determine the Pre-College Social Capital Survey's, or PCSCS's, reliability, a reliability coefficient was calculated for each construct using Cronbach's alpha. Each subscale and its corresponding Cronbach's alpha value are as follows: association membership ($\alpha = .81$); parental involvement ($\alpha = .80$); peer relationships ($\alpha = .81$); teacher involvement ($\alpha = .77$); school counselor involvement ($\alpha = .93$); mentoring ($\alpha = .98$); media use ($\alpha = .69$); school environment ($\alpha = .75$); residential stability ($\alpha = .90$); and program effect ($\alpha = .90$). These reliability coefficients are also found in Table 1. Except for media use and school environment, each construct has a reliability coefficient value of .80 or higher. Media use, as a subscale, has 10 items on the survey, more than any other construct. These items measured the degree to which participants used television, newspapers, internet, radio, and books for entertainment and information purposes. Mitigating factors included the following: participant level of access to each form of media; and no clear delineation between entertainment and information acquisition through each form of media. Also, the use of a Likert-type scale to measure media use may have been less than ideal. School environment, as a subscale, has three items on the PCSCS that ask the student to rate school delivery of an adequate education, extra-curricular activities, and a safe place in general. Both subscales, media use and school environment, did not rate their impact on course, college, and career options as consistently measured throughout the other constructs. In general, the PCSCS is rated highly reliable with eight of ten constructs with a Cronbach's alpha value of .80 or higher.

Construct validity for the PCSCS was determined by calculating the relationship between the subscales within the PCSCS. A Pearson *r* value was calculated between each variable for analysis to determine if a correlation is significant at the .01 level, two-tailed. Table 2 provides the Pearson *r* values for each interaction. All interactions were found to be significant except for residential stability and teacher involvement; residential stability and counselor involvement; and residential stability and mentoring. However, a significant relationship was determined between residential stability and social capital ($r = .33$, $p = .01$, two-tailed). Similarly, Brown (1993) found significant relationships at the .05 level using Chi square analyses for three out of four constructs including media use, parental involvement, and teacher involvement. Brown (1993) determined no significant relationship between residential stability and adult socioeconomic attainment for African-Americans. He concluded, counter to Coleman's (1988) work, that residential stability does not appear to operate as a form of social capital where adult socioeconomic attainment is concerned (Brown, 1993).

Table 2

Correlations Between Dependent Variables

	association	parent	peer	teacher	counselor	mentor	media	school	resident	pcscs	program_effect
association		.044**	0.37**	0.35**	0.30**	0.33**	0.28**	0.28**	0.25**	0.69**	0.41**
parent			0.35**	0.33*	0.28**	0.26**	0.33**	0.19**	0.28**	0.64**	0.38**
peer				0.50**	0.33**	0.27**	0.29**	0.14**	0.12**	0.62**	0.48**
teacher					0.46**	0.33**	0.32**	0.19**	0.08	0.67**	0.29**
counselor						0.49**	0.27**	0.13**	-0.01	0.65**	0.27**
mentor							0.23**	0.13**	0.05	0.68**	0.30**
media								0.26**	0.19**	0.59**	0.35**
school									0.45**	0.39**	0.23**
resident										0.33**	0.20**
pcscs											0.53**
program_effect											

N=457

**. Correlation is significant at the 0.01 level (2-tailed).

Independent Variables

The participants in this study were middle and high school students from a large, metropolitan, southeastern United States school district. Four hundred and fifty-seven students participated in the study with 178 participants from the Dr. Mae Jamison STEM Pre-College Program and 279 participants from Fannie Lou Hamer High School and Vivian Malone Jones Middle School combined. Twenty-two of the 178 pre-college program participants completed the survey on-line. Four hundred and thirty-five paper surveys were completed for this study. The pre-college program recruits underrepresented groups in STEM-related careers and majors, with a traditional focus on females and minorities. Fannie Lou Hamer High School and Vivian Malone Jones Middle School are feeder schools for the pre-college program, thus they both have similar demographics. The study had 324 African-American participants, 26 were White, 33 were Hispanic, 16 were Asian, and 29 participants identified themselves as "other." There were 264 females and 171 males who completed the survey. A majority of participants were in the 10^{th} grade (99) and 12^{th} grade (84). The other grade levels had the following number of participants: sixth grade (25); seventh grade (13); eighth grade (14); ninth grade (70); and eleventh grade (9). An overwhelming number of students indicated on the survey that their grade point average was in the range of 3.0 to 4.0 (263) while 84 students indicated that their grade point average was in the range of 2.0 to 3.0. Only six students stated that their grade point average was in the range of 1.0 to 2.0 and no students indicated a grade point average of 0.0 to 1.0. A complete listing of

participant demographic data that reflects ethnicity, gender, grade level, and grade point average is available in Table 3.

Table 3

Participant Demographics

Characteristics	Frequency	Percentage
Ethnicity		
African-American	324	70.9
White	26	5.7
Hispanic	33	7.2
Asian	16	3.5
Other	29	6.3
Gender		
Male	171	37.4
Female	264	57.8
Grade Level		
6	25	5.5
7	13	2.8
8	14	3.1
9	70	15.3
10	99	21.7
11	9	2.0
12	84	18.4
Grade Point Average		
0.0 to 1.0	0	0.0
1.0 to 2.0	6	1.3
2.0 to 3.0	84	18.4
3.0 to 4.0	263	57.5

N = 457

Differences in Social Capital between Comparison Groups

The Pre-College Social Capital Survey (PCSCS) survey was given to Dr. Mae Jamison STEM Pre-College Program participants and middle and high school students who do not participate in the program. The pre-college program participants served as a comparison group. Middle and high school students from Vivian Malone Jones Middle School and Fannie Lou Hamer High School who do not participate in the pre-college program served as the second comparison group.

The second research question of this study, "Is there a significant difference in social capital for students who participate in the Dr. Mae Jamison STEM Pre-College Program versus students with similar backgrounds who do not participate in the program?" guides the analysis for this section. Prior to the data analysis, the data were screened for outliers and normality of distribution. For subscales association, parent, peer, teacher, mentor, and media, the entry was deleted if more than one response was missing,. For subscales counselor, school, resident, and program effect, if any responses were missing, the entry was deleted. There were no outliers and both kurtosis and skewness tests indicated no serious departures for normality (all coeficients resulted in absolute values of less than one). Levene's test for homogeneity of group variance was nonsignificant.

