RESILIENT ADOLESCENT FEMALES:
INVESTIGATING THE RELATIONSHIPS AMONG GENDER ROLE BELIEFS,
COPING SKILLS, SELF-ESTEEM, AND ACADEMIC ACHIEVEMENT

By

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This dissertation is dedicated with utmost love and appreciation to my mother, Phyllis Durham, and to my father, Norman Akiva Sands, for their belief in me over all these years.
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RESILIENT ADOLESCENT FEMALES: INVESTIGATING THE RELATIONSHIPS AMONG GENDER ROLE SOCIALIZATION, COPING SKILLS, SELF-ESTEEM AND ACADEMIC ACHIEVEMENT

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The purpose of this study was to test a model of resiliency among middle school adolescent females. Based on resiliency theory, the model predicted that nonstereotypical gender role beliefs, high coping skills, and high self-esteem would correlate with maintaining math and reading academic performance between fifth and eighth grades. A second focus of the study was on examining the variables by race and socioeconomic status.

A within-subject correlational design for survey research was employed. Path analysis with manifest variables was used to test the hypothesis and two of the research questions. The Personality Attribute Questionnaire, the Adolescent Coping Orientation for Problem Experiences and the Rosenberg Self-esteem Scale were administered and demographic and academic information was obtained for 291 participants.
Statistically significant results were found for some but not all of the research questions and hypothesis. Self-esteem and math classroom grades correlated significantly, as did the pairing of stereotypical gender role beliefs and healthy coping skills with math classroom grades. Healthy coping skills and high self-esteem correlated with each other, as did stereotypical gender role beliefs and healthy coping skills. Math classroom grades had corresponding changes in math standardized test scores, but reading classroom grades did not. Finally, variables were found to differ significantly by race and socioeconomic status. African American young women reported higher levels of self-esteem than did White participants. Math and reading standardized test scores declined more significantly for African Americans than for White students. Math and reading standardized test scores declined more significantly for students from low-income families than from students from higher-income families.

Overall, the findings offer mixed support for the proposed model of resiliency. However, this research’s results regarding young women’s decline in math and reading scores over middle school raises a red flag for school counselors, educators, and parents to consider, and points to the need for further research in this area.
CHAPTER I
INTRODUCTION

Overview

The academic achievement of female adolescents declines among girls of every ability level, race, ethnicity and socioeconomic level. National reports indicate that the achievement levels of adolescent females in middle school, particularly on standardized achievement measures, decline in comparison to their own performance on tests in elementary school as well as in comparison to boys’ test performance (American Association of University Women [AAUW], 1992). This drop in test scores is particularly significant because of the strong performance typically exhibited by girls in the beginning of their educational career (Walker, Greenwood, Hart, & Carta, 1994). When one considers the long-term implications for further educational attainment and career development (Crockett & Crouter, 1995), it becomes apparent that depressed academic achievement constitutes a distinct area of risk for adolescent females.

There is reason to believe that the intensification of gender messages that arrives with adolescence and brings females such messages as, “Be pretty, not smart, and “Math is hard,” may be partially to blame for lowered academic achievement (Lindley & Keithley, 1991; Orenstein, 1994). Although girls and women have made many gains in educational attainment and career success in the past three decades, research indicates that the influence of gender role socialization and resulting negative messages about women and success continues to have a detrimental effect on girls’ academic
achievement (Meece & Jones, 1996; Sadker & Sadker, 1994). Young women today are just as apt as previous generations to believe that doing well in school will make a girl unpopular with boys (Suitor & Reavis, 1995). Girls learn that competing with boys--and winning--can result in being left out of popular social circles and losing dates. Some girls therefore conclude that it is better to play dumb in school than risk being unpopular by appearing too smart (Harter, Waters, & Whitesell, 1997; Lips, 1993).

A second factor that may contribute to the fall of academic achievement in adolescent girls is low self-esteem (American Association of University Women, 1992). Adolescent girls have long demonstrated a disturbing drop in self-esteem that begins in early adolescence and continues for many females throughout early adulthood (Gilligan, 1982; Gilligan, Rogers, & Tolman, 1991).

Resiliency theory may hold the key in describing the twin experiences of declining academic achievement and declining self-esteem in adolescent females. Although many young women find their academic achievement and self-esteem declining in adolescence, a significant number of young women escape the hurdles of adolescence unscathed and maintain their academic achievement levels (Gilligan et al, 1991; Harter et al., 1997; Taylor, Gilligan, & Sullivan, 1995).

Theoretical Foundations

The construct of resilience has been defined as a protective mechanism that modifies the way an individual responds to a risk situation and that tends to come into action during critical turning points during one’s life (Crockett & Crouter, 1995; Garmezy, 1981; Rutter, 1987). Resilience can also be conceptualized as an individual’s
ability to successfully cope with risk, stress, and adversity (Garmezy & Rutter, 1983; Rutter, 1996).

The literature on resiliency has focused on investigating protective factors that serve to buffer or protect an individual who is at risk from the negative results of the particular risk factor to which they are exposed (Egeland, Carlson, & Srouff, 1993; Garmezy, 1983). For example, despite the difficulties associated with low socioeconomic status, some young women are able to maintain both their self-esteem and their academic achievement (Ward, 1996; Way, 1995).

In the past several decades researchers who have investigated the topic of resiliency have focused on indicators of “at-risk” youth, the risks that put some young people at great disadvantage (Masten & Coatsworth, 1998; Winfield, 1991). The second focus has been on discovering and naming the protective factors that appear to mitigate the risks for individuals who fit the at-risk criteria but somehow succeed in avoiding the negative consequence of the named risk (Blocker & Copeland, 1994; Masten, Best, & Garmezy, 1990).

The body of research on resiliency has grown beyond the original risk topics of physical and mental illness, and poverty and racism, to include issues of educational achievement (Winfield, 1991). In identifying protective factors educational researchers have turned, for example, to describing African American adolescents who overcome barriers of racism and disadvantaged schools to continue through high school, college and professional career success (Copeland & Hess, 1995; Steele, 1998).

The notion that female adolescents face numerous challenges is hardly a new concept. Many counselors, educators, and parents have worried that given the tremendous
pressures that adolescent females face today, and the landmines awaiting them if they fall, being female and adolescent in today’s culture is a more difficult venture than ever before (Gilligan, 1982; Miller, 1976). Yet in the resiliency literature there is bare mention of work investigating gender as a risk factor for young women, or of gender role socialization as a correlate of risk for adolescent females.

The few studies that have included gender as a variable for risk, finding that it indeed factors highly, can be found in literature discussing gender role socialization and the development of young women (Gilligan, 1984; Grossman et al., 1992; Mirkin, 1994; Taylor et al., 1995). Much of this research has been descriptive in nature. Leadbetter and Way (1996), for example, describe interviews with urban adolescent girls of diverse ethnic backgrounds who are self-confident and academically engaged.

This study utilized information, theories and research results from the literatures of both resiliency theory and female adolescent socialization. This broad foundation facilitated an investigation into the ways that protective factors of resilience seem to buffer the stressors of gender inequity, enabling some young women to cope with the stressors associated with gender role socialization.

Coping and stress theory stand on parallel tracks with resiliency literature. The past few decades have seen a substantial increase in the literature describing the nature of stress and coping in childhood and adolescence (Rutter, 1996). Empirical research has documented the ways in which coping skills can reduce or alleviate the effects of stress in adolescents (Copeland & Hess, 1995; Hauser et al., 1991). Researchers and clinicians have evaluated the stress management strategies of at-risk youth in attempts to determine the kinds of coping strategies that adolescents use that enable them to persevere in the
face of many different stressors. Effective coping skills can translate into enhanced academic performance for young people (Spencer, Cole, DuPree, Glymph, & Pierre, 1993).

Much remains to be learned, however, in terms of the risk mechanisms that make one person vulnerable to stress and not another, as well as individual differences in risk exposure and the development of effective interventions (Rutter, 1996). This is the work of resiliency studies such as this one.

In her theory on the development of women, Carol Gilligan (1982) states that heightened pressure to conform to sex role socialization messages encourages adolescent females to deny aspects of their own experiences, thoughts, feelings, and scholastic abilities. As girls cross the threshold into adolescence, their self-confidence and self-esteem decline (Brown & Gilligan, 1992; Orenstein, 1994).

An important construct found in the developmental literature that sheds light on the experiences of young adolescents during the years of middle school is called the gender intensification theory, the hypothesis that gender-differential socialization accelerates during adolescence, especially for girls (Hill & Lynch, 1983). New domains of behavior that were previously not impacted by gender rules for girls now become areas in which gender-differential socialization pressure is exerted (Eccles & Bryan, 1994). A critical byproduct of the crisis that many girls face at adolescence is their attitude and behavior regarding schoolwork. In their effort to conform to stereotyped gender roles, many girls suppress their academic ability and identity (Eccles, Barber & Jozefowicz, 1999; Wigfield & Eccles, 1994a).
Born from her work regarding women's need for connectedness, Gilligan (1982, 1984) describes a form of resistance in which girls and women go against the culture's pressures and continue to establish and maintain interpersonal connections. In this theory, resistance is the key to the development of a strong sense of self, i.e., the presence of mutually respectful connection with others (Gilligan, 1982, 1984). In contrast to the loss of self that is too frequently observed in young women, Gilligan describes healthy resistance in which girls and women reject stereotypes that inhibit their achievements, including those based on race, ethnicity, class, and sex (Fine, 1991; Taylor et al., 1995).

Theories of resilience and gender role socialization lay the theoretical foundation for this investigation of adolescent females' academic achievement in middle school. This research examined the relationships among the variables of self-esteem, gender role socialization, and coping, and academic achievement in an effort to gain insight into the ways that girls navigate through this critical period of life.

Statement of the Problem

Girls' academic achievement falls significantly during the middle school years, especially in subject domains that are perceived as masculine (American Association of University Women, 1992; Beaton, 1996; Hafner, 1990). The academic underachievement of America's young women is a serious, widespread problem with long-term ramifications that affect the future educational and career plans of girls and women, and that carry associated ramifications for the productivity of the nation as a whole. Despite significant strides within the last generation to overcome educational and career obstacles for women and minorities, there continues to be discrepancy between what girls are capable of achieving and demonstrate that they can achieve at early ages, and what they
actually achieve in high school, college, and in their careers (Crockett & Crouter, 1995; Sadker & Sadker, 1994).

One of the consequences of females’ lower test scores is the lowering of expectations that girls have for themselves about their abilities, particularly in the areas of math and science, with the result that many young women self-select themselves out of advanced math and science courses in high school and college (Crockett & Crouter, 1995; Orenstein, 1994; Sadker & Sadker, 1994). College entrance itself is affected. Lower test scores on traditional college admissions exams may deny the opportunity for admission to certain colleges for women (Connor & Vargyas, 1992; Hyde, Fennema, & Lamon, 1990; Mullis, 1991). Finally, girls and women often stay away from careers that demand a high level of proficiency in math, science and technology, as noted by the low number of women in the last part of this century who are employed in such occupations as engineering and computer science (Hyde, Fennema, Ryan, Frost, & Hopp, 1990; Sadker & Sadker, 1994).

As the new millennium begins, young women continue to exhibit declining academic achievement, drop-out rates continue unabated, and too many young women fall victim to serious problems ranging from truancy to substance abuse (Black & Krishnakumar, 1998). Scattered efforts by some teachers in the area of gender equity in schools and awareness by some counselors of societal pressures are important first steps but are few and far between (McCracken, 1996; Meece & Jones, 1996). There is a widespread lack of addressing the topic of sex role socialization as it impacts the academic achievement of girls by school staff, counselors, parents, or society as a whole.
Until the root of the problem is examined, it is unlikely that these disturbing trends will be reversed (Benokraitis, 1997).

When school counselors, mental health counselors, educators, and parents do not understand nor respond appropriately to the factors that contribute to declining academic achievement and self-esteem, girls' lives and futures are jeopardized (Orenstein, 1994). For example, if 13-year-old Andrea believes that the boys that she is interested in at her middle school think that it's really not cool for girls to do well in math, then it's highly probable that Andrea will lower her standards for her own performance in math. And when Andrea gets to high school, she may well opt out of advanced math courses as she learns to comply with gender role socialization messages that increasingly come her way (Kloosterman, 1990; Yong, 1992). If Andrea is lucky, she will have a significant adult in her life, such as a parent, school counselor, mental health counselor or teacher, who is aware of the tendency for girls' test scores to fall in middle school, who notices that Andrea's standardized test scores fell in eighth grade, and who may even give her a pep talk to "hang in there." However, chances are slim that Andrea's significant adult will say to her, "Andrea, some boys you know may tease you because you're so good in math, but I want you to know that there are some boys in your school who won't tease you, there are some boys who think it's just as important for girls to do well in math as it is for boys to do well in math. And most importantly, I want you to know that you can achieve and succeed for yourself because you deserve to be all you can be" (Gilligan et al., 1991; LaFrance, 1991).