A one-way analysis of variance was used to detect mean differences in social capital between students who participate in the pre-college program versus students with similar backgrounds who do not participate in the program. The sample sizes, means, standard deviations, and reliability coeficients for the two groups are reported in Table 1. The results showed a statistically significant difference in social capital F (1,235) = 4.90, p = .03, η^2 = .02 between the comparison groups. Also, there is a statistically significant

difference in social capital between males and females, $F(1, 235) = 4.95$, $p = .01$, $\eta^2 = .04$. The Scheffe post hoc test indicated that the Dr. Mae Jamison STEM Pre-College Program participants had a higher level of social capital ($M = 3.74$, $SD = .08$) than the non-participant students from Fannie Lou Hamer High School and Vivian Malone Jones Middle School ($M = 3.35$, $SD = .05$). The females from both groups had a higher level of social capital ($M = 3.58$, $SD = .06$) than the males from both groups ($M = 3.36$, $SD = .06$). The pre-college program females ($M = 3.72$, $SD = .45$) had higher levels of social capital than the pre-college program males ($M = 3.69$, $SD = .46$). The comparison group females ($M = 3.57$, $SD = .46$) had higher levels of social capital than the males ($M = 3.40$, $SD = .48$). No statistical difference in social captial was found for ethnicity, $F(1,235) = .61$, $p = .65$, $\eta^2 = .01$. African-Americans had the greatest amount of social capital ($M = 3.59$, $SD = .05$) compared to Whites ($M = 3.52$, $SD = .12$), Hispanics, ($M = 3.36$, $SD = .11$), Asian ($M = 3.18$, $SD = .16$), and those self-identifying as "Other" ($M = 3.37$, $SD = .10$). No statistical difference in social captial was found for grade level, $F(1,235) = .82$, $p = .56$, $\eta^2 = .20$. Eleventh graders had the greatest amount of social capital ($M = 3.86$, $SD = .18$) compared to sixth graders ($M = 3.34$, $SD = .11$), seventh graders, ($M = 3.55$, $SD = .14$), eighth graders ($M = 3.66$, $SD = .14$), ninth graders ($M = 3.41$, $SD = .10$), tenth graders ($M = 3.29$, $SD = .09$),and twelfth graders ($M = 3.54$, $SD = .08$).

Social Capital and Student Achievement

In an effort to determine if social capital is significantly related to student achievement, the analysis examined the relationships between student achievement, operationalized as student grade point average, and social capital, operationalized as the composite mean value of association membership, parental involvement, peer

relationships, teacher involvement, school counselor involvement, mentoring, media use, school environment, and residential stability. No significant relationship was found between student achievement and social capital, (r = .01, p = .89, two-tailed).

This chapter provided the statistical analysis and results associated with determining the reliability and validity associated with the PCSCS. This instrument was determined to be reliable and valid for the purpose of this study. The one-way analysis of variance determined a significant difference in social capital for students that participated in the program and students who did not participate. No significant difference in social capital and student achievement were found. The next chapter shares the researcher's conclusions from this study, implications for educational stakeholders, recommendations for future research, and personal reflections.

CHAPTER 5: CONCLUSIONS

The focus of this study was the impact of a college preparatory program on social capital, student achievement, and college matriculation as middle and high school students prepare for college. The sample used in this study consisted of 457, sixth through twelfth grade students with 178 participants from the Dr. Mae Jamison STEM Pre-College Program and 279 participants from Fannie Lou Hamer High School and Vivian Malone Jones Middle School combined. The effects of participation in the pre-college program were the determining factor for analysis between the two groups. Both groups represent students from a large, metropolitan, southeastern United States school district. The pre-college program provides STEM enrichment for students who have been traditionally underrepresented in college access and advanced careers.

The achievement and graduation gaps between student groups in the United States mirror divisions between race, class, and gender in society. In an effort to address K-12 educational deficits, many colleges and universities host special programs that provide remediation, facilitate mentorship, and promote educational access. With a focus on STEM and college matriculation, the pre-college program provides Saturday enrichment and summer experiences for its participants. The purpose of this study is to examine a common by-product of participation in college preparatory programs, increases in social capital and student achievement.

This study has investigated the following questions:

1) What are the reliability and validity statistics associated with the Pre-College Social Capital Survey?
2) Is there a significant difference in social capital for students who participate in the pre-college program versus students with similar backgrounds who do not participate in the program?
3) Is there a relationship between social capital and student achievement for students who participate in the pre-college program and non-participants?

These questions were answered by administering the Pre-College Social Capital Survey (PCSCS) survey to current pre-college program participants and middle and high school students who do not participate in the program.

A reliability coefficient was calculated for each variable using Cronbach's alpha to determine the Pre-College Social Capital Survey's, or PCSCS's, reliability. The PCSCS is rated highly reliable with eight of ten constructs with a Cronbach's alpha value of .80 or higher. Validity for the PCSCS was determined by calculating the magnitude and direction of the association between the subscales within the PCSCS. A Pearson *r* was calculated between each variable for analysis to determine if a correlation is significant at the .01 level, two-tailed. All interactions were found to be significant except for residential stability and teacher involvement; residential stability and counselor involvement; and residential stability and mentoring. However, a significant relationship was determined between residential stability and social capital ($r = .33$, $p = .01$, two-

tailed). The PCSCS was, therefore, found to be a reliable and valid instrument for this study.

In order to detect mean differences in social capital between students who participate in the Dr. Mae Jamison STEM Pre-College Program versus students with similar backgrounds who do not participate in the program, a one-way analysis of variance was used. The results showed statistically significant difference in social capital between the comparison groups. The pre-college program participants had a higher level of social capital than the non-participants. Since the participants in this study shared many of the same characteristics including schools, socio-economic status, neighborhoods, and race, the pre-college program served as the major discriminant between the comparison groups. The findings from this study validates the pre-college program as a contributor to social capital for participants, therefore, increasing the number of social networks and resources conducive to educational attainment and college matriculation.

Also, a statistically significant difference in social capital was found between males and females. Consistently, within and between groups, the females had higher levels of social capital than the males. The pre-college program females had higher levels of social capital than the pre-college program males. The comparison group females had higher levels of social capital than the males. Participation in this study mirrored pre-college program enrollment as females outnumbered males, almost two to one. Pre-college program recruitment and retention should focus on males because of these differences.

No statistical difference in social captial was found for ethnicity or grade level. African-Americans had the highest level of social capital followed by Whites, Hispanics, and Asians. Eleventh graders had the greatest amount of social capital followed by eighth graders, seventh graders, twelth graders, ninth graders, sixth graders, and tenth graders (M = 3.29, SD = .09). No recommendations are provided because of the statistical statiscal insignificance between these groups.

Student achievement, operationalized as student grade point average, and social capital, operationalized as the composite mean value of association membership, parental involvement, peer relationships, teacher involvement, school counselor involvement, mentoring, media use, school environment, and residential stability were analyzed to determine if a correlation existed. No significant relationship was found between student achievement and social capital. Future use of the PCSCS requires alternative methods of collecting grade point averages for the participants. Participants could select one of the following choices in regard to gpa: 0 to 1.0; 1.0 to 2.0; 2.0 to 3.0; and 3.0 to 4.0. These potential responses were problematic for several reasons. The range of responses was not specific. Grade point averages are calculated to the one hundredths decimal place and the response options did not capture this information. The beginning and end of each range were repetitive, i.e., a grade point average of 3.0 could have been indicated by selecting 2.0 to 3.0 or 3.0 to 4.0. Student likelihood of providing an accurate representation of their grade point average may have also been diminished the following reasons: the personal nature of a student's grade point average and reluctance to divulge it; the instrument's failure to request the current quarterly grade point average as opposed to semester and/or previous year's cumulative gpa; and the specific time in which the

survey was administered. The PCSCS was administered to students prior to their receipt of the first quarterly report card, therefore, further hampering accurate reporting.