This type of informed response will be much more effective for students like Andrea than the standard comments she is more likely to encounter if she is fortunate
enough to have someone in her life who notices her academic decline, comments such as, “What’s wrong with you? You can do better than that.” Adults who interact with young women and who learn how to encourage girls to challenge negative gender stereotypical influences and provide reliable role models may make all the difference in combating declining school performance and falling self-esteem of adolescent females (Leadbeater & Way, 1996; Way, 1998).

**Need for the Study**

The study of resilience in adolescent females brings hope for gaining valuable insight into the challenges facing young women as they grapple with the strides and limitations of women’s greater entry into academia and the workforce. As the literature in the past few decades has demonstrated, the study of resilience has revealed valuable insights into a number of high risk areas including racism, poverty, and illness (Montgomery et al., 1993; Pungello, Kupersmidt, Burchinal, & Patterson, 1996; Richters & Martinez, 1993). Therefore, an important next step in this work is to apply the principles of what has been discovered about resilience to the experience of adolescent girls during an often tumultuous and critical period of their lives.

Differences in the experiences of adolescent girls need to be investigated by race and class. There is little empirical research investigating class and race-related variations of stress and coping during adolescence (Bush & Simmons, 1987; Spencer & Dornbusch, 1990), or on gender role socialization (Hagen, Paul, Gibb, & Wolters, 1990). For example, the UUAW (1992) study reported distinct ethnic differences in the levels of female adolescents’ self-esteem. In contrast to White and Hispanic young women,
African American females retain high self-esteem that actually increases at the completion of high school (Erkut, Fields, Sing, & Marx, 1996; Fordham, 1993).

Stories of resilient youth have been described in the qualitative literature (Leadbeater & Way, 1996; Taylor et al., 1995; Way, 1998). However, there is little empirically based research regarding resilient adolescent females. Quantitative studies have an important role in the study of resilience by investigating larger numbers of adolescents to help establish the likelihood that certain traits associated with resilience do indeed contribute positively to the risk condition.

Although there is general consensus that coping skills are important for young people, there has been little research examining the relationship of coping skills to gender role socialization (Nolen-Hoeksema, 1995). The possibility that young women with good coping skills may be better able to resist disparaging notions of female academic pursuit and achievement should be investigated. Assisting girls to develop successful coping strategies to resist negative stereotypes that discourage them from doing their best in academic pursuits could be key for counselors who work with adolescent females.

**Purpose of the Study**

The purpose of this study was twofold: to identify risk factors that impede adolescent females from maintaining academic achievement, and specifically to investigate whether or not gender role socialization messages could be identified as a risk factor for adolescent girls; and secondly, to identify protective factors that buffer adolescent females from the risk of declining academic achievement over middle school. This was accomplished by examining the relationships among adolescent females’ academic achievement and traits of resilience in young women, including high
self-esteem, healthy coping skills, and girls’ ability to resist negative stereotypes based on gender. In order to gain as realistic and applicable an understanding of this topic as possible, this study examined each research variable by race and socioeconomic status.

In this study I proposed that resistance to gender role stereotyping be identified as a protective factor that serves to help adolescent females maintain their academic achievement. The study’s research questions investigated corollaries of the primary hypothesis by posing questions such as, How do girls of different races and socioeconomic backgrounds differ in making use of protective factors? Do girls who resist gender role socialization pressures have other characteristics of resilience in common?

There is a critical need for mental health counselors and school counselors to develop and implement effective intervention strategies to address the continuing decline of academic achievement by middle school girls. By understanding the role that gender role socialization plays in the academic achievement of adolescent girls and by utilizing strategies gained from the study of resilience in adolescent youth, counselors will be better able to address and assist young women in reversing the decline in academic achievement that is demonstrated by too many adolescent females.

**Significance of Study**

Decreased academic achievement for girls and women has been linked to diminished career opportunities and restricted quality of life (AAUW, 1992; Sadker & Sadker, 1994). Many observers agree that gender related factors are involved with the decrease in academic achievement by adolescent girls (Reis, 1991; Rigsby, Stull, &
Morse-Kelley, 1997), yet the fundamental messages that contribute to this phenomenon have been either ignored or relegated to back-seat concerns.

The period of middle school is a time of high risk, and the transitions from grade school to middle school, and from middle to high school are widely recognized as difficult periods for adolescents (Winfield, 1995). What characteristics do girls who are able to maintain their academic achievement during middle school have in common? What can be learned from these resilient girls?

**Rationale**

This research is unique in its focus on stereotypical gender role beliefs as a risk factor for adolescent females as conceptualized within resilience theory. Although previous studies that have identified stereotypical gender role socialization as a risk, they have done so in literature outside of the main body of resiliency literature. Another unique contribution of this study is the analysis of findings by race and socioeconomic status; few research studies have examined these issues by these critical demographic components.

This research sought to directly address gender role socialization as a factor that puts a young woman at risk from the problem of declining academic achievement in middle school. In this study, low femininity on the Personal Attribute Questionnaire (PAQ), the frequent use of healthy coping skills, and high self-esteem were utilized as a way of documenting resilience in youth. The PAQ, developed by Spencer and Helmreich (1978), is a widely respected assessment tool that measures sex role stereotypes by assessing the respondents' beliefs that male and females differ in many of their characteristics.
The use of healthy coping skills were assessed by the Adolescent Coping Orientation for Problem-Experiences (A-COPE), developed by Patterson and McCubbin (1987) specifically for adolescents ages 13 to 19 years of age. The A-COPE provides a measure of self-reported coping strategies such as venting feelings, crying, or seeking spiritual support. An advantage that the A-COPE brings to this study is that it is based on the theoretical conceptualization of an integration of individual coping theory and family stress theory. A-COPE has been used effectively in a number of studies that seek to assess resilience in at-risk adolescent youth (Copeland & Hess, 1995; Plancherel & Bolognini, 1995).

Self-esteem was assessed via Rosenberg’s Self-Esteem scale (1965). This scale has been used extensively to assess adolescents and was originally developed for use with high school students. Reports indicate high reliability and validity. It has been used frequently in previous research on resilience in youth (Goodrich, Rampage, Ellman, & Halstead, 1988; Grossman et al., 1992).

An important aspect of this research is the attempt to consolidate relevant previous research and writings in various areas that may be of help in understanding and assisting in the academic achievement of adolescent females. Previous research findings in the areas of gender role socialization and resilience have important implications that need to be considered when looking at the declining self-esteem and academic achievement of adolescent girls in middle school. Previous research studies have linked self-esteem with academic achievement among girls, and other researchers have found that good coping skills are related to higher academic success among adolescents. Still other studies have looked at gender role attitudes and academic success. In this study I
examined each of the variables and their relationships with each other through theory and empirical research. Data were analyzed and variables correlated so that the strength of the relationship among the independent variables—self-esteem, gender role socialization, and coping—were correlated with the dependent variable of academic achievement, and then examined by race and socioeconomic class.

Much of the research to date on resilient youth has either been theory-development work or qualitative studies of small populations (Copeland & Hess, 1995). This study will add to the resilience literature by employing a quantitative research design utilizing a fairly large sample of African American and White female adolescents of differing socioeconomic backgrounds.

**Hypothesis and Research Questions**

**Hypothesis**

As stereotypical gender role beliefs among early adolescent females increase, and as healthy coping strategies and self-esteem decrease, it is predicted that academic achievement scores from fifth to eighth grade will decrease.

**Research Question 1**

How do the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem correlate with each other?

**Research Question 2**

Which pairs of the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem have the greatest impact on the criterion variables of fifth and eighth grade test score differences and fifth and eighth grade classroom grade differences?
Research Question 3

What is the relationship between the two criterion variables of fifth and eighth grade standardized test score differences and fifth and eighth grade classroom grade differences?

Research Question 4

Will the relationships among stereotypical gender role beliefs, coping skills, self-esteem, and academic achievement for middle school females vary by race or socioeconomic status?

Research Question 5

Will the mean scores of stereotypical gender role beliefs, coping skills, self-esteem, and academic achievement for middle school females vary by race or socioeconomic status?

Definition of Terms

For the purpose of this study, the following definitions are presented:

Academic achievement is operationalized for this study as performance on standardized tests and as classroom grades.

Coping is one of many resources that can add to or decrease the amount of stress that adolescents experience. Healthy adolescent coping is viewed as achieving a successful balance between meeting demands of the self, the family, and the community (Patterson & McCubbin, 1987).

Expressiveness is defined as comprising interpersonally oriented (e.g., gentle, sympathetic, understanding) personality traits (originally termed femininity) (Spence, 1984).
Femininity is defined as comprising interpersonally oriented (e.g., gentle, sympathetic, understanding) personality traits (also termed expressiveness) (Spence, 1984).

Gender intensification refers to an acceleration of gender-differential socialization during adolescence, typically occurring at the onset of puberty that is particularly acute for girls (Hill & Lynch, 1983).

Gender role messages are the unwritten rules or messages regarding gender roles that men and women use to guide their lives (Worell & Remer, 1992).

Gender role socialization refers to generalized rules of living that females and males learn by observing the differential treatment and responses that society relegates to each sex (Worell & Remer, 1992).

Instrumentality is defined as comprising socially desirable self-assertive (e.g., willing to take risks, dominant, self-reliant) personality traits (originally termed masculinity) (Spence, 1984).

Masculinity is defined as comprising socially desirable self-assertive (e.g., willing to take risks, dominant, self-reliant) personality traits (also termed instrumentality) (Spence, 1984).

Racial Socialization refers to a proactive orientation toward racial barriers that African American families teach their children, including ethnic pride and self-development (Ward, 1996).

Resilience is defined as a protective mechanism that modifies the individual’s response to a risk situation and operates at critical turning points during one’s life, i.e., the ability to cope successfully (Rutter, 1987).
Self-esteem is the individual's overall evaluation of herself. Also termed global self-esteem, it includes whether or not a person is generally satisfied with his or her life, considers themselves worthy, and holds a positive attitude toward their self (Rosenberg, 1979).

Sex roles/Gender roles are used interchangeable in this study to indicate societal expectations concerning the appropriate behavior for men and women (Worell & Remer, 1992).

Stress is “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her own resources and endangering his or her well being” (Lazarus & Folkman, 1984, p.19).

Organization of the Research

This study is reported in five chapters. In Chapter II, the related professional literature is reviewed. This review includes (a) a discussion of the theoretical model of resilience, (b) an overview of early adolescence for young women, and the relationship of ethnicity, socioeconomic level and gender role socialization to the female experience of adolescence, (c) academic achievement, the middle school context, and differential treatment in school, (d) self-esteem, and (e) resiliency literature. Chapter III describes the research methodology, data collection and analysis methods. The data analysis and results of the study will be presented in Chapter IV. A summary of the study, discussion of the results, conclusions drawn from the research, limitations of the study, recommendations for future investigations, and suggestions for practical application will be provided in Chapter V.
CHAPTER II
REVIEW OF THE LITERATURE

Theoretical Model

This study was based on resiliency theory as applied to adolescents. In this section the theoretical basis of resilience will be discussed. The section will conclude with an explanation of the research proposal to adapt resiliency theory to include gender role stereotypes as a risk, and resistance to gender role stereotypes as a protective factor.

The roots of resilience theory can be traced back to the construct of risk, which has a long history in the medical and psychiatric literatures. In areas as diverse as schizophrenia and response to trauma and disaster, the term risk was used to specify conditions that make individuals susceptible to disease or mental disorders (Garmezy, 1983, 1987; Masten, Best, & Garmezy, 1990; Rutter, 1979). The medical literature chronicles examples of adaptive functioning in individuals who were exposed to trauma, and it was from this foundation that theories of resilience were proposed (Cicchetti & Garmezy, 1993).

For the past two decades research has focused away from illness and pathology toward a focus on resilience, conceived as individual variations in the ways that people respond to risk, stress, and adversity (Kobasa, 1979). In other words, some individuals are resilient and cope successfully while others do not (Rutter, 1987).

The roots of resilience in social science literature is often credited to the work of Garmezy and his colleagues who began investigations of individuals who are competent
in the midst of stress (Garmezy, 1981). Two decades ago Garmezy first used the term “invulnerability” to characterize a group of Black children who, despite exposure to significant stress associated with ghetto poverty and prejudice, had become competent and well adjusted.

These writings were among the earliest examples of efforts to emphasize the importance of examining protective factors in “at-risk” populations. Protective factors are conceptualized as characteristics in an individual’s world that mitigate against the development of behavioral and psychological problems despite the existence of risk factors (Rutter, 1979). A major focus of the resiliency literature has been to identify protective factors in children’s lives.