Is social capital positively linked to educational attainment? Dika and Singh (2002) examined 13 studies that explored a relationship between social capital and educational attainment. They found that social capital is positively associated with high school graduation and college enrollment. Parent-teen interactions, traditional family structure, and parents' encouragement and expectations are positively related to college enrollment and high school graduation (Furstenberg & Hughes, 1995; Yan, 1999). Intergenerational closure, number of friends known by parent, strong help network of the parent, parental involvement in the school, friends' educational expectations, and weekly friend interactions have a positive relationship with high school graduation and college enrollment (Furstenberg & Hughes, 1995; Yan, 1999). These two outcomes are negatively related to moving (Hofferth et al., 1998). Also, social capital is positively related to years of schooling (Dika & Singh, 2002).

Is social capital positively related to educational achievement? Social capital is positively linked to educational achievement (Dika & Singh, 2002; McNeal, 1999; Pong, 1998; Sun, 1998, 1999). Standardized test scores have been linked to social capital indicators. The number of close friends attending the same school (Morgan & Sorensen, 1999), participation in school and community organizations (Sun, 1998, 1999), and regular interactions with peers (Pribesh & Downey, 1999) are all positively associated with achievement scores. Grades are positively associated with parent-teen discussion (Israel et al., 2001; Lopez, 1996; Wright et al., 2001), parent monitoring (Israel et al.; Lopez), parents' expectations (Israel et al.; Lopez), intergenerational closure (Israel et

al.), and parent-school involvement (Israel et al.; Lopez; Valenzuela & Dornbusch, 1994). Stanton-Salazar and Dornbusch (1995) examined institutional –based social capital as an outcome of grades. They found grades to be positively related to three different informational network variables that included: number of non-kin weak ties, number of school-based weak ties, and proportion of non-Mexican origin members.

Implications for Parents, Policy Makers, and Educators

This study has demonstrated the impact of a college preparatory program on middle and high school students as they prepare for college. Social capital, in general, represents multiple networks and resources that are necessary for middle and high school success and college matriculation. Within these networks and resources lie several implications for school reform to promote educational success. These suggestions are rooted in increased opportunities for learning and contact with institutional agents who consistently make a difference in the lives of children.

The higher levels of social capital for pre-college program participants versus non-participants indicate the benefits of after-school enrichment and extended-day school hours for students. The review of literature supports a positive relationship between student achievement and social capital. Based on these findings, the implementation of out-of-school enrichment activities and extended-day school hours would be most beneficial to students with limited access to resources at home. Students who are engaged in extra-curricular activities are more likely to graduate from high school and matriculate to college. Lower incidences of crime and violence are reported for students who are involved in community and school-based activities. Current reductions in educational funding have resulted in limited extra-curricular activities and academic

support programs for students who need them most. Increased opportunities for exposure to positive role models, academically-driven peers, and resources conducive to educational attainment and advancement have the potential to significantly reduce the current gaps in achievement and graduation that are prevalent throughout American schools.

The pre-college program, funded primarily through the state general assembly, has not had a significant increase in funding since its inception. Program quality and impact are limited as a result of budget constraints. Throughout its more than 25 years of service, the pre-college program has received the 1998 United States Presidential Award for Mentoring, has been the recipient of numerous National Science Foundation grants, and has had students win first place awards at the Intel International Science and Engineering Fair. Students have matriculated to Yale Graduate School and Duke Medical School. This study demonstrates the success of the program in supplementing current public school programs in spite of limited funding resources. Therefore, an increase in budget allocations to college preparatory programs such as the pre-college program is imperative to meeting student needs, educational aspirations, and college accessibility.

Educational program offerings and opportunities play a crucial role in the growth and development of students. Educational program success is extremely dependent upon the network of professionals and caregivers responsible for content delivery and nurturing needed for students to excel. This study has demonstrated the important role of mentors, teachers, parents, and community stakeholders in the advancement of students from high school to college. On-going and current professional development for school

professionals must be prioritized. As multiple studies have demonstrated, the single most important variable in a child's growth and development is a loving and caring teacher who is accountable to content standards. As society continues to evolve, so must the teaching techniques and skills necessary for successful instruction.

Recommendations for Future Research

There are several recommendations for future research. First, a longitudinal study of pre-college program participation should be conducted incorporating college matriculation and success. Past quantitative studies involving social capital and educational attainment have involved national data sets that are not specifically designed to capture the influence of social capital on educational achievement, attainment, and college entrance. Feedback from pre-college program alumni would provide valuable data regarding higher education success.

Second, a targeted exploration into the development of social capital, access to STEM enrichment, and preparation for college for other racial minorities including Hispanics and Native Americans would be beneficial. Hispanic and Native American populations in this state are growing and have specific social and academic needs related to their cultures and access to resources. Similar to African-Americans, they represent a vastly underrepresented group in STEM majors and fields. Concerted efforts to study and implement programs conducive to their cultural and educational needs would be advantageous to society.

Third, alternative educational programs such as the national Knowledge Is Power Program (KIPP) embrace an extended school day, smaller classroom populations, and college preparatory curriculum. The current charter school movement also embraces

non-traditional techniques with greater autonomy. Obviously, studies have been conducted to compare educational outcomes for these alternative schools versus public institutions. Limited research has been conducted on social capital and pursuit of STEM-related majors and careers from these secondary programs. Pursuits in this arena would significantly contribute to the literature.

With such a heavy emphasis on assessment and student performance, there remains a dire need to explore the individual cognitive and social needs of K-12 students. School and educational program success is contingent upon the enrichment of the whole child, not his or her ability to take a test, quickly recall information, and verbalize facts. Critical thinking skills that incorporate collaboration facilitate solutions in a growing technical world.

Personal Reflections

I have been involved and personally connected to the pre-college program since its inception. My participation began as a middle school student and has included such roles as tutor, teacher, assistant coordinator, and coordinator. In each of these capacities, I have witnessed my own social networks and resources evolve in a manner conducive to the needs of the program and my personal growth and development. As a result of my involvement with the program, I have developed life-long relationships that have transcended location, career changes, and life status. These relationships embody Coleman's (1988) forms of social capital that include obligations and expectations, information channels, and social norms. There are countless professionals who have played a role in students attending and winning at the Intel International Science and Engineering Fair, who have facilitated workshops and videoconferences with NASA

professionals, who have given up their Saturday mornings to demonstrate dissection of animals, and who have mentored students during summer internships and continue to do so as these students progress through college. These formal and informal interactions between professionals and students have been the impetus for students, such as myself, to pursue STEM majors and careers, but more importantly, these interactions are why many graduates from the program give back. I served for 10 years as the coordinator for the pre-college program and many of my students would return to work as assistants, tutors, and volunteers. In many of my discussions with graduates from the program, students spoke highly of the instruction they received, but consistently referred to those informal interactions that facilitated trust between students and leaders, that exposed them to new environments and ideas, and reinforced behaviors conducive to their personal success. Program quality should be measured by not only student academic performance, but also by their ability to garner resources, establish relationships, and develop skills that are necessary for educational attainment and career advancement. This was the impetus for this study.