The resiliency literature has borrowed heavily from theories on stress, coping, and hardiness. Garmezy (1983) and Rutter (1983) worked from a stress and coping perspective to develop the idea of protective factors. Resilience has also been conceptualized as an integration and application of individual coping theory and family stress theory (McCubbin & McCubbin, 1996). From this perspective, the adolescent is viewed as needing to simultaneously manage demands that are individual, family and community based; successful coping is defined as simultaneously being able to manage demands of one’s self and one’s family and the community of peers, school, and society (Patterson & McCubbin, 1987).

There is a fine but distinct difference between the theoretical underpinnings of the constructs of hardiness and of resilience. Hardiness can be conceived of as an identifiable set of personality characteristics possessed by an individual that operates at all times in the life of the individual (Kobasa, Maddi, & Kahn, 1982). In contrast, resilience is the
notion of a set of characteristics, some of which are similar or even identical to hardiness traits, that operate in the face of risk. In the conceptualization of resilience, the presence of risk is fundamental and is the hedgepin that sets the process of resiliency in motion. Resilience emphasizes the recovery process, and has been described as the ability to recover one's strength or spirit (Gordon, 1997).

In addition, research into childhood resilience is making increasingly clear that resilience is not an innate characteristic, but depends upon a combination of factors including attributes of the child, socialization experiences both within and outside the family, and interactions between these components (Cowen, Wyman, Work & Parker, 1990; Rutter, 1990). Intervention strategies that arise from the context of resilience literature urge that strategies be implemented to both decrease the child's exposure to the stressor(s) and to increase the number of protective factors (Gordon, 1997).

Several concepts were borrowed from the hardiness literature for the development of resilience theory. Kobasa, Maddi, and Courington (1981) and Kobasa, Maddi, and Kahn (1982) proposed that the three hardiness factors of control, commitment, and challenge decreased the harmful effects of stressful life events. These factors were described in the context of resilience as (a) a hardy or resilient person's attempt to influence the course of an event (control), (b) curiosity about how the event happened and dedication to what it is (commitment), and (c) trying to learn from the event in a way that will enhance personal growth (challenge) (Blocker & Copeland, 1994).

There is some disagreement in the resilience literature as to just what are risk or protective factors, and widely varying definitions of each are used across studies (Egeland, Carlson, & Sroufe, 1993). Although resilience is often conceptualized as an
individual construct, protective factors may include variables from the individual, family, and social environment. Some of the individual factors described in studies as providing protection to adolescents from risk include (a) self-esteem (Garmezy, 1983; Rutter, 1979), (b) curiosity (Garmezy & Rutter, 1983), (c) internal locus of control (Garmezy, 1987), (d) intelligence, (e) coping style, (f) social skills (Garmezy, k 1983; Rutter, 1983), and (g) a sense of self (Masten & Coatsworth, 1998). Sense of self has been described as a sense that one is able to exercise a degree of control over the environment and one's life, a trait shared with hardiness descriptors (Blocker & Copeland, 1994).

Context is an important aspect of conceptualizing resilience. Contexts important to adolescents such as the family, school, peer group, and local neighborhood play a key role in the opportunity or lack thereof for risk and protective factors to develop. Adolescents live in multiple contexts that shift at times, and these shifts, or transitions, often represent periods of increased stress or risk for the adolescent. The transition into middle school is one example of such a contextual transition period (Bronfenbrenner, 1989).

The educational research on resilience is not uniformly defined. The term "at-risk" became popularized in education after the publication of A Nation at Risk (National Commission on Excellence in Education, 1983), when educators, policy makers, and researchers applied the term fairly indiscriminately to refer to any youth who were likely to experience school failure, teen pregnancy, or some other negative developmental outcome. Often educational definitions of at-risk utilize demographic characteristics such as racial and ethnic background and social class as indicators. This
becomes a short-hand, if inaccurate, way for schools and agencies to identify students who may be in need of additional academic or social services (Winfield, 1991).

Critics point out that using the label of at-risk based on demographic characteristics serves to shift attention away from the social conditions that place adolescents at risk, and tends to locate the risk within the adolescents themselves (Steele, 1998). By shifting the burden of change to the adolescent it thus relieves the larger society of responsibility for addressing the inequities of race, class, and gender that create the conditions of risk (Fine, 1991; Taylor et al., 1995).

The critical issues in resilience in the educational realm center around identifying the protective processes and mechanisms that reduce risk of educational failure and foster resilience in academic achievement and career success. Questions have been posed regarding how protective processes operate at different developmental levels or transition points in the schooling process (Crockett & Crouter, 1995; Winfield, 1995). It is important to understand whether or not resilience processes are the same for different ethnic and socioeconomic groups. Researchers are anxious to bring concrete suggestions to schools, administrators, teaching, community groups, and policymakers regarding what can be done to enhance and foster the development of resilience in young people (Winfield, 1991).

In this study careful reference was made to the use of the at-risk label. In this research I was not proposing that female adolescence per se be considered a risk factor, although some authors have suggested this. Rather, in this research I proposed that the factor of high femininity, or subscribing to gender stereotypes by female adolescents, be considered a risk factor that predisposes young women to detrimental consequences,
including lowered academic achievement. The proposed protective factor of resistance to stereotypical gender role beliefs was investigated concurrently.

The interaction of high femininity with self-esteem and coping skills may also influence academic achievement for young women. It is for this reason that self-esteem and coping skills were operationalized for this study. Researchers urge utilizing more than one behavioral index to assess resilience because although an adolescent may appear to be adapting positively within the school arena, for example, the same young woman may display poor adaptation in another context (Luthar, Doernberger, & Zigler, 1993).

**Females at Adolescence**

This section includes a summary of studies that describe the period of adolescence, gender-role socialization, and gender-intensification, with particular attention paid to the ways in which these factors may become risk factors for female adolescents. The ways in which the variables of this research impact female adolescents of color are discussed next, concluding with studies that focus on young women who resist gender-defined stereotypes.

Adolescence is a time of tremendous change sometimes referred to as a double-edged sword (Lerner, 1993). On the one hand, adolescence is a time of burgeoning possibilities with new capacities for complex thinking, for self-understanding, for learning about one's sexuality, for more mature relationships with parents, peers, and teachers, and for beginning to consider the world of work and careers (Crockett & Crouter, 1995; Eccles & Bryan, 1994).

On the other hand, adolescence can also a time of profound biological, psychological, and social risk (Natriello, McDill, & Pallas, 1990; Plancherel &
Bolognini, 1995). Some observers go so far as to warn that half of America’s adolescents are at moderate or great risk, defined as engaging in unsafe sexual behaviors, teenage pregnancy, teenage childbearing, substance abuse, school failure and dropout, juvenile delinquency, and school underachievement (Dryfoos, 1990; Eccles & Bryan, 1994). When adolescents face multiple changes simultaneously (e.g., when menarche occurs at the same time as a school transition), the risk is even greater that problems will occur in the youth’s development (Lerner, 1993).

During adolescence, young women receive powerful gender-role socialization messages from adults in their lives, from peers, and from the culture at large that exert tremendous pressure for them to conform to stereotypical ideals of femininity (Brown & Gilligan, 1992; Eccles & Bryan, 1994; Gilligan et al., 1991). According to Gilligan (1991), one of the most common tactics that adolescent females employ in order to conform to gender role expectations is the strategy of self-silencing. By suppressing their involvement in the classroom, girls believe that their peers will accept them.

An illustration of self-silencing can be found in the following study. Using an intensive, interview-based, longitudinal design, Gilligan and her colleagues (Gilligan et al., 1990) studied a group of nearly 100 girls between the ages of 7 and 18 years of age as they moved from middle childhood into and through adolescence. The results indicated that until the age of 12 girls possess a wealth of self-confidence and courage and seem resistant to harmful notions of feminine behavior. However, as the girls in the study matured, they became more hesitant and uncertain. They spoke of a tension between their own experiences of the world and societal messages they receive regarding gender-role expectations.
Jean Baker Miller (1984) described the experience of adolescence for females as a period when young women receive very strong messages from society that they should not fully utilize all of their capacities. They learn that females should always put others’ needs or desires before their own. The AAUW (1992) report provides some evidence for the conflict that young women face in their report of a 13-point drop in girls’ self-esteem between the ages of 9 and 15.

**Gender-Role Socialization**

Socialization in American culture is a different process for girls than for boys. Girls are taught by society to focus on personal relationships and to develop sensitivity, empathy, warmth, and concern about others. Young women are encouraged to overemphasize physical appearance, dating, popularity, intimacy, emotionality, and other behaviors that are directly associated with the female role of wife and mother (Chodorow, 1978; Suitor & Reavis, 1995).

Today’s generation of adolescent females may be less likely than their mothers to hear messages directly stating women’s inferior academic abilities, but they are more apt to receive messages of a subtle form of sexism (Benokraitis, 1997). For example, today’s young women may see fewer images on television of women staying at home and raising children than their mothers did, but they also will see few, if any, images of women in traditionally male occupations such as a chemistry or physics (Lips, 1993). And the images they see of high-status professional women will frequently be coupled with strong sexual overtones, such as the sexy, young female lawyer portrayed on the popular television program, “Alley McBeal.”
Debate lingers regarding what causes socio-behavioral gender differences. Essentialists argue that the differences in developmental patterns between girls and boys are due to biology. The constructivists, on the other hand, emphasize the influence of the environment and the social institutions that shape development and are exemplified in the work of Gilligan (1982) and Kegan (1982). Bem (1985) theorized that children develop gender schemas to help them guide their behavior in the world. Gender stereotypes arise, some speculate, through observation of the world (e.g., secretaries are usually female), and through explicit teaching, leading both sexes to believe that socialized behaviors are natural for each sex (Halpern, 1997).

Research studies have borne out the prevalence of gender-role stereotypes that persist at the turn of the 21st century. In a longitudinal study of low socioeconomic class African American youth from four middle schools in a large southeastern urban city, researchers examined gender-linked beliefs and attitudes. Data were gathered from 394 male and female youth utilizing the Personal Attributes Questionnaire and the Iowa Tests of Basic Skills. Results indicated the presence of many stereotypical gender-linked beliefs and attitudes including the belief by both males and females that the characteristics necessary for successful educational attainment are masculine. This study seems to indicate that young women recognize the limitations of gender stereotypes but they do not want to waver too far from them, even at the expense of their own declining academic achievement (Swanson & Spencer, 1997).

Gender Intensification

The gender intensification theory, first proposed by Lynch (1983), states that
gender-differential socialization accelerates during adolescence. Typically appearing at the onset of puberty, this intensification is particularly acute for females. Gender intensification is blamed for the peer pressure girls feel; the peer group is the principle enforcer of gender-rules for youth. Gender intensification is thought to lead to heightened self-consciousness and a decrease in self-esteem (Hill & Lynch, 1983).

One of the consequences of gender intensification is that certain activities become gender labeled that previously were not, and adolescents experience increased pressure to conform to this labeling (Eccles & Bryan, 1994; Hill & Lynch, 1983). As gender-role appropriateness increases in importance for early adolescents, young women tend to have less positive beliefs about their capabilities and to be less involved in activities that they see as inappropriate for their gender (Eccles, Barber & Jozefowicz, 1999; Wigfield & Eccles, 1994b).

According to the tenants of the gender intensification theory, the display of competence for females becomes antithetical in the gender labeled world of ‘his’ and ‘hers’. Girls are no longer highly rewarded for their achievements, and academic success is often perceived as incompatible with more highly regarded traits such as popularity and sociability (Hill & Lynch, 1983).

Research studies indicate that girls tend to develop a more gender-role stereotyped view of academic subjects as they move through secondary school (Eccles, et al., 1989; Handley & Morse, 1984). In a study of girls in 10th, 11th and 12th grades, Eccles (1994) found that as girls reached their senior year of high school, they endorsed more stereotypical views of math and English than did the younger girls (Eccles & Bryan, 1994). The results of this study seem to indicate that young women incorporate gender
stereotypes about their lack of competence in particular subjects despite evidence to the contrary (Eccles & Bryan, 1994).

In an early study investigating adolescents’ tendency to gender-label academic pursuits, researchers (Stein, 1971; Stein, Pohly, & Mueller, 1973) asked students in 2nd, 6th, and 12th grades to rate six achievement areas as more feminine or more masculine. The students rated the areas from feminine to masculine in the following order: social, artistic, reading, arithmetic, spatial, and mechanical. In a follow-up study of sixth and ninth graders, Stein (1971) reported that gender labeling was much stronger among ninth than sixth grade students, with girls placing more importance on feminine areas and boys on masculine areas.

Ethnicity and Gender

The contribution that ethnicity makes in the lives of young women of color is crucial for understanding the nature of risk and resilience. For White girls, gender may indeed be key in their struggle for personal identity and social place. For girls of color and girls living in poverty, however, gender is likely not the only, nor necessarily the most salient, struggle in which these adolescent females engage (Erkut, Fields, Sing, & Marx, 1996; Phinney, 1989).

Likewise, the importance of context—the broader societal conditions and events that impinge upon families—must be considered in order to gain an understanding into the motivations, successes, and life courses of adolescents. Ecological factors such as cultural stereotypes, school experiences, and peer relations figure prominently in a young woman’s attainment of academic success (Pungello, 1996). Spencer (1995) theorizes that self-esteem is linked to the experiences of risk associated with societal stereotypes. These
risks impact experiences of stress, coping methods employed, and outcomes such as academic success (Steele, 1998).

Despite the need for studies that reflect the full diversity of cultures and experiences present in the United States, most of the social science literature written about adolescent resiliency has focused on African-American and White adolescents. Much of the discussion in this section will therefore focus primarily on these populations of adolescent females.

An important facet in examining stereotypical gender-role adoption by diverse populations of adolescent females is the question of whether or not the feminine stereotype is actually a stereotype of middle-class White females that does not apply to women outside of this population. In an investigation of this question, college students were asked to state a stereotype for each of four groups of racially diverse women. The authors found that although the stereotypes differed significantly by both race and social class, with White women and middle-class women being described in ways most similar to the dominant culture’s traditional stereotypes of women, all four groups were rated in ways that are consistent with the dominant culture’s stereotype of femininity. This study appears to indicate that young women of all ethnic groups are subject, with variations peculiar to that group, to stereotyped gender socialization messages (Landrine, 1985).

Other studies examining gender stereotyping and gender-role attitudes by racial group show mixed results. Reviews of research regarding gender role attitudes among African Americans finds some studies in which Black females and males are more egalitarian than Whites in their gender-role attitudes and some in which the opposite is found (Hatchett & Quick, 1983). For example, in a comparison of the gender-role
attitudes of American Black and White women, Dugger (1991) found that Black women were more likely than White women to reject stereotypical views of women’s roles. Black women were more likely than White women to observe sex discrimination, support the women’s’ movement, admire intelligent, outspoken women, and accept nontraditional family structures. On the other hand, these Black women were more likely than White women to accept that girls and boys should be brought up to be feminine and masculine, respectively (Dugger, 1991).

Some authors who consider the topic of the academic achievement of African American female adolescents warn that one must recognize that in a culture that continues to adhere to institutional racism, young women of color must contend with a greater number of variables in order to attain academic achievement than do White female students (Fordham & Ogbu, 1986). Not only are attributes such as intellectual ability, aspirations, achievement motivations, and personal and social identity important for achievement, but the social environment of the school and the adolescent’s support network is also critical. The school as a social institution reflects and transmits mainstream culture. In a society with vestiges of racism, some scholars argue that the impact of the school environment can make the difference between failure and success for adolescents of color (Fordham, 1993; Steele, 1998; Steinberg, Dornbusch, & Brown, 1992).

Research in the area of adolescent achievement frequently reports findings of ethnic differences in school performance. Many studies over the past few decades have reported that African American students generally earn lower grades, drop out more often, and attain less education than do Whites (Steinberg et al., 1992), although there is
some indication that differences on standardized achievement tests between African American and White school children are slowly decreasing (Montgomery et al., 1993).

There is little consensus about the causes of test score differences between African American and White children. Some studies indicate that higher levels of poverty among African Americans may account for some of the achievement differences, but other studies find the opposite results (Ogbu, 1981). Additional factors that may effect academic achievement include variations in school district expenditures, with more affluent districts tending to have greater resources including more technology and more advanced-level courses (Rigsby, Stull, & Morse-Kelley, 1997). Pungello et al. (1996) examined the long-term effects of low family income and stressful life events on math and reading achievement for 1,253 low income African American children across Grades 2 through 7. Risk effects were found for math achievement but not for reading achievement. This research points out the many risk factors that African Americans often face, including the effects of racism even in the absence of poverty or other stressful life events (Pungello et al., 1996).

Peer groups are very influential for Black students’ success. In some cases peer groups act as a stressor, exerting a negative influence on academic learning. Peer groups may believe that teachers and curriculum represent White culture, thereby influencing young women to forfeit their studies or else be seen by peers as cooperating with the enemy. Fordham and Obgu (1986) reported that the Black adolescents they interviewed defined studying and doing well academically as “acting White,” and that this notion affected competent African American young women by reducing their motivation to make the necessary effort to perform well in school.
Resisting Stereotypes

“Some girls develop under the most adverse conditions, but the interesting question to me is, Under what conditions do most girls develop to their fullest?” (Pipher, 1994, p. 293).

Recent studies are providing documentation of adolescents who exemplify resilience, living in adverse circumstances and yet demonstrating their own version of protective factors. In a longitudinal qualitative study with 12 girls and 12 boys from an urban, ethnically diverse high school, Way (1998) chronicled interviews she conducted over a three year period. She recorded the assertive voices of adolescent girls who could be called “political resisters,” although they did not fit the stereotype of loud, bold, African American inner-city girls (Fordham, 1993). These young women were able to express their anger and frustration, feelings often unspoken by less resilient females. The courage that it takes for these adolescent females to forcefully express themselves may be considered demonstration of a protective factor.

Young women’s ability and willingness to speak up for themselves can be viewed as an indicator of self-esteem and as a protective factor. The research findings of Harter, Waters, and Whitesell (1997) indicate the tremendous variations in what Gilligan (1982) termed “level of voice.” In cross-sectional research examining approximately 600 middle and high school primarily White students of varied socioeconomic status, the researchers reported that many young women self-reported that they do engaging in expressing their opinions. Their research did not find lack of voice among female adolescents as a group, but instead, found marked individual differences in level of voice among both male and female adolescents. The authors examined the hypothesis that expression of voice will
differ according to adoption of a feminine orientation, as measured in part by the Personal Attributes Questionnaire and the Bem Sex Role Inventory. Their research found that approximately 25% to 35% of their sample scored high in femininity, while approximately 60% to 70% scored as androgynous. Feminine girls reported significantly lower levels of voice than did androgynous girls in the public context of schools, particularly with teachers and classmates (Harter et al., 1997).

Recalling that the convergence of multiple transitions is particularly stressful for adolescents, some studies indicate that gender stereotyping may abate when the intensity of multiple changes and stressors decline. Alfieri, Ruble, and Higgins (1996) investigated the flexibility of gender stereotyping in White upper-middle class adolescents in Grades 4 through 11. Their research results indicated that the propensity for gender stereotypes concerning the psychological attributes of men and women increased during and immediately after the transition from elementary to junior high school. After the transition was complete, and over the remaining years of junior and senior high school, stereotype flexibility increased.

African American girls may have an advantage in fending off negative gender stereotypes: Black families generally do not distinguish between characteristics that are considered appropriate for males and those that are considered appropriate for females, and both boys and girls are socialized to be independent and to achieve (Scott-Jones & Clark, 1996). Other research indicates that African American females of all ability levels do not seem to endorse stereotypes of male academic subject domains. Ford (1992) and Yong (1992), for example, found that gifted female African American middle school
students were just as positive in their attitudes toward math and science as their male counterparts.

These research studies suggest that observers should guard against making generalizations about academic achievement based on race or ethnicity. Studies on racial and ethnic differences in academic achievement indicate that there are notable differences among students of color that defy categorization (Steinberg, Dornbusch, & Brown, 1992). There seems to be no single protective factor responsible for positive academic achievement that can be named for young women, but resilience is likely a combination of factors including resistance to gender stereotypes, resistance to racial and class stereotypes, high self-esteem, and good use of coping skills.

In summary, adolescence is a time of tremendous change that provides a ready context for factors of risk to develop for female adolescents. The process of gender intensification serves to exasperate gender-role stereotypes that inhibit girls' academic achievement. Protective factors may include the willingness to speak up for oneself. Resisters, girls who resist gender-role and other types of stereotypes, learn to read social messages, scan them for acceptance or rejection, and react accordingly (Stevenson, Reed, Bodison, & Bishop, 1997).

Academic Achievement

In this section, research studies and theory will be discussed that document the decline in female academic achievement. Focus will be given to studies that investigate the question of when academic decline occurs and the differences between standardized test scores and classroom grade decline. This will be followed by a discussion about academic achievement and gender-role socialization. The section will conclude with a
description of the middle school environment and differential treatment in schools of girls and boys.

Decline in Academic Achievement

Research on the topic of adolescent females' declining academic achievement in middle and high school is sparse with the exception of occasional reports about girls and mathematics. Public interest was generated by the AAUW (1991, 1992) reports, the Sadkers' (1994) book, Failing at fairness: How America's schools cheat girls, and Pipher's (1994) Reviving Ophelia, but did not extend beyond a few years at best. More scholarly research on the topic is needed (Reis & Callahan, 1996).

What is known is that girls' academic achievement makes a decline sometime between school entry at kindergarten and the completion of high school (AAUW, 1992). Although the decline is not uniform across race, ethnicity, social class, or geographic location, the decline is significant and widespread, and has captured the attention of researchers who study this area (Orenstein, 1994). In their compelling study of girls and women in American schools, the Sadkers (1994) wrote, “Females are the only group in America to begin school testing ahead and leave having fallen behind. The longer girls stay in school, the further behind they fall, especially in the areas of mathematics and science” (p.138).

For the many young women who experience declining academic achievement, the consequences are often serious and life-long (Benbow & Stanley, 1983; Crockett & Crouter, 1995). Young women receive a disproportionate amount of low standardized test scores that prevent them from attending the country’s best colleges and graduate schools (Sadker & Sadker, 1994).
In this study a distinction will be made between academic achievement as measured through standardized test scores and as measured through classroom grades. Although both means of assessment are important and utilized frequently, standardized test scores are used in additional ways, such as applying for college scholarships, that grades are not (Sadker & Sadker, 1994).

Many females get good grades in most academic subjects throughout elementary, middle, and high school (Wentzel, 1988). Good grades may result from the tendency for classroom grades to reflect social competence, social skills, and positive attitudes towards compliance. Some observers believe that girls do well in school because they are socialized to follow instructions from teachers and accept rules with little protest (Benbow & Minor, 1986; Gilligan et al., 1990; Lindley & Keithley, 1991; Mickelson, 1989).

There are a few research studies that help to locate when the decline in female academic achievement begins. In a longitudinal study of 30 males and 30 females from sixth through twelfth grade, Wentzel (1988) examined math and English achievement. Measuring achievement by both classroom grades and standardized test scores, her results indicated that female math and English classroom grades remained stable over time but achievement test scores in both subjects declined steadily for females compared to males over the same period of time (Wentzel, 1988). Other longitudinal studies of student performance indicate similar results (Lewis & Hoover, 1983).

In another effort to pinpoint when the decline in girls' achievement begins, results from a comprehensive national assessment measure can be examined. The National Assessment of Educational Progress (NAEP) is used in many states as a measure of achievement in several different subjects in fourth, eighth, and eleventh grades. The
NAEP points to across-the-board female loss in achievement, with records indicating that in elementary school girls outperform boys in every subject excluding science. However, girls’ NAEP test scores begin to descend in middle school and by high school boys’ scores are greater than girls’ scores in every subject including math and science (Hafner, 1990).

The results of these research studies and others indicate fairly conclusively that there is indeed a decline in girls’ grades and test scores and that it generally begins during the middle school years. This conclusion has been found on the international level as well. The Third International Mathematics and Science Study, one of the largest studies ever undertaken regarding educational achievement, collected test scores from 45 countries. Although data were not available from elementary school grades, the study results showed seventh and eighth grade boys outperforming girls in almost every one of the participating countries (Beaton, 1996).

Many of the studies report differing academic achievement results according to the academic subject area examined. Part of the reason for the disparate results may be the many different research methodologies used in the various studies. Scholars have pointed out the need for clarification and consistency in research designs that investigate academic achievement for girls and women, citing the oftentimes conflicting results of published research (Reis, 1991).

Scores on standardized tests diverge the most between adolescent females and males in the subjects of math and science. Some studies show that males tend to outperform females on standardized tests of mathematics problem solving, but that girls obtain higher grades in mathematics than boys do (Kimball, 1989). Some research
indicates that gender differences are specific to the particular aspect of math skills being examined (e.g., math computation or problem solving) and that boys do better in only some aspects of mathematics than girls (Lummis & Stevenson, 1990).

Hyde, Fenneam & Lamon (1990) found in their meta-analysis that gender differences in mathematics performances were greater for White Americans than for Black, Hispanic, or Asian Americans. Gender differences favored males in mathematical problem solving in high school and through college. About 43% of high school females but 57% of high school males scored above the average score for the whole high school sample. It is important to note that mathematical problem-solving skills are critical for success in such fields as engineering and physics (Lips, 1993).

Gender differences in science achievement continue to favor males over females, and have shown little change for the past two decades. Boys continue to attain higher scores than girls on national assessments of science achievement at the elementary, middle school and secondary levels (Mullis et al., 1994).

Differences between male and female achievement levels among girls of color and girls of differing socioeconomic backgrounds vary considerable. Ethnic minority girls have significantly lower achievement scores and take fewer advanced courses in mathematics and science than their White peers. These achievement gaps appear early in development and tend to increase with age (Meece, 1996).