Summary

America is faced with unprecedented challenges in meeting the growing demands of a technical society with an unstable economy and homogenous populations in STEM majors and careers. These circumstances represent the condition of education, as school districts struggle to facilitate learning in re-segregated schools with shrinking budgets. The lack of minorities in STEM-related fields yields untapped human resources for solving many of society's challenges. Diversity in the workforce provides different perspectives, methods, and cognitive abilities in addressing many cultural, social,

economic, and technical challenges that are present in today's global world. For these reasons, research committed to minority inclusion in STEM at the secondary, collegiate, and professional level is not only beneficial, but necessary. There are a multitude of factors that contribute to the education of the child. These factors include the following: socio-economic status, class, race, gender, parent education, peer group characteristics, school resources, and neighborhood. Social capital represents a convergence of some these factors and is a worthy paradigm of continued exploration within the context of STEM educational outcomes. Community stakeholders, school administrators, teachers, policymakers, practitioners, and parents must make a concerted effort to address these deficits in STEM human capital, in particular, among underrepresented groups to ensure this country's future prosperity

REFERENCES

Ainsworth, J. (2002). Why does it take a village? The mediation of neighborhood effects on educational achievement. *Social Forces,* 81, 117-152.

Alexander, K. L., Entwisle, D. R., & Thompson, M. (1987). School performance, status relations, and thestructure of sentiment: Bringing the teacher back in. *American Sociological Review,* 52, 665–682.

Anderson, E. (1999). *Code of the Street: Decency, Violence, and the Moral Life of the Inner City*. New York: W.W. Norton.

Anyon, J. (2005). *Radical possibilities: public policy, urban education, and a new social movement*. New York: Routledge.

Anyon, J. (1997). *Ghetto schooling: a political economy of urban educational reform.* New York: Teachers College Press.

Baker, W. (1983). Floor Trading and Crowd Dynamic. *Social Dynamics for Financial Markets*. Greenwich, Conn.: JAI.

Ballantine, J. & Spade, J. (2008). Schools and society: a sociological approach to education. Thousand Oaks, CA: Sage Publications, Inc.

Beaudoin, C. E., & Thorson, E. (2006). The social capital of Blacks and Whites: Differing effects of the mass media in the United States. *Human Communication Research, 32*(2), 157-177.

Beaudoin, C. E., & Thorson, E. (2004). Social capital in rural and urban communities: Testing differences in media effects and models. *Journalism & Mass Communication Quarterly, 81*(2),378-399.

Beaudoin, C. & Thorson, E. (2006). The social capital of blacks and whites: Differing effects of the mass media in the United States. Human Communication Research, ISSN 0360-3989. Internation Communication Association.

Becker, G. (1964). *A Theoretical and Empirical Analysis with Special Reference to Education*. New York: National Bureau of Economic Research.

Bergstrom, B. (1992). *Ability measure equivalence of computer adaptive and pencil and paper tests: a research synthesis.* Retrieved August 8, 2011 from ERIC database (ED 377228).

Bohnert, A. M., Aikins, J. W., & Edidin, J. (2007). The role of organized activities in facilitating social adaptation across the transition to college. *Journal of Adolescent Research*, 22, 189–208.

Bohnert, A. M., Richards, M. H., Kolmodin, K. E., & Lakin, B. L. (2008). Young urban African adolescents' experience of discretionary time activities. *Journal of Research on Adolescence*, 18,517–539.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York: Greenwood Press.

Bourdieu, P., & Passeron, J. C. (1977). *Reproduction in education, society, and culture*. Beverly Hills, CA: Sage Publications.

Bourdieu, P., & Wacquant, L. J. D. (1992*). An invitation to reflexive sociology*. Chicago:University of Chicago Press.

Bourdieu, P. (1973). Cultural Reproduction and Social Reproduction. *Knowledge, Education, and Social Change: Papers in the Sociology of Education.* Edited by Richard Brown. London: Tavistock. p. 71-112.

Brehm, J. & Rahn, W. 1997. Individual-Level Evidence for the Causes and Consequences of Social Capital. *American Journal of Political Science.* 41:999-1023.

Brown, B. (1993). *Analysis of men: Chapter one. A descriptive analysis relating risk, social capital, and early life course outcomes to adult socioeconomic attainment among at-risk male youth*. Washington, DC: Child Trends.

Bryan, J., Moore-Thomas, C., Day-Vines, N., & Holcomb-McCoy, C. (2011). School counselors as social capital: The effects of high school college counseling on college application rates. *Journal of Counseling and Development*, 89, 190-199.

Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models*. Thousand Oaks, CA: Sage Publications.

Cabrera, A. F. & La Nasa, S. M. (2000). *Understanding the college choice of disadvantaged students. New Directions for Institutional Research*. San Francisco: Jossey-Bass.

Carbonaro,W. J. (1998). A little help from my friend's parents: Intergenerational closure and educational outcomes. *Sociology of Education*, 71, 295–313.

Card, D. & Krueger, A. (1992). Does School Quality Matter? Returns to Education and the Characteristics of Public Schools in the United States. *Journal of Political Economy* 100(February): l-40.

Cabrera, A. F., & La Nasa, S. M. (2000). Overcoming the tasks on the path to college for America's disadvantaged. In A. F. Cabrera & S. M. La Nasa (Eds.), *Understanding the college choice of disadvantaged students* (pp. 31– 44). San Francisco: Jossey-Bass.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94 (Suppl.), 95–120.

Cooper, H., Valentine, J. C., Nye, B., & Lindsay, J. J. (1999). Relationships between five after-school activities and academic achievement. *Journal of Educational Psychology*, 91, 369–378.

Corwin, Z. B., Venegas, K. M., Oliverez, R M., & Colyar, J.E. (2004). School counsel: How appropriate guidance affects educational equity. Urban Education, 39, 442-457. doi: 10.1177/0042085904265107

Couper, M. (2008). Designing effective web surveys. New York: Cambridge.

Croninger, R. (1997). *Does social capital influence students' academic development. Implications for students at risk of educational failure*. Unpublished dissertation. University of Michigan, Ann Arbor.

Csikszentmihalyi, M., & Kleiber, D. A. (1991). Leisure and selfactualization. In B. L. Driver, P. J. Brown, & G. L. Peterson (Eds.), *Benefits of leisure* (pp. 91–102). State College: Venture.

Csikszentmihalyi, M., & Larson, R. (1984). *Being adolescent: Conflict and growth in the teenage years*. New York: Basic Books.

Darling, N. (2005). Participation in extracurricular activities and adolescent adjustment: Cross-sectional and longitudinal findings. *Journal of Youth and Adolescence*, 34, 493–505.

Darling, N., Caldwell, L. L., & Smith, R. (2005). Participation in school-based extracurricular activities and adolescent adjustment. *Journal of Leisure Research*, 37, 51–76.

Das, M., Ester, P., & Kaczmirek, L. (2011). Social and behavioral research and the internet: advances in applied methods and research strategies. New York: Routledge.

Dika, S. L., & Singh, K. (2002). Applications of social capital in educational literature: A critical synthesis. *Review of Educational Research*, 72, 31–60.

Dillman, D., Smyth, J., Christian, L. & O'Neill, A. (2008). Using the internet to survey small towns and communities: limitations and possibilities in the early 21st century. *American Behavioral Scientist* 53(9), 1423-1149.

Dillman, D. (2000). Mail and internet surveys: the tailored design method. New York: John Wiley & Sons.

DiMaggio, P., & Mohr, J. (1985). Cultural capital, educational attainment, and marital selection. *American Journal of Sociology*, 90, 1231–1261.

DiPaula, J. (2010, December). Expecting the Best. *Principal Leadership*. Reston, VA: National Association of Secondary School Principals.11(4): 40-44.

Dubas, J. S., & Snider, B. A. (1993). The role of community-based youth groups in enhancing learning and achievement through non-formal education. In R. M. Lerner (Ed.), *Early adolescence: Perspectives on research, policy, and intervention* (pp. 159–174). Hillsdale: Erlbaum.