Differences in academic achievement impact students of all abilities. Among gifted students the differences between test scores for males and females is even greater than among nongifted students (Rosser, 1989). Gender differences between high ability
males and females in math and science is as large today as it was twenty years ago (Hedges & Nowell, 1995).

Geographic location may also be a factor in academic achievement. In 1996, for example, the state of Florida participated in the previously mentioned National Assessment of Educational Progress (NAEP). In Florida, 2,353 students from 105 public schools were assessed in a number of subjects including earth, physical, and life sciences. The average proficiency in Florida compared to other states in the United States was average and the average science score of males did not differ significantly from that of females in Florida. However, White students in Florida had an average science score that was higher than those of both Black and Hispanic students (O'Sullivan, Jerry, Ballator, & Herr, 1997).

By the time students complete high school the gender gap has opened wide. Many studies have focused on college-bound students, since these students participate in a number of standardized tests including the Preliminary Scholastic Assessment Test, or PSAT, that is taken in the junior year of high school. The PSAT is used by students to apply for college scholarships. Boys' scores on the PSAT are so much higher than girls that two out of three National Merit Scholarships semifinalists are male (Sadker & Sadker, 1994). Eight thousand girls score among the highest category of the PSAT while 18,000 boys reach this level, with boys outscoring girls on both the verbal and the math sections of the PSAT (Mullis, 1991).

On the SAT, boys on the average score approximately 60 points higher than do girls. Males typically outscore females by approximately 50 points on the math section and by 10 points on the verbal section (Connor & Vargyas, 1992; Hyde, Fennema, &
Lamon, 1990; Sadker & Sadker, 1994). Females of color do not score as highly on the SAT as do White students, with the exception of Asian-American students. Within each racial group, minority girls consistently score between 19 to 62 points lower than minority boys do (Connor & Vargyas, 1992; Sadker, & Sadker, 1994).

Academic Achievement and Gender-Role Socialization

In 1992 Mattel unveiled a new Teen Talk Barbie. When the popular doll hit the stores, one of the doll’s comments was, ‘Math class is tough’ (Sadker & Sadker, 1994).

An important aspect to understanding the drop in academic achievement observed in young women is observation of the link between academics and gender-role socialization. Societal sex role stereotypes continue to exert a tremendous influence on the academic direction of young women, leading adolescent girls to believe that achievement is a masculine endeavor (Hyde, Fennema, Ryan, et al., 1990; Wentzel, 1988). Many young women are afraid to look too intelligent because they fear they will face social rejection by boys who either do not value intellectual ability as a feminine attribute or may feel threatened lest they feel less competent by comparison (Orenstein, 1994). Smart girls may feel alienated from their girlfriends as well who may view them as show-offs or too academically competitive. Rather than risk social censure, some girls choose not to express their knowledge or opinions, particularly within the public classroom setting (Harter et al., 1997).

Math and science courses are widely perceived by both boys and girls as the more masculine of academic realms. For example, in a recent study in England and Wales 342 high school females and males were asked their perception of school subjects in relationship to gender appropriateness. Study results indicated that science was seen as a
masculine subject by both girls and boys, and arts and languages as feminine subjects. Both sexes admitted, however, that both boys and girls are equally good at most of their academic subjects (Whitehead, 1996). Young women who perceive math as a male endeavor are more likely to avoid math courses in high school than girls who do not (Eccles, Barber, & Jozefowica, 1999; Hyde, Fennema, & Lamon, 1990). By opting out of math and science courses, girls may find their access to careers in science and technology severely limited (Wigfield & Eccles, 1994a).

Girls who view mathematics as a masculine subject tend to do more poorly in their academic achievement than girls who do not hold that view (Kloosterman, 1990; Meyer & Koeher, 1990). A key finding in the AAUW (1992) report is that girls’ interest in math and science drops dramatically as they advance through school. Even girls who like the subjects are, by age fifteen, only half as likely as boys to feel competent in them. These findings are key because educators find that a loss of confidence in math usually precedes a drop in achievement, rather than vice versa (AAUW, 1992; Lapointe, Mead, & Phillips, 1989).

In the area of natural science, middle school girls have similarly been found to self-select themselves out of advanced courses. A two-year longitudinal study of 155 adolescents in seventh and eighth grades was conducted to assess the developmental relationship of perceptions of self-concept and gender role identification with adolescents’ attitudes and achievement in science. Results indicated that students’ self-concept and gender role perceptions were related to both achievement and attitudes toward science, but more related to attitude than achievement. Girls who thought that science was a more masculine endeavor continued to achieve in science, but their attitude
toward science became more stereotypical as they progressed from seventh to eighth grade (Handley & Morse, 1984).

Adolescent females create covert strategies for not appearing too bright. Sadker and Sadker (1994) spoke with girls who confided that some of their strategies for minimizing their academic participation included taking inconspicuous seats in the back of the room, checking where the teacher never looked and then sitting there, and only raising their hands halfway.

Some girls are more reticent to adopt stereotypical gender-role beliefs than others, and their resistance appears to have a positive impact on their academic performance. For example, a recent study of 67 families with young adolescents was conducted with the purpose of exploring implications of parents’ traditional versus egalitarian marital roles and the relationship with their daughters’ and sons’ math and science achievement. Findings revealed that young women from families that practiced a more egalitarian division of household tasks maintained a higher level of achievement across the transition to seventh grade, but females from traditional families declined in their math and science performance (Updegraff, McHale, & Crouter, 1996). These results suggest that girls who have less stereotypical role models in their own mothers will be more likely to resist gender-role stereotypes and to demonstrate more confidence in achievement situations (Jacobs & Eccles, 1992).

Middle School

The classroom environment in middle school plays a significant role in the academic achievement of female adolescents, at times having a negative impact. The classroom environment becomes less personal, more competitive, and more ability-
centered as young people progress through school, and these changes are especially
evident during the move from elementary school to middle school (Eccles & Blumenfeld,
1985). Occurring at a time of heightened self-consciousness for adolescents, the
transition is particularly problematic for girls who find their social networks disrupted.
There is a decrease in opportunity for close student-teacher relationships (Wigfield &
Eccles, 1994b). Because of the increased emphasis in middle school on individualism,
changes in the nature of the classroom environment are less compatible with norms for
femininity and more compatible with norms for masculinity (Raeff, 1997; Roberts,

Reports from adolescent females of difficult middle school experiences have been
corroborated by the girls’ teachers. Taylor, Gilligan & Sullivan (1995) interviewed a
number of middle school teachers for their Understanding Adolescence Study. The
teachers cited a lack of connection with both colleagues and students in their urban
middle and high schools and spoke of overextended workloads, unexpected lay-offs, and
random placement in different schools each year that discouraged personal relationships
both with students and colleagues.

Differential Treatment in School

In the past decade several prominent studies have been published suggesting that
girls and boys are not treated equally in the classroom and, as a consequence, have an
unequal chance to succeed in higher education.

One of the most well publicized studies on gender, academic achievement, and
self-esteem was commissioned by the American Association of University Women and
Fail Girls, the results from this study indicate a state of unequal practices and consequences resulting in the erosion of girls' academic self-esteem and academic achievement. The AAUW study involved over 3,000 boys and girls between the ages of 9 and 15 across the United States. The report suggested that classroom practices of teachers, textbooks, tests, and policy often contribute to the inequitable treatment of the sexes in schools. In their research the AAUW found that boys received more attention in school through a number of different ways. Boys are called on more often in the classroom than girls and are asked more abstract, open-ended and complex questions, and they are twelve times as likely to speak up in class as girls. Teachers choose activities in their classrooms that appeal more to boys than to girls, and they praise boys more for their academic and intellectual work, while they praise girls more for their clothing and good behavior. Textbooks used in public schools featured seven times as many illustrations of boys as of girls, and boy-centered stories were used three times as often as girl-centered stories. Adjectives in the stories used to describe boy characters included clever, brave, creative and resourceful, while girls were most often depicted as kind, dependent and docile. The typical school child reads six times as many biographies of males as of females (AAUW, 1992).

Myra and David Sadker elaborated on the AAUW report (1991, 1992) in their book, Failing at Fairness (1994). In their own research on the topic, they reported on a content analysis of 15 math, language arts, and history textbooks currently used by school districts. Numerous examples of gender stereotyping were found. For example, a 1989 sixth grade history textbook had four times as many males' pictures as females and only
11 female's names were mentioned in the 631-page textbook (Sadker & Sadker, 1994). Other studies have documented similar findings (Siegle & Reis, 1995).

In investigations of teacher behavior, a number of researchers have reported that teacher bias generally favors males over females, and middle and upper-class students over low socioeconomic class students (LaFrance, 1991; Takei, 1993). Considered a reflection of society, these types of teacher practices nonetheless have deleterious impact on students in a myriad of ways including academic achievement (Alexander, Entwisle, & Thompson, 1987; Sadker & Sadker, 1994). Gender stereotypes are conveyed to students both overtly and covertly and create inequities in the classroom that restrict the potential of students to learn and achieve (Lindley & Keithley, 1991). For example, in her analysis of the role of teacher beliefs on mathematics performance, Fennema (1990) reported that teachers perceive that ability explains their most capable males' success 58% of the time, but explains their best females' success just 33% of the time.

In conclusion, the research and theory reports presented here illustrate that many girls today still believe that being bright is in conflict with being popular. Gender stereotypes that equate masculinity with high academic success and that discourage females from pursuing academic achievement pose a widespread risk for girls in middle and high school. Many girls opt out of challenging academic pursuits, especially advanced mathematics and science. Resisting these gender stereotypes can be a powerful protective factor for adolescent females.

**Self-Esteem**

In this section research and theory that addresses the role of low self-esteem as a risk factor for adolescent females and high self-esteem as a protective factor will be
investigated. Studies will be highlighted that shed light on the following questions: Does self-esteem drop for girls in middle school? How does ethnicity impact self-esteem? Is there a relationship between self-esteem and femininity? Is there a relationship between self-esteem and coping skills?

Healthy self-esteem can be seen as a protective factor for young women. Female adolescents with healthy self-esteem tend to have an appropriate sense of their potential, their competence, and their innate value as individuals (Callahan, Cunningham, & Plucker, 1994). Adolescent females with low self-esteem tend to deride their own abilities and discount their successes. Poor self-evaluation leaves adolescent females looking outward for approval and leaves young women particularly vulnerable to putting their self-esteem in the hands of boyfriends (Callahan et al., 1994; Cohen, 1995; Orenstein, 1994).

The decline in girls’ self-esteem as they enter adolescence has been termed an “epidemic” (Pipher, 1994). The American Association of University Women’s survey (1992) reports that in response to the statement, “I’m happy the way I am,” 60 % of the girls polled responded affirmatively in elementary school, but by the time they reached middle school, only 37% responded affirmatively, and only 29 % did so in high school. The self-esteem of Hispanic girls fell the most, with a total drop of 38 percentage points between elementary and high school. In interviews students reported that girls are quieter in the classroom than the boys. Almost half of the boys in middle school said they speak up in class, but only 39 % of the girls agreed that they spoke up in class. The exception to the plummeting report of self-esteem was demonstrated by African American females.
Their positive sense of self-worth, already higher than other girls in elementary school, held steady in middle school, and actually increased to a high of 74% by high school.

In attempting to pinpoint the decline in girls’ self-esteem, researchers have employed longitudinal studies to try to determine the timing and duration of the plummet. Results consistently find that as girls move toward adolescence their self-esteem drops in relation to their own level of self-esteem at a younger age, as well as in contrast to the self-esteem of their male peers. An associated loss frequently seen concurrently in young women includes the loss of optimism about their lives (Brown & Gilligan, 1992; Surrey, 1991).

Some studies have targeted the middle school period directly for an examination of self-esteem. Wigfield & Eccles (1994b) surveyed 1,850 low- to middle-income White students to learn more about the way that the transition from elementary to junior high school influences children’s self-esteem. Students completed questionnaires at four different times: twice in the sixth grade and twice in the seventh grade. The authors reported that all of the children’s self-esteem decreased significantly across the transition to seventh grade, but that boys reported higher self-esteem than did girls at all four assessment points. In contrast, the authors found no differences in boys’ and girls’ self-esteem levels in elementary school. These results lend support to other research findings that indicate that girls’ self-esteem does decline during the middle school years.

There are various explanations offered for the sex-differentiated decline in self-esteem. Rosenberg (1986) suggested that girls are more affected by the physical changes that occur at puberty and that these changes impact females’ self-esteem. Other explanations focus on the environmental changes that accompany the transition to middle
school, and point out that the emphasis on competition, social comparison, and ability self-assessment is particularly difficult for girls when coupled with their heightened self-focus (Wigfield & Eccles, 1994b).