Duncan. G. (1994). Families and neighbors as sources of disadvantage in the schooling decisions of white and black adolescents. *American Journal of Education*, 103, 20-53.

Durlak, J. A., & Weissberg, R. P. (2007). The impact of after-school programs that promote personal and social skills: Collaborative for Academic, Social, and Emotional Learning (CASEL).

Dworkin, J. B., Larson, R., & Hansen, D. (2003). Adolescents' accounts of growth experiences in youth activities. *Journal of Youth and Adolescence*, 32, 17–26.
Eccles, J. S., & Gootman, J. A. (2002). *Community programs to promote youth development*. Washington, D.C.: National Academy Press.

Dyk, P. H., & Wilson, S. M. (1999). Family-based social capital considerations as predictors of attainments among Appalachian youth. *Sociological Inquiry*, 69(3), 477–503.

Ehrenberg,R. G., Goldhaber, D. D.,&Brewer, D. J. (1995).Do Teachers' race, gender, and ethnicity matter? Evidence from the National Educational Longitudinal Study of 1988. *Industrial and Labor Relations Review*, 48, 547–561.

Ensminger. M., Lamkin. R., P., & Jacobson. N. (1996). School leaving: A longitudinal perspective including neighborhood effects. *Child Development*, 67, 2400-2416.

Erickson, L., McDonald, S., & Elder, G. (2009, October). Informal mentors and education: Complementary or compensatory resources? *Sociology of Education*, 28:4, 344-367.

Farmer-Hinton, R., Raquel, L., & Adams, T. (2006). Social capital and college preparation: Exploring the role of counselors in a college prep school for Black students. *Negro Educational Review*, 57:1-2, 101-116.

Ferguson, R. F. (2003). Teachers' perceptions and expectations and the black–white test score gap. *Urban Education*, 38, 460–507. doi:10.1177/0042085903038004006

Ferguson, R. F. (1998). Can schools narrow the black–white test score gap? In C. Jencks & M. Phillips (Eds.), *The black–white test score gap* (pp. 318–374). Washington D.C.: Brookings Institution Press.

Fredricks, J. A., & Eccles, J. S. (2006a). Extracurricular involvement and adolescent adjustment: Impact of duration, number of activities, and breadth of participation. *Applied Developmental Science*, 10, 132–146.

Fredricks, J. A., & Eccles, J. S. (2006b). Is extracurricular participation associated with beneficial outcomes? Concurrent and longitudinal relations. *Developmental Psychology*, 42, 698–713.

Fredrickson, B. L. (2006). The broaden-and-build theory of positive emotions. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), A life worth living: *Contributions to positive psychology* (pp. 85–103). New York: Oxford University Press.

Freeman, K. (1997). Increasing African Americans' participation in higher education: African American high-school students' perspectives. *Journal of Higher Education*, 68, 523–550.

Fritch, W. S. (1999a). *Large or small? Public or private? What matters most in the formation of social capital.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Fritch, W. S. (1999b). *An overlooked role of high school athletics: The formation of social capital through parental involvement.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Furstenberg, F., & Hughes, M. (1995). Social capital and successful development among at-risk youth. *Journal of Marriage and the Family*, 57(3), 580–592.

Gay, L., Mills, G., & Airasian, P. (2006). Educational research: competencies for analysis and applications, 8th edition. Upper Saddle River, NJ: Pearson Prentice Hall.

Garner. C., & Raudenbush, S. (1991). Neighborhood effects on educational attainment: A Multi-level analysis. *Sociology of Education*. 64, 251—262.

Granovetter, M. (1985). Economic Action, Social Structure, and Embeddedness. *American Journal of Sociology* 91:481-510.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1380.

Grewal, D. D., & Salovey, P. (2006). Benefits of emotional intelligence. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), A life worth living: *Contributions to positive psychology* (pp. 104–119). New York: Oxford University Press.

Gwaltney, C., Shields, A., & Shiffman, S. (March/April 2008). Equivalence of electronic and paper-and-pencil administration of patient-reported outcome measures: a meta-analytic review. *Value in Health* 11(2), 322-333.

Hagan, J., MacMillan R., & Wheaton, B. (1996). New kid in town: Social capital and the life course effects of family migration in children. *American Sociological Review* 61:368–385.

Hansen, D. M., Larson, R. W., & Dworkin, J. B. (2003). What adolescents learn in organized youth activities: A survey of self-reported developmental experiences. *Journal of Research on Adolescence*, 13, 25–56.

Hanson, S. (1994). Lost talent: Unrealized educational aspirations and expectations among U.S. youths. *Sociology of Education*, 67:3, 159-183.

Hawkins, D. A., & Clinedinst, M. E. (2007). State of college admission. Alexandria, VA: National Association for College Admission Counseling. Retrieved from http://admin.nacacnet.org/PublicationsResources/Research/Documents/07StateofAdmission.pdf

Hofferth, S. L., Boisjoly, J., & Duncan, G. J. (1998). Parents' extrafamilial resources and children's school attainment. *Sociology of Education*, 71, 246–268.

Horn, L. J. (1998). *Confronting the odds: Students at risk and the pipeline to higher education*. (NCES Report No. 98-094). Washington, DC: U.S. Department of Education.

Horvat, E. M. (2001). Understanding equity and access in higher education: The potential contribution of Pierre Bourdieu. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 16, pp. 195–238). New York: Agathon Press.

Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding student college choice. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 5, pp. 231–288). New York: Agathon Press.

Hossler, D., Schmit, J., & Vesper, N. (1999). *Going to college: How social, economic, and educational factors influence the decisions students make*. Baltimore: Johns Hopkins University Press.

Israel, G. D., Beaulieu, L. J., & Hartless, G. (2001). The influence of family and community social capital on educational achievement. *Rural Sociology*, 66, 43–68.

Jarrett, R. L. (1998). African American children, families, and neighborhoods: Qualitative contributions to understanding developmental pathways. *Applied Developmental Science*, 2, 2–16.

Jencks, C.,& Mayer, S. E. (1990).The social consequences of growing up in a poor neighborhood. In L. E. Lynn & M.G.H. McGeary (Eds.), *Inner-city poverty in the United States* (pp. 111-184). Washington. DC: National Academy Press.

Jussim, L., Eccles, J., & Madon, S. (1996). Social perception, social stereotypes, and teacher expectations: Accuracy and the quest for the powerful self-fulfilling prophesy. *Advances in Experimental Social Psychology*, 28, 281–387. doi:10.1016/S0065-2601(08)60240-3.

Kerckhoff, A. C. 1976. The status attachment process: Socialization or allocation?"*Social Forces* 55:368-81.

Kim, J. P. (1999). *Meta-analysis of equivalence of computerized and P&P tests on ability measures.* Paper presented at the Annual Meeting of the Mid-Western Educational Research Association. Chicago, IL.

Kozol, J. (1992). Savage inequalities. New York: Harper Collins.

Kozol, J. (2005). The shame of the nation: the restoration of apartheid schooling in America. New York: Crown Publishers.

Lamont, M. & Lareau, A. (1988). Cultural capital: Allusions, gaps and glissandos in recent theoretical developments. *Sociological Theory*, 6:2, 153-168.