One of the earliest studies to investigate whether any connection existed between gender role stereotypes and self-esteem in early adolescence was undertaken by Lamke in 1982. In her research she assessed 119 junior high students using the Rosenberg self-esteem measure, the Bem Sex Role Inventory, and the Personal Attributes Questionnaire. She found that girls or boys with high levels of instrumental traits (masculine) had higher levels of self-esteem than feminine and undifferentiated individuals. Expressive traits were not associated significantly with self-esteem, thus indicating a link between masculine traits and high self-esteem. Another more recent study that found similar results was reported by Rose and Montemayor (1994) who studied 194 White adolescents in the sixth through twelfth grades. In this study girls who scored highest on masculinity had the highest levels of self-esteem as well as the highest levels of perceived scholastic competency. No grade differences were found in these relationships.

Self-esteem has been shown to affect coping skills in adolescents. Successful coping that allows the individual to face and resolve conflicts leads to increased self-confidence and self-esteem (Bednar, Wells, & Peterson, 1989). In research with 417 ethnically diverse, urban high schools students, Kimbauer (1992) found that the variables of self-esteem and ethnic identity worked together to significantly affect the coping strategies used by the adolescents. Kimbauer found that when ethnic minority adolescents were confronted with racial stereotypes and/or prejudice, their choice of coping strategies was related to both their self-esteem level and their sense of ethnic identity. Neither
variable when examined independently was significantly related to the type of coping strategy used. Those adolescents with both high self-esteem and high ethnic identity tended to use assertive coping strategies, such as talking with pride about their ethnic group or engaging in direct discussion of the issues at hand.

A large number of research studies supports the existence of a relationship between academic achievement and self-esteem (Muijs, 1997). Research that targets the middle school years consistently documents significant declines in both self-esteem and academic achievement for girls (American Association of University Women, 1992; Rothenberg, 1995). Yet despite the many studies showing positive correlations between these two factors, there is little agreement as to either the reasons behind the decline or the causality of the two variables. A review of the research studies in this area reveals studies that indicate that self-esteem enhances academic achievement, and just as readily, other studies that indicate that academic achievement enhances self-esteem (Muijs, 1997).

In research examining self-esteem and academic achievement for fifth- and sixth-grade students, data were collected from a self-esteem assessment and from results of the Iowa Tests of Basic Skills. Researchers found significant correlations between self-esteem, grade point averages, and Iowa Tests of Basic Skills test scores for both boys and girls. Self-esteem scores were more predictive of grades than the composite score on the ITBS (Wiggins, Schatz, & West, 1994).

Path analyses methodology has been used in some of the research studies examining the relationship between academic achievement and self-esteem. Most path analysis studies in this field have set out to unravel the causal chain (i.e., which comes
first, self-concept or achievement, or is the relationship reciprocal?). The results of this effort, however, have been contradictory (Muijs, 1997).

One of the most striking aspects of the AAUW report (1992) was its finding of the high self-esteem levels of African American female adolescents. Black girls in the study began with and were better able to retain higher levels of self-esteem throughout adolescence than their White and Latina counterparts. Differences in girls’ self-esteem by race and ethnicity have since been documented in other research studies as well. A 1996 study of young people in two urban high schools examined the relationship between school context, ethnicity, grade level and self-esteem. While noting that girls had significantly lower self-esteem than did boys, the authors reported that African American female adolescents reported higher self-esteem levels than either White or Hispanic students and that adolescents who rated themselves as strongly ethnically identified had higher scores for self-esteem than those who self-identified as mainstream or bicultural (Rotheram-Borus, Dopkins, Sabate, & Lightfoot, 1996).

The AAUW’s report of self-esteem differences by ethnicity was not the first to find high self-esteem in African American youth. In 1971, Morris Rosenberg proposed that African American children had higher or equivalent self-esteem than did White children. Since them, numerous other studies have replicated Rosenberg’s findings (Martinez & Dukes, 1991; Rosenberg & Simmons, 1971). Of particular interest is the finding that higher self-esteem levels among Black children relative to Whites is present at all economic levels (Hunt & Hunt, 1977).

Research reports are mixed in regard to the relationship between self-esteem and
academic achievement among African American youth. One of the more recent studies, utilizing a sample from Gainesville, Florida, examined the relationship of self-esteem to academic achievement in 59 African American children from low-income families. Ranging from 1\textsuperscript{st} to 12\textsuperscript{th} grades, findings indicated that self-esteem was not a significant indicator of academic achievement, grade point average, or reading or math scores on the California Achievement Test for either boys or girls, and that these findings were consistent across all grade levels (Gaskin-Butler & Tucker, 1995).

Despite the widespread utilization of self-esteem research, there has been some criticism of the concept of self-esteem as typically used in the behavioral science research. Judith Jordan (1991), for example, states that the traditional notion of self-esteem is derived from a separation model rather than a relational model, and thus tends to favor males. Viewed from this perspective, healthy self-esteem is construed to be comparison based, implying that the individual feels good about herself in comparison with others, and more specifically, if she feels better than she perceives others do. Jordan contends that a more relevant construct of self-esteem for girls and women is one that is based on self-in-relation theory (Miller, 1991; Surrey, 1991) and that describes a mutual self-esteem based on emotional sharing and shared sense of understanding and regard (Jordan, 1995; Surrey, 1991).

The paradigm of self-esteem as a measurement of how good one feels about oneself from what Jordan (1991) describes as a comparative or independent perspective remains, however, the model of choice for the vast majority of researchers examining the topic of resiliency. Many of the studies in the field of resilience utilize the global self-worth construct operationalized by Rosenberg in his self-esteem measure (1965).
In summary, findings from previous research results provide evidence that the self-esteem of most adolescent females does drop during the middle school years. Research findings report a higher level of self-esteem for African American than White female adolescents, and some research studies indicate that there is a relationship between low self-esteem and high femininity, and between high self-esteem and low femininity.

Resilience

This study examined the theory of resiliency for its ability to explain the phenomenon of female adolescents’ declining academic achievement, to gain a better understanding of the problem, and to increase the chances that effective interventions can be developed and implemented. In this section the findings from research studies and theory that illustrate the major constructs of risk and protective in relationship to academic achievement are presented. Examples from the stress and coping literature are included in the discussion of protective factors because in the resilience literature coping is considered one resource available as a protective factor. The mechanisms by which these factors work will be briefly examined.

Risk Factors

Poverty has been demonstrated to be one of the risk factors that consistently has a detrimental impact for young people in a number of areas including academic achievement. Many studies have found that poverty has in fact a tremendous impact on children’s educational achievement and cognitive development (Boals, Tyree, & Barker, 1990; Montgomery et al). As of 1994, 22% of American children lived in families with incomes below the poverty threshold (U.S. Bureau of the Census, 1996). Children from
low socioeconomic backgrounds tend to score significantly lower than nonpoor and middle-class children on numerous indicators of academic achievement, including achievement test scores (Conger, Conger, & Elder, 1997). Meta-analysis suggests that family income is the highest single correlate of academic achievement, followed by parental occupation and parental education (McLoyd, 1998). Persistent poverty is repeatedly found to have more detrimental effects on IQ, school achievement, and socioemotional functioning than does occasional or transitory poverty (Cornwell, 1993; McLoyd, 1998).

Of the many studies that have documented the detrimental effect that poverty has on children's academic achievement, a study by Walker, Greenwood, Hart and Carter (1994) specifically investigated the impact of low family income on standardized achievement test scores. In this longitudinal study the authors found that children from low-income homes obtained lower scores on standardized reading and spelling achievement tests throughout their elementary school years.

McLoyd (1997) summarized numerous studies of children and adolescents that report an association between socioeconomic disadvantage and socioemotional problems with samples of White and African American adolescents and children. McLoyd noted that low socioeconomic class during early and middle childhood is associated with diminished self-confidence and self-esteem as well as poor academic achievement.

An example of additional hardships facing low socioeconomic class students was described in research by Branglinger (1991). In this study adolescents' reports of problems and punishment in school were examined. Poor students, compared to their
more affluent schoolmates, reported a greater number of penalties, more severe, stigmatizing punishment, and more stringent consequences for similar infractions. A second factor that is often cited in resilience literature as a risk for children and adolescents is exposure to major stressful life events. Research findings indicate that some stressful events including parental divorce, death or serious illness of a family member (Hashima & Amato, 1994) and community violence (Richters & Martinez, 1993) have been demonstrated to have an association with lower academic achievement. Stress is often a cumulative experience. Low family income and stressful life events are two stressors that frequently occur simultaneously. Children raised in families with low incomes are more likely to experience other risk factors in addition to poverty (DuBois, 1994; Pungello et al., 1996).

A third risk factor commonly cited in resilience literature related to the maintenance of academic achievement is differential schooling. Schools in the United States have different instructional practices and educational resources for poor and affluent students. Teachers may exacerbate the divisions between the haves and the have-nots in relation to the achievement gap by endorsing middle-class attitudes and values in the classroom that clash or seem threatening to a student of low economic status (Alexander et al., 1987; Takei, 1993). Poor children and adolescents frequently have a higher prevalence of emotional and behavioral problems than their middle-class counterparts (Adams, Hillman, & Gaydos, 1994).

Protective Factors

A number of research studies in the resilience literature have focused on identifying those protective factors that some African American youth utilize to
overcome the disadvantages of growing up in a risk-filled environment that may include racism, poverty, and poor educational opportunities. An example of a protective factor utilized by African Americans is racial socialization, described as a proactive orientation toward racial barriers that African American families teach their children and that focuses on ethnic pride and egalitarianism (Ward, 1996). Racial socialization has been demonstrated to have a positive effect on school performance among African American high school students. Bowman and Howard (1985) conducted a study in which they interviewed 377 African American adolescents between the ages of 14 and 24 years. They found that those youth whose parents transmitted some message to them about the reality of racism and the importance of ethnic pride and self-development had a greater sense of personal efficacy and had higher grades in school. Racial socialization typically includes parents teaching their daughters a healthy resistance to gender as well as racial oppression (Ward, 1996).

Specific protective factors have been identified in both White and Black youth who do not succumb to environmental risks. In a study of 442 high school seniors, resilient youth were found to possess the following protective factors: an internal locus of control, an active orientation to life, a tendency to seek out others, and the inclination to follow their own preferences instead of giving in to peer pressure (Blocker & Copeland, 1994).

A particularly intriguing protective factor present for some adolescent females has been identified by Carol Gilligan (1991) as political resistance. Gilligan explains that this trait is manifest by young women who take action against social or cultural conventions that serve to oppress themselves or others. Political resistance may include specific
actions that serve to reject stereotypes based on race, ethnicity, class or sex (Taylor et al., 1995). Pastor, McCormick and Fine (1996) elaborate on this concept, contending that some urban female adolescents of color develop social consciousness and actively reject White middle-class values. Political resistance can be thought of as part of a successful coping strategy.

Utilization of healthy coping skills is an integral facet of resiliency's protective factors. Healthy coping strategies can mediate or alleviate the effects of stress (Lazarus & Folkman, 1984). Investigations of the coping processes of adolescents is particularly important because acquiring coping skills, like all endeavors for youth, is a developmental process (Hauser et al., 1991). It may be that young people confront many different types of life stressors that they have not encountered previously, and/or they may not yet have a wide variety of coping strategies to rely upon (Patterson & McCubbin, 1987).

McCubbin and Patterson (1982, 1983) have developed a theoretical model of coping that takes a developmental approach to the acquisition and utilization of coping in children and adolescence. Their theory integrates previous individual coping theory with family stress theory. Coping is viewed as one of many resources that can add to or decrease the amount of stress that adolescents experience; young people generally are dealing with several demands simultaneously. McCubbin and Patterson (1983, 1985) believe that adolescents must learn how to manage individual, family, and community demands, and that coping is successful when the adolescent is simultaneously able to fit into his or her family and community. Bandura (1981) also noted the complexity involved in adolescent coping, noting that successful adolescent coping must include
learning how to coordinate cognitive, social, and behavioral skills to deal with stressors that are often ambiguous and unpredictable (Bandura, 1981).

Some speculation has gone into examining factors that affect the development of adolescent coping skills. Some researchers have examined whether the timing of puberty affects coping, with results suggesting that timing has little impact on coping for either sex (Bush & Simmons, 1987). Nolen-Hoeksema (1995) suggested that gender differences in coping style likely result from gender role stereotypes that emphasize that males are active and ignore their feelings, whereas females are passive and emotional. Gender-typed socialization increases the chances that adolescent females will adopt helpless, passive coping behaviors.

Studies have documented the differences in stress and coping between male and female adolescents including the type and frequency of use of various coping strategies (Copeland & Hess, 1995). Bird and Harris (1990) found that young adolescent females reported feeling more strain in their family role than their male counterparts, and that they tended to manage life problems by relying on social support (e.g. crying, talking to a friend) and increasing involvement in interpersonal relationships with friends, siblings, parents, and other adults. Girls may also participate in less healthy ways of coping with anxiety or insecurity by using strategies such as avoiding negative reactions or being compliant (Hill & Lynch, 1983).