Larson, R. W., & Brown, J. R. (2007). Emotional development in adolescence: What can be learned from a high school theater program? *Child Development*, 78, 1083–1099.

Lee, S. A. (1993). Family structure effects on student outcomes. In B. Schneider & J. S. Coleman (Eds.), *Parents, their children, and school* (pp. 43 –75). Boulder, CO: Westview Press.

Lemert, C. (2004). *Social theory: the multicultural and classic readings (3rdedition).* Boulder, Colorado: Westview Press.

Lin, N. (2001a). Building a network theory of social capital. In N. Lin, K. Cook, & R. S. Burt (Eds.), Social capital: *Theory and research* (pp. 3–29). New York: Aldine De Gruyter.

Lin, N. (2001b). *Social capital: A theory of social structure and action*. New York: Cambridge University Press.

Lockey-Carlson, L. (2005). *Social capital for working class Latino adolescents: Social and informational network development in a pre-college program.* The Claremont Graduate University and San Diego State University, 2005, 300 pages; AAT 3179504

López, G. R., Scribner, J. D., & Mahitivanichcha, K. (2001). Redefining parental involvement: Lessons from high-performing migrant-impacted schools. *American Educational Research Journal*, 38, 253–288.

Lopez, E. (1996). *Social capital and the educational performance of Latino and Non-Latino youth* (11). San Luis Obispo, CA: Julian Samora Research Institute.

Mahoney, J. L., Larson, R. W., Eccles, J. S., & Lord, H. (2005). Organized activities as development contexts for children and adolescents. In J. L. Mahoney, R. W. Larson, & J. S. Eccles (Eds.), *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (pp. 3–22). Mahwah: Erlbaum.

Mahoney, J. L., Schweder, A. E., & Stattin, H. (2002). Structured after-school activities as a moderator of depressed mood for adolescents with detached relations to their parents. *Journal of Community Psychology*, 30, 69–86.

Mayer, S. E.. & Jencks, C. (1989, March 17). Growing up in a poor neighborhood: How much does it matter? *Science, 243*. 1441-1445.

McDonough, P. M. (2005a). *Counseling and college counseling in America's high schools*. Alexandria, VA: NACAC. Retrieved from http://www.nacacnet.org/PublicationsResources/Research/Documents/WhitePaper_McDonough.pdf

McDonough, P M. (2005b). Counseling matters: Knowledge, assistance, and organizational commitment in college preparation. In W. G. Tiemey, Z. B. Corwin, & J. E. Colyar (Eds.), *Preparing for college: Nine elements of effective outreach* (pp. 69-87). Albany: State University of New York Press.

McGuire, J. K., & Gamble, W. C. (2006). Community service for youth: The value of psychological engagement over numbers of hours spent. *Journal of Adolescence*, 29, 289–298.

McHale, S. M., Crouter, A. C., & Tucker, C. J. (2001). Free-time activities in middle childhood: Links with adjustment in early adolescence. *Child Development*, 72, 1764–1778.

McLanahan, S. & Sandefur, G.(1994) *Growing up with a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard University Press.

McNeal, R. B. (1999). Parental involvement as social capital: Differential effectiveness on science, achievement, truancy, and dropping out. *Social Forces,* 78, 117–144.

Mead, A. D., & Drasgow, F. (1993). Equivalence of computerized and paper-and-pencil cognitive ability tests: A meta-analysis. *Psychological Bulletin*, 114, 449-458.

Meyers, S. A., & Miller. C. (2004). Direct, mediated, moderated, and cumulative relations between neighborhood characteristics and adolescent outcomes. *Adolescence,* 39. 121-143.

Mickelson, R. A. (1990). The attitude-achievement paradox among Black adolescents. *Sociology of Education, 63,* 44–61.

Monahan, T. (2005). *Globalization, technological change, and public education*. New York, NY: Taylor & Francis Group, LLC.

Morrow, V. (1999). Conceptualising social capital in relation to the well-being of children and young people: A critical review. *Sociological Review,* 47, 744–765.

Morgan, S., & Sorensen, A. B. (1999). Parental networks, social closure, and mathematics learning: A test of Coleman's social capital explanation of school effects. *American Sociological Review,* 64, 661–681.

Moses, R. (2001). *Radical equations: Civil rights from Mississippi to the Algebra Projec*t. Boston: Beacon Press.

Muller, C., & Ellison, C. G. (2001). Religious involvement, social capital, and adolescents' academic progress: Evidence from the National Education Longitudinal Study of 1988. *Sociological Focu*s, 34(2), 155–183.

Muller, C. (1993). Parent involvement and academic achievement: An analysis of family resources available to the child. In B. Schneider & J. S. Coleman (Eds.), *Parents, their children, and school* (pp. 77–113). Boulder, CO: Westview Press.

National Center for Education Statistics (2008). *Nation's Report Card. Retrieved* November 19, 2008 from http://nces.ed.gov/nationsreportcard/nde/criteria.asp.

National Center for Education Statistics (n.d.) *Fast facts*. Retrieved January 29, 2011 from http://nces.ed.gov/fastfacts/display.asp?id=27.

National Center for Education Statistics (n.d.) *Status and trends in the education of racial and ethnic minorities*. Retrieved February 17, 2011 from http://nces.ed.gov/pubs2010/2010015/indicator3_11.asp.

Newton, K. (1999). Mass media effects: Mobilization or media malaise? *British Journal of Political Science,* 29, 577–599.

North Carolina Department of Public Instruction (n.d.). Education First North Carolina School Report Cards. Retrieved May 2, 2011 from http://www.ncschoolreportcards.com/src/.

North Carolina Mathematics and Science Education Network (2009). *North Carolina Mathematics and Science Education Network.* Retrieved November 19, 2009 from http://www.unc.edu/depts/msen/.

North Carolina School Report Cards (2011). *North Carolina School Report Cards.* Retrieved July 8, 2011 from http://www.ncreportcards.org/src/

North Carolina School Report Cards (2008). *North Carolina School Report Cards.* Retrieved November 19, 2008 from http://www.ncreportcards.org/src/

Norris, P. (2000). The impact of television on civic malaise. In S. J. Pharr & R. D. Putnam (Eds.), *Disaffected democracies: What's troubling the trilateral countries?* (pp. 231–251). Princeton, NJ: Princeton University Press.

Newman, K. (2000). *No Shame in My Game: The Working Poor in the Inner City*. New York: Vintage Books.

Oakes, J. (1982). Classroom social relationships: exploring the Bowles and Gintis hypothesis. *Sociology of Education*, 55, 197–212. doi:10.2307/2112672.

Oates, G. L. (2009). An empirical test of five prominent explanations for the black-white academic performance gap. *Social Psychology of Education,* 12:415-441. doi:10.1007/s11218-009-9091-5.

Oates, G. L. (2003). Teacher–student racial congruence, teacher-perceptions, and test performance. *Science Quarterly*, 84, 508–525. doi:10.1111/1540-6237.8403002.

Ogbu, J. (1978). *Minority education and caste*. New York: Academic Press.

Parcel, T. L., & Dufur, M. J. (2001). Capital at home and at school: Effects on child social adjustment. *Journal of Marriage and the Family*, 63, 32–47.

Perna, L.W. & Titus, M. A. (2005). The relationship between parental involvement as social capital and college enrollment: An examination of racial/ethnic group differences. *Journal of Higher Education*, 76(5), 485-518.