The importance of ethnicity as a potential variable in the coping process cannot be overlooked because ethnicity affects adolescents’ perception of, and reaction to, stressful life events (Phinney, Lochner, & Murphy, 1990). Spencer, Cole, DuPree, Glymph, & Pierre (1993) found from their research with 562 African American urban middle school
adolescents that African American adolescents who have high self-esteem and good coping skills tend to demonstrate higher academic achievement in school. Spencer, Dobbs, & Swanson (1988) report that minority adolescents who identify with their own ethnic group have greater resilience during periods of unusual stress, including better mental health and academic performance.

Girls of color may learn important coping mechanisms that enable them to filter out degrading racial and gender messages (Rotheram-Borus, Dopkins, Sabate, & Lightfoot, 1996). Robinson and Ward (1991) suggest that African American females who fend off negative stereotypes about themselves often have higher self-esteem and other healthy attitudes and behaviors than females who succumb to stereotypes.

In conceptualizing resilience in urban youth growing up in high-risk environments, Spencer et al. (1993) propose that self-efficacy regarding academic achievement can be conceptualized as a method of coping. Academic self-esteem is viewed as a coping method because educational attainment remains the most important means for urban youth to escape chronic poverty. In their longitudinal study of 562 African American adolescents, the researchers examined coping methods and competence outcomes as measured by scores on the Iowa Test of Basic Skills and on a measure of academic self-esteem. With resilience conceptualized as academic coping, regression analyses indicated that significant predictors of academic performance for females were mother's education, parental life dissatisfaction, youth's perception of family conflict, and academic self-esteem. The findings indicated that as adaptive coping responses, both academic self-esteem and academic achievement are responsive to particular protective factors. The researchers also found that elementary school girls
obtained higher academic achievement scores than middle or high school females, and that a decline in academic achievement was observed in girls' middle school performance (Spencer et al, 1993).

Taken together, previous research and theory building literature indicates that resiliency theory lends itself to a description of stereotypical gender-role beliefs as both a potential risk or protective factor for adolescent females. Based on the resiliency literature, it was expected that low socioeconomic class would be associated with a decline in adolescent females' self-esteem, academic achievement, and coping skills. Adolescent females who have healthy coping skills, high self-esteem, and who are able to resist gender role socialization messages were expected to more likely maintain academic achievement than young women with poor coping skills, low self-esteem and adherence to stereotypical gender-role socialization messages.
CHAPTER III
METHODOLOGY

Overview

The purpose of this study was to examine the relationships among adolescent females’ academic achievement in middle school and traits of resilience in young women, including high self-esteem, healthy coping skills, and low adherence to stereotypical gender role beliefs. A within-subjects correlational design for survey research was utilized for this research. Data were gathered on self-esteem as measured by the Rosenberg Self-Esteem scale, on the utilization of coping skills as measured by the Adolescent Coping Orientation for Problem Experiences (A-COPE), on adherence to stereotypical gender role beliefs as measured by high femininity or high masculinity on the Personal Attribute Questionnaire (PAQ), and on academic achievement as measured by comparing the participants’ fifth and eighth grade test scores on standardized tests and their fifth and eighth grade classroom grades. A demographic component provided by the various school systems was used to provide information on participants’ ethnicity, age, and socioeconomic status.

This chapter describes the methodology employed in this study. Included are descriptions of the population, sample, sampling procedures, research design, instrumentation, and data analysis. The chapter concludes with a discussion of the methodological limitations of the study.
Population

The population from which the sample for this study was drawn is ninth grade students attending public high schools in Alachua, Bradford, Clay, and Putnam counties in the state of Florida. Since standardized tests are generally given to students in April of eighth grade, and scores are not available until the end of the academic school year, data for this study were collected during the first part of the 1998-1999 school year from incoming ninth grade students.

Student participants included residents of small or medium sized cities and rural areas. The geographical area of Alachua County, for example, is fairly evenly divided between Gainesville, a university city of 100,300 residents in the north central portion of Florida, and the more rural areas of the county that surround the city. The average age of participants was 14.5 years. The demographic composition of the schools involved is fairly typical of many Southern states. At Hawthorne High School, for example, the 1998-1999 school year demographics for the total study body of 650 students is 340 males, 310 females, 409 White, 231 African American, 5 Hispanic, 3 Asian, 1 Native American and 1 Multiracial. Students from low socioeconomic backgrouns are well-represented in this geographical area. Forty-four percent of students in Alachua County’s middle schools, for example, are eligible to receive free or reduced lunches; the state-subsidized lunch program is based on household income, with a family of two reporting a yearly income below $14,000 (Alachua County School Board, 1998-1999).

Sample and Sampling Procedures

Permission was received from the University of Florida Institutional Review Board for this research. An application for permission to do research in the schools was
submitted to the School Boards' Department of Research and Evaluation and permission received for each of the four participating counties as well as from P.K. Yonge Developmental Research School of the University of Florida.

The sampling plan used in this research was a convenience sample. After each site principal agreed to participate, the researcher contacted teachers at the site schools. The researcher met personally with each teacher, explained the research procedures, and gave Informed Parental Consent forms to each teacher to distribute to their students (see Appendix B). Parent/guardian signatures were obtained and the forms returned prior to the day of data collection. During the meeting with the teachers, the researcher arranged the time, date, and location for data collection. The researcher presented an incentive to the teachers in exchange for granting access to their students. An offer was made in which the researcher conducted a class or workshop on stress management for high school students that was scheduled at the conclusion of the survey administration.

The researcher asked the teachers for permission to enter their regularly scheduled class to administer the questionnaire to all students in their class (es) who volunteered to participate. When data collection commenced, the assessment explanation, survey administration, and debriefing took approximately 20 minutes to complete.

This study required a minimum sample size of at least 200 adolescent females. In the use of path analysis, the minimal sample size needed to provide adequate estimates of the regression coefficients is 200 cases (Shavelson, 1988). However, because logistics of working in the public schools necessitated that the survey be administered to both girls and boys, it was necessary to recruit more students to complete the assessment measure, although the data collected from male students was not be used in this research study. In
order to analyze the data by race and socioeconomic class, a minimum of 30 respondents for each category was needed. Given the demographics of north central Florida’s public schools, enough data were generated to successfully analyze the findings for White and African American females, and for lower income and higher income students. In order to ensure an adequate sample size and to guard against incomplete data such as transfer students, the researcher solicited more than the minimum number of participants actually needed for this study.

The data measuring academic achievement were obtained from student records made available by the either the individual high school or the county school board’s Administrative Offices. Standardized test scores from fourth or fifth grade and eighth grade, as well as the classroom grades for math and reading from fifth and eighth grades were obtained for each participant in the research. Student records were used to obtain demographic information that included gender, age, ethnicity, and enrollment in the free or reduced lunch program.

Design

The design for this study was a within-subjects, correlational design for survey research. The independent (predictor) variables were stereotypical gender role beliefs, healthy coping skills, and self-esteem. The dependent (criterion) variable was academic achievement, and more specifically, the maintenance of academic achievement from elementary to middle school. The three independent variables were operationalized by (a) the Personal Attribute Questionnaire (PAQ) that assessed stereotypical gender role beliefs, (b) the Adolescent Coping Orientation for Problem-Experience (A-COPE), that assessed healthy coping skills, and (c) the Rosenberg Self-esteem scale that assessed self-
esteem. The dependent variable, academic achievement, was operationalized via two measures that were gathered from student records: the difference between fifth and eighth grade standardized test scores, and the difference between fifth and eighth grade classroom grades in math and reading.

Instrumentation

Predictor Variables

The Personal Attributes Questionnaire (PAQ; Spence, Helmreich, & Stapp, 1974) was selected as a measure of sex role identity for several reasons that fulfill the objectives of this research. First, the instrument measures masculinity and femininity only in terms of positively valued characteristics. Second, the PAQ has two scales, “Self” and “Other,” that differentiates the beliefs that one holds for oneself and for others. Because peer and social influence is such a critical factor for adolescents, it was thought that the inclusion of this scale could provide an additional source of pertinent data in this study. The third and perhaps most important reason for using the PAQ in this study was in its appropriateness for use with young adolescents. The PAQ has been demonstrated to have a reading and comprehension level suitable for young adolescents (Murphy & Steven, 1987). Finally, the solid reliability and validity data on the PAQ includes research with adolescent populations of diverse backgrounds (Spence, 1978).

Spence et al. (1974) developed the PAQ because of concerns about traditional measurement of the social constructs of masculinity and femininity. The authors based the development of this instrument on the premise that masculinity and femininity are two different dimensions of a personality construct rather than continuous traits. By viewing masculinity and femininity in this way, the researcher is able to view an
individual as having both masculine and feminine psychological characteristics. For example, rather than assuming that aggressiveness is a masculine trait and nurturance is a feminine trait, in the dualistic approach a man or a woman can be both aggressive and nurturant at the same time, or can have neither of these characteristics.

Much of the research of the past several decades in the study of gender phenomena has been accomplished by the use of one of the two most popular assessment measures: the PAQ or the Bem Sex Role Inventory (BSRI; Bem, 1974). Although the two personality inventories measure similar constructs, there are noteworthy differences between the two. In highlighting the reasons that the PAQ was selected for use in this research rather than the BSRI, those concerns most relevant to the current study are cited here and include considerations that (a) the items on the PAQ are framed in terms of positive characteristics, while the BSRI contains items than may be construed as either positive or negative, (b) the PAQ takes a multifactorial approach to gender, whereas the BSRI works from a unifactorial gender schema theory (Spence, 1993), (c) the PAQ has an "Other" scale to measure what the respondent believes that others think about each characteristic, but the BSRI does not; and (d) researchers have indicated that the language of the BSRI is not suitable for young adolescents (Richmond, 1984).

Spence and Helmreich (1978) reported research results that indicated that their dualistic conception of femininity and masculinity is valid for high school students of diverse socioeconomic status and from differing geographic locations of the country. Significant differences in self-esteem in both sexes for the four PAQ categories have been found, with the highest self-esteem reported by high masculine/feminine students, followed by the masculine, feminine, and undifferentiated, respectively. Helmreich
(1980) reported that samples from Mexico, Germany, Tunisia, and France appeared to yield results similar to the norms found in American samples. Binion (1990) reported the results of research in which the PAQ was administered to low- to middle-income African American women with a median age of 23 years. Examining the degree to which self-reported masculine and feminine characteristics dictate role preferences and gender expected behavior, her research lends support for the ability of the PAQ to measure personality traits that demonstrate endurance over time and situation across non-White cultures.

The PAQ is a 55-item instrument that contains two major scales: one consisting of socially desirable instrumental traits (e.g., independence, decisiveness) that are stereotypically more characteristics of males than females (M scale), and the other consisting of socially desirable expressive traits (e.g., tactfulness, awareness of others’ feelings) that are stereotypically more characteristic of females (F scale).

PAQ respondents are instructed to make two sets of ratings on traits that stereotypically differentiate the sexes. The measure’s instructions make no mention of sex differences. First, the respondent indicates whether the trait listed is characteristic of themselves on a 5-point Likert scale that ranges from not at all, to very. Second, the same characteristics are listed again, and this time the respondent is asked whether that trait is much more characteristic of a male or much more characteristic of a female.

The PAQ produces four scores, including a “masculine” score, a “feminine” score, and two scores that combine attributes considered both masculine and feminine (Spence, et al., 1974). Scores range from 0 to 5 on both the Self scale and the Stereotype scale, with the extreme male or female choice indicated by a score of 5.
Alpha coefficients were computed for the Stereotype and total Self scores as a measure of internal consistency. The values were .01 and .90 for the men and women, respectively, on the Stereotype scale and .73 and .91 for men and women on the Self Scale. Alpha coefficients reported in Bionion's (1990) study found that the PAQ femininity scale was $r = .68$ and the PAQ masculinity scale was $r = .66$.

A second analysis reported by the authors (Spence, 1978) that was related to internal consistency involved part-whole correlations computed between each Self-item and the subscale. The range of $r$'s for the men and women respectively was .23 to .64, and .24 to .70 for the male-valued items. For the female-valued items, the values ranged from .22 to .56 and .27 to .55 for the men and women. Parallel values for the sex-specific items were .23 to .61 and .19 to .64. All r’s were significant. Although the means of the men and women did not differ significantly for all Self items, within each sex the items tended to correlate satisfactorily with the individual’s masculinity or femininity as reflected in their overall score on the subscale to which the items belonged.

Test-retest data from the authors’ original research were with 31 subjects who retook the PAQ after an interval of 13 weeks. The r’s were .92 and .98 for men and women respectively on the Stereotype scale, and .80 and .91 on the total Self Scale. The values for the subscales varied from .65 to .91.