Perna, L. W. (2002). Pre-college outreach programs: Characteristics of programs serving historically underrepresented groups of students. *Journal of College Student Development*, 43, 64–83.

Perna, L. W. (2000). Differences in the decision to attend college among African Americans,Hispanics, and Whites. *Journal of Higher Education*, 71, 117–141.

Perry, T., Steele, C., & Hilliard, A. (2003). *Young, gifted, and Black: Promoting high achievement among African-American Students*. Boston: Beacon Press.

Plank, S. B., & Jordan, W. J. (2001). Effects of information, guidance, and actions on post-secondary destinations: A study of talent loss. *American Educational Research Journal*, 38, 947-979. doi: 10.3102/00028312038004947.

Plybon, L., Edwards, L., Butler. D., Belgrave, F.. & Allison. K. (2003). Examining the link between neighborhood cohesion and school outcomes: The role of support coping among African American adolescent girls. *Journal of Black Psychology*, 29, 393-407.

Portes, A. (2000). The Two Meanings of Social Capital. *Sociological Forum*, 15:1, 1-12.

Pong, S. (1998). The school compositional effect of single parenthood on 10th-grade achievement. *Sociology of Education*, 71, 24–43.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1–24.

Pribesh, S., & Downey, D. B. (1999). Why are residential and school moves associated with poor school performance? *Demography*, 36(4), 521–534.

Putnam, Robert D. (2000). *Bowling Alone: The Collapse and Revival of American Community*, Simon & Schuster, New York, NY.

Putnam, R. (1996). The strange disappearance of civic America. *American Prospect* 24:34–48.
Putnam, R. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*6:65–78.

Putnam, R. (1993). The prosperous community: Social capital and public life. *American Prospect* 13:35–42.

Qian, Z., & Blair, S. L. (1999). Racial/ethnic differences in educational aspirations of high school seniors. *Sociological Perspectives*, 42, 605–625.

Richman, J. M., Bowen. G. L., & Woolley. M. E. (2004). School failure: An eco-interactional developmental perspective. In M.W. Fraser (Ed.). *Risk and resilience in childhood: An ecological perspective* (2nd ed., pp. 133-160).Washington, DC: NASW Press.

Richman, W. L., Kiesler, S., Weisband, S., & Drasgow, F. (1999). A meta-analytic study of social desirability distortion in computer-administered questionnaires, traditional questionnaires, and interviews. *Journal of Applied Psychology*, 84, 754-775.

Rogoff, B., Baker-Sennett, J., Lacasa, P., & Goldsmith, D. (1995). Development through participation in socio-cultural activity. In J. J. Goodnow, P. J. Miller, & F. Kessel (Eds.), *Cultural practices as contexts for development* (Vol. 45–65). San Francisco: Jossey-Bass.

Salovey, P., Rothman, A. J., Detweiler, J. B., & Steward, W. T. (2000). Emotional states and physical health. *American Psychologist*, 55, 110–121.

Shah, D. V., Kwak, N., & Holbert, R. L. (2001). ‘‘Connecting’’ and ‘‘disconnecting’’ with civic life: Patterns of Internet use and the production of social capital. *Political Communication,* 18, 141–162.

Shah, D. V., McLeod, J. M., & Yoon, S. H. (2001). Communication, context, and community: An exploration of print, broadcast, and Internet influences. *Communication Research*, 28, 464–506

Shernoff, D. (2010). Engagement in after-school programs as a predictor of social competence and academic performance. *American Journal of Community Psychology,* DOI 10.1007/s10464-010-9314-0.

Shernoff, D., & Hoogstra, L. (2001). Continuing motivation beyond the high school classroom. *New Directions for Child and Adolescent Development*, 93, 73–87.

Smith-Maddox, R. (1999). The social networks and resources of African American eighth graders: Evidence from the National Education Longitudinal Study of 1988. *Adolescence*, 34(133), 169–183.

Stanton-Salazar, R. D. (2001). *Manufacturing hope and despair: The school and kin support networks of U.S.-Mexican youth*. New York: Teachers College Press.

Stanton-Salazar, R. D. (1997). A social capital framework for understanding the socialization of racial minority children and youth. *Harvard Educational Review,* 67, 1–40.

Stanton-Salazar, R. D., & Dornbusch, S. M. (1995). Social capital and the reproduction of inequality: Information networks among Mexican-origin high school students. *Sociology of Education*, 68, 116–135.

Stiglitz, J. (2002). *Globalization and its discontents*. New York: W.W. Norton.

Stromquist, N. & Monkman, K. (2000). *Globalization and education: Integration and contestation across cultures*. Lanham, Maryland: Rowman & Littlefield.

Sudman, S., & Bradburn, N. (1974). Response effects in surveys: A review and synthesis. Chicago: Aldine Pub. Co.

Sun, Y. (1999). The contextual effects of community social capital on academic performance.*Social Science Research*, 28, 403–426.

Sun, Y. (1998). The academic success of East-Asian-American students: An investment model. *Social Science Research*, 27, 432–456.

Swail,W. S., & Perna, L. W. (2000). A view of the landscape: Results of the national survey of outreach programs. In College Board, *Outreach program handbook 2001* (pp. xi–xxix). New York: The College Board.

Tierney, W. G. (2002). Parents and families in precollege preparation: The lack of connection between research and practice. *Educational Policy*, 16, 588–606.

Thompson, M. & Subich, M. (2007). Exploration and validation of the differential status identity scale. Journal of Career Assessment, 15, 227. doi: 10.1177/1069072706298155

Trusty, J., & Niles, S. G. (2003). High-school math courses and completion of the bachelor's degree. *Professional School Counseling*, 7, 99-107.

United States Department of Education (1998). *Profiles of successful school-wide programs, volume 2.* Retrieved on January 30, 2011 from http://www2.ed.gov/PDFDocs/implement2.pdf.

United States Department of Education (2004). *Report highlights: the impact of regular Upward Bound: results from the third follow-up data collection.* Retrieved on January 30, 2011 from http://www2.ed.gov/rschstat/eval/highered/upward/upward-3rd-report.html.

United States Department of Education (2009). *Guide to US Department of Education programs: Office of Communications and Outreach.* Retrieved on January 30, 2011 from http://www2.ed.gov/programs/gtep/gtep2009.pdf.

United States Department of Education (n.d.). *Office of postsecondary education.* Retrieved on January 30, 2011 from http://www2.ed.gov/about/offices/list/ope/trio/index.html.

Vartanian,T. & Gleason, P. (1999). Do neighborhood conditions affect high school dropout and college graduation rates? *Journal of Socio-Economics*, 28, 21-41.

Valenzuela, A., & Dornbusch, S. M. (1994). Familism and social capital in the academic achievement of Mexican origin and Anglo adolescents. *Social Science Quarterly*, 75(1), 18–36.

Vandell, D. L., Shumow, L., & Posner, J. (2005). After-school programs for low-income children: Differences in program quality. In J. L. Mahoney, R. W. Larson, & J. S. Eccles (Eds.), *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (pp. 437–456). Mahwah: Erlbaum.

Wang, S., Jiao, H., Young, M. J., Brooks, T. E., & Olson, J. (2007). A meta-analysis of testing mode effects in Grade K–12 mathematics tests. *Educational and Psychological Measurement*, 67, 219-238.

Wenglingsky, H. (1997). How money matters: The effect of school district spending on academic achievement. *Sociology of Education*, 70, 221–237. doi:10.2307/2673210

The White House. (2011, January 25). Remarks by the president in the state of the union address. Retrieved February 17, 2011 from http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address.

White, M. J., & Glick, J. E. (2000). Generation status, social capital, and the routes out of high school. *Sociological Forum*, 15(4), 671–691.

Woolley, M., Grogan-Kaylor, A., Gilster, M., Karb, R., Gant, L., Reischl, T., & Alaimo, K. (2008). Neighborhood Social Capital, Poor Physical Conditions, and School Achievement. *Children & Schools*, 30:3, 133-145.

Woolley, M. E., & Bowen, G. L. (2007). In the context of risk: Supportive adults and the school engagement of middle school students, *Family Relations*, 56, 92-104.

Woolley, M. E., & Grogan-Kaylor, A. (2006). Protective family factors in the context of neighborhood: Promoting positive school outcomes, *Family Relations*, 55, 95-106.

Wrong, D. (1961). The Oversocialized Conception of Man in Modern Sociology. *American Sociological Review* 26:183-93.

Wright, J. P., Cullen, F. T., & Miller, J. T. (2001). Family social capital and delinquent involvement. *Journal of Criminal Justice*, 29, 1–9.

Yan, W. (1999). Successful African American students: The role of parental involvement. *Journal of Negro Education*, 68(1), 5–22.

Zick, C. D., Bryant,W. K., & Osterbacka, E. (2001). Mothers' employment, parental involvement, and the implications for intermediate child outcomes. *Social Science Research, 30*, 25–49.

Pre-College Social Capital Survey (PCSCS)

Your participation in completing this survey is voluntary. At anytime, you may refrain from completing this survey and void the information you provide. Anonymity will be maintained. The information that you will provide will be used for educational purposes and a summary of the results will be given to your school administration. The school administration reserves the right to use the summary in determining any changes to current the program. Please fill in the circle that best describes your feelings toward each statement.

Association Membership I often participate in…	Strongly Disagree	Disagree	Neither Agree/Nor Disagree	Agree	Strongly Agree
1. religious organizations (ex. church).	○	○	○	○	○
2. charity or volunteer organizations.	○	○	○	○	○
3. ethnic or racial organizations.	○	○	○	○	○
4. a neighborhood association.	○	○	○	○	○
5. school–related organizations.	○	○	○	○	○
6. political clubs or organizations.	○	○	○	○	○
7. social clubs (ex. hobbies, music).	○	○	○	○	○
8. youth groups (ex. scouts, team sports).	○	○	○	○	○

Parental Involvement My parents(s) and I…	Strongly Disagree	Disagree	Neither Agree/Nor Disagree	Agree	Strongly Agree
9. discuss my course options.	○	○	○	○	○
10. discuss my college options.	○	○	○	○	○
11. discuss my career options.	○	○	○	○	○
12. do school work together.	○	○	○	○	○
13. do activities together regularly.	○	○	○	○	○
14. socialize with other people regularly.	○	○	○	○	○

Peer Relationships My friends and I…	Strongly Disagree	Disagree	Neither Agree/Nor Disagree	Agree	Strongly Agree
15. discuss course options.	○	○	○	○	○
16. discuss college options.	○	○	○	○	○
17. discuss career options.	○	○	○	○	○
18. do school work together.	○	○	○	○	○
19. do activities together regularly.	○	○	○	○	○
20. socialize with other people regularly.	○	○	○	○	○

Teacher Involvement My teacher(s) and I…	Strongly Disagree	Disagree	Neither Agree/Nor Disagree	Agree	Strongly Agree
21. discuss course options.	○	○	○	○	○
22. discuss college options.	○	○	○	○	○
23. discuss career options.	○	○	○	○	○
24. work one-on-one on school work as I need it.	○	○	○	○	○
My teacher(s)…					
25. invites guest speakers into the classroom.	○	○	○	○	○
26. requires group assignments.	○	○	○	○	○

School Counselor Involvement My counselor and I…	Strongly Disagree	Disagree	Neither Agree/Nor Disagree	Agree	Strongly Agree
27. discuss course options.	○	○	○	○	○
28. discuss college options.	○	○	○	○	○
29. discuss career options.	○	○	○	○	○
30. discuss tutoring for me as needed.	○	○	○	○	○

Please complete items 31-63 on the back of this page

Mentoring My mentor and I…	Strongly Disagree	Disagree	Neither Agree / Nor Disagree	Agree	Strongly Agree
31. discuss my course options.	○	○	○	○	○
32. discuss my college options.	○	○	○	○	○
33. discuss my career options.	○	○	○	○	○
34. do school work together.	○	○	○	○	○
35. socialize with other role models.	○	○	○	○	○
36. engage in job shadowing activities.	○	○	○	○	○
37. spend time together regularly.	○	○	○	○	○
Media Use	Strongly Disagree	Disagree	Neither Agree / Nor Disagree	Agree	Strongly Agree
38. I watch television for entertainment.	○	○	○	○	○
39. I watch television for information.	○	○	○	○	○
40. I read the newspaper for entertainment.	○	○	○	○	○
41. I read the newspaper for information.	○	○	○	○	○
42. I use the internet for entertainment.	○	○	○	○	○
43. I use the internet for information.	○	○	○	○	○
44. I listen to the radio for entertainment.	○	○	○	○	○
45. I listen to the radio for information.	○	○	○	○	○
46. I read books for entertainment.	○	○	○	○	○
47. I read books for information.	○	○	○	○	○
School Environment	Strongly Disagree	Disagree	Neither Agree/Nor Disagree	Agree	Strongly Agree
48. My school provides me an adequate education.	○	○	○	○	○
49. My school provides me adequate extra-curricular activities.	○	○	○	○	○
50. My school is a safe place.	○	○	○	○	○
Residential Stability My neighborhood is…	Strongly Disagree	Disagree	Neither Agree / Nor Disagree	Agree	Strongly Agree
51. safe.	○	○	○	○	○
52. stable.	○	○	○	○	○
53. friendly.	○	○	○	○	○

NC MSEN Pre-College Program

54. Do you participate in the NC-MSEN Pre-College Program?	○ Yes	○ No

If you responded "No" to question #54, please skip questions #55 through 59.

The NC-MSEN Pre-College Program is…	Strongly Disagree	Disagree	Neither Agree / Nor Disagree	Agree	Strongly Agree
55. preparing me for college.	○	○	○	○	○
56. increasing my social network/number of friends.	○	○	○	○	○
57. increasing my access to mentors.	○	○	○	○	○
58. exposing me to potential college majors and careers.	○	○	○	○	○
59. assisting me academically.	○	○	○	○	○

Demographics

Optional: The information that you provide below is voluntary. This information will be used to determine any relationships between the survey items above and respondents with similar backgrounds. Please indicate the item that best describes you.

60. Race	○ African-American	○ White	○ Hispanic	○ Asian	○ Other _____
61. Current grade point average	○ 0 to 1.0	○ 1.0-2.0	○ 2.0-3.0	○ 3.0-4.0	
62. Current grade level	○ 6th	○ 7th	○ 8th	○ 9th	○ 10th ○ 11th ○ 12th
63. Gender	○ Male	○ Female			

Thank you for participating in this survey.