This research used the short form of the PAQ, which was developed by Spence, Helmreich, and Stapp (1975), in conjunction with their longer form. The short form has 24 items and correlations with the full scale of 55 items are high: for the male-valued subscale, the correlations on the total Self, full versus short is $r = .92$, for the stereotype scale, full versus short is $r = .94$. 
The Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987) was selected for use in this research because of its unique focus on the coping behaviors of adolescents. The measure was designed at a reading level appropriate for young adolescents, and with items that realistically tap the range of behaviors used by today’s adolescents.

The A-COPE was developed by Joan Patterson and Hamilton McCubbin (1987) as part of the Family Stress, Coping, and Health Project directed by Hamilton McCubbin. An important characteristic of the A-COPE inventory is that the instrument is based on theory that integrates individual coping theory and family stress theory (Moos & Billings, 1982). The authors worked from the perspective that healthy coping skills for adolescents consist of successfully balancing the demands of the self, the family, and the community (Patterson & McCubbin, 1987). Coping is viewed as synonymous with effective problem solving, and this is achieved by maintaining a balance between utilizing both inner and external resources to come to terms with difficulties (Patterson & McCubbin, 1987). The items on the A-COPE were developed from literature review and from interviews with adolescents regarding life changes.

The A-COPE (Patterson & McCubbin, 1987) is a 54-item questionnaire designed to measure self-reported coping behaviors in adolescents between the ages of 13 and 18 years of age. Using a 5-point scale (never, hardly ever, sometimes, often, and most of the time), participants are instructed to record how often they use each behavior by answering the question, “When you face difficulties or feel tense, how often do you...?” The A-COPE is scored by summing item scores for a total score; several items are reverse-scored.
Each scale of the A-COPE assesses different coping patterns among adolescents. For this study, the items from 6 of the 12 scales were included in the research questionnaire. Those scales that were not necessary to achieve the purposes of this research (e.g., cited unhealthy coping strategies such as using drugs) were excluded.

Reliabilities (cronbach’s alpha) of the subscales that were used in this research are high, ranging from .67 to .76 (Patterson & McCubbin, 1987). The reliabilities for each scale used in this study are as follows: Developing self-reliance and optimism, alpha = .69; Developing social support, alpha = .75; Solving family problems, alpha = .71; Seeking spiritual support, alpha = .72; Investing in close friends, alpha = .76; and Engaging in demanding activity, alpha = .67. Data on stability are not available. However, reliability data from the Young Adult-COPE, which are only slightly modified from A-COPE, show an overall alpha of .82 and good stability with a test-retest correlation of .83 (Patterson, McCubbin, & Grochowski, 1983).

Concurrent validity was established initially by the authors by examining eight of the coping scales in relationship to substance use among adolescents. Correlations for female adolescents found two types of coping patterns: complementary coping patterns that appeared to complement substance use, and competing coping patterns that appeared to compete against substance use. For female adolescents, coping focused on solving family problems (r = -.10 to -.21), seeking spiritual support (r = .11 to -.21), and engaging in demanding activity (r = .13 to -.18), were negatively associated with the use of cigarettes, beer, and marijuana (McCubbin, Needle, & Wilson, 1985).

The A-COPE has fair predictive validity, with correlations in predicted directions with use of illicit substances including alcohol and marijuana. In a study by McCubbin,
Kapp, and Thompson (1993) of families of youth at risk involved in residential treatment, youth coping was significantly related to program completion. Youth coping also related to successful 3-month posttreatment adaptation. In a study by McCubbin et al. (1985), adolescent coping was significantly related to adolescent health risk behaviors.

The original samples from which Patterson and McCubbin normed their instrument lacked diversity in racial, cultural, and economic populations. Their three pilot samples were each from the Midwest and were composed almost exclusively of Caucasian adolescents from middle to upper socioeconomic families. Since then, however, other researchers have used the instrument with more diverse groups of adolescents and have reported that the instrument does appear to have validity with diverse populations (Plancherel & Bolognini, 1995). For example, Copeland and Hess (1995) report that they administered the A-COPE to 244 Anglo and Hispanic ninth-grade students from a small, urban city. They found that the A-COPE differentiated coping behaviors by both gender and ethnicity.

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a scale that measures the self-acceptance aspect of self-esteem. This measure was chosen because of the instrument's focus on liking and approving of the self in general, as opposed to self-evaluation in a specific context (e.g., social situations). The scale consists of 10 statements, such as, "On the whole, I am satisfied with myself," which reflect a positive or negative self-evaluation.

The Self-Esteem Scale was originally designed to measure global self-esteem of junior and senior high school adolescents (Rosenberg, 1965, 1989). The Self-Esteem Scale taps the extent to which a person is generally satisfied with his or her life, considers
herself or himself worthy, holds a positive attitude toward him or herself, or alternatively feels dissatisfied.

The Self-Esteem Scale benefits from a vast amount of research that has been conducted using this scale with a wide range of groups over the years. Rosenberg’s original research (1965) on the Self-Esteem Scale was conducted with 5,024 adolescents of varying ethnic backgrounds from the state of New York. Subsequent research involved thousands of college students, junior and senior high school students, and adults from a range of professions and occupations.

Participants use a 4-point Likert scale ranging from strongly disagree (1) to strongly agree (4) to indicate the extent to which each item is descriptive of them. Scores for the scale are obtained by adding the participants’ responses to the items, with higher scores indicating higher levels of self-esteem. Positive and negative items are presented alternately in order to reduce the danger of a respondent set.

The items were originally structured as a Guttman-type scale in which item content moves sequentially from weaker to stronger expression of self-perceptions. The Self-Esteem Scale has excellent internal consistency, as indicated by a Guttman scale coefficient of reproducibility of .92 (Rosenberg, 1965). Two studies of two-week test-retest reliability show correlations of .85 and .88, indicating excellent stability (Silber & Tippett, 1965).

A great deal of research demonstrates the concurrent, known-groups, predictive, and construct validity of the SES. The scale correlates 0.59 with Coopersmith’s Self-Esteem Inventory (Crandall, 1973), and from 0.56 to 0.83 with several similar measures such as the Health Self-Image Questionnaire, providing evidence of convergent validity.
Similarly, the Self-Esteem Scale correlates in predicted directions with measures of depression, anxiety, and peer-group reputation, demonstrating good construct validity by correlating with measures with which it should theoretically correlate and not correlating with those with which it should not. Construct-related validity has been demonstrated by numerous studies showing correlations in appropriate direction between the Self-Esteem Scale scores and several other variables (e.g., depression, anxiety) with which self-esteem theoretically is expected to relate (Fischer & Corcoran, 1994).

Although some criticism has been aimed at the scale, primarily because of the small number of items, enough research has accumulated to indicate that the measure continues to be a powerful predictor of self-esteem in adolescents (Nunnally, 1967).

**Dependent Variables**

Indices of academic achievement consisted of two measures: (a) the differences between fifth and eighth grade classroom grades in the subjects of math and reading, and (b) the differences between fifth and eighth grade standardized test scores. Although academic grades are sometimes subject to criticism due to the subjective manner in which they can be assigned, their universality as a standard of performance seems to justify their inclusion as a gauge of academic achievement in this study.

**Data Analysis**

A path analysis with manifest variables was used to test the hypothesis and Research Question One and Research Question Two. Although the preferred analysis for this study would have been path analysis with latent variables, it was not possible to use this procedure because (a) the measures of the constructs of interest that were used in this
research contain more items than permissible, (b) the sample size was not sufficiently large, and (c) it was not possible at the onset to predict how the variables would relate to each other. All of these reasons combined to argue against using a path analysis with latent variables (Hatcher, 1994).

Path analysis with manifest variables was a good choice for this study, although admittedly not a perfect one. Path analysis with manifest variables assumes that each assessment instrument perfectly measures the construct being measured, and although each measure selected for this study is likely to be a good fit, it will not be perfect. Despite this problem, path analysis with manifest variables was the best option for this research because the use of path analysis with latent variables would be ill advised under the current study’s conditions, and because the use of simple correlations would not assess the complex relationships hypothesized among the variables in this study.

Path analysis is a form of multiple regression that uses regression correlations in a visual diagram to find correlation paths among the relevant variables. The use of path analysis to analyze this research data allowed the portrayal of a theoretical picture indicating which paths between and among variables proved to be statistically significant. A theoretical picture was portrayed at the onset of the research that indicated the hypothesis and research questions. After data analysis was complete, the nonsignificant paths were eliminated from the theoretical picture, and a path diagram was generated indicating the results of the data collected in this study (Hatcher, 1994). Figure 1 illustrates the initial theoretical model for this research.
Hypothesis and Research Questions

Hypothesis

As stereotypical gender role beliefs among early adolescent females increase, and as healthy coping strategies and self-esteem decrease, it was predicted that academic achievement scores from fifth to eighth grade would decrease. A path analysis with manifest variables was used to test whether the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem influence the two criterion variables of fifth and eighth grade standardized test score differences and fifth and eighth grade math and reading classroom grade differences.

Research Question 1

How do the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem correlate with each other? Three Pearson product-moment correlation coefficients were calculated to assess the magnitude of the correlation between pairs of these three predictor variables.

Research Question 2

Which pairs of the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem have the greatest impact on fifth and eighth grade math and reading classroom grades differences and fifth and eighth grade standardized test score differences? A path analysis with manifest variables was used to test the six indirect correlational paths between the predictor variables and the criterion variables.

Research Question 3

What is the relationship between the two criterion variables of fifth and eighth grade standardized test score differences and fifth and eighth grade math and reading
Figure 1. Conceptual model of the predictors of academic achievement.
classroom grade differences? Correlation coefficients were used to test the correlations between the two criterion variables.

Research Question 4

Will the relationships between stereotypical gender role socialization, coping skills, self-esteem and academic achievement for middle school females vary by ethnicity and socioeconomic status? These data were analyzed by the use of Pearson product-moment correlations and z tests. By obtaining the Pearson product-moment correlation coefficients and performing \( r \) to \( z \) transformations, I was able to perform \( z \) tests. Forty-two pairs of correlations were compared using \( z \) tests, with the Benferroni-corrected alpha level of \( p < .0025 \) (\( .05/20 = .0025 \)). The Forty-two pairs of correlations included 21 pairs for race and 21 pairs for socioeconomic status.

Research Question 5

Will the mean scores of stereotypical gender role socialization, coping skills, self-esteem, and academic achievement for middle school females vary by ethnicity and socioeconomic status? These data were analyzed by 14 independent \( t \) tests, 7 for race and 7 for socioeconomic status. The independent variables are race or socioeconomic status, and the dependent variables were stereotypical gender role socialization, coping skills, self-esteem, fifth and eighth grade standardized test score differences and fifth and eighth grade classroom grade differences.

Methodological Limitations

One possible limitation of this research was the use of the subscales of the coping measure employed in this research. The A-COPE was originally designed as a 12-scale
instrument. Six of the subscales represent positive coping skills, and because the use of these six fulfilled the measurement needs for this research, only these six scales were utilized in this study. It should be noted that other researchers, including the instrument's authors, have used partial scales from the A-COPE and found positive results (Kluwin, Blennerhassett, & Sweet, 1990; McCubbin et al., 1985; Needle, Su, Doherty, Lavee, & Brown, 1988). The reliability coefficients for each subscale of the A-COPE are listed in the instrumentation section of this chapter.

In addition to these reasons for using six of the subscales of the A-COPE, it is noteworthy to consider the effect of context in this study, or question context effect. Participants in this study are young adolescents in a school setting who will be answering questions for an adult who is a stranger to them. Given the school context in which they will be responding to this measure, it is likely that many students may not be entirely truthful if asked to answer questions about drug use or swearing, for example. The six subscales of the A-COPE that were not utilized for this research contain items that inquire about the respondent's use of more negative coping behaviors; thus it is possible that the introduction of negativity could lead to distortion of response on the positive items as well.

A second potential limitation of this study is the timing of the data collection. The population used in this study was composed of ninth grade students who completed the three assessment measures early in their academic year. However, the academic achievement measures are from the end of their fifth and eighth grade school years. Therefore, there was a difference of approximately six months' time that elapsed between
the two sets of measurements. This difference in timing needs to be taken into account when evaluating the findings of this study.

Finally, the criteria used in this study for socioeconomic level is the students' qualification for free or reduced lunches according to the standards set by the State of Florida's Department of Education. This measure of socioeconomic status was chosen over inquiries about parents' highest level of educational attainment because the lunch program seems to be a more direct assessment of the desired information. In addition, permission to ask the students about their parents' educational attainment was frowned upon by officials from several of the participating school boards. Limitations do remain regarding the lunch program, however. First, the status of qualification for the free or reduced lunch program simply divides students into two categories: below the cut-off line or above the cut-off line. Thus, respondents were categorized as simply lower socioeconomic status or higher socioeconomic status. Secondly, there is a general underutilization of the lunch program in the county as students progress in public schools, i.e., the same family with the same income requests free or reduced lunches in elementary school but may not in high school. Therefore, although this measure is believed to be as accurate a gauge of socioeconomic level that can be obtained for this sample, the actual socioeconomic status of the sample may not be fully represented by this measure.
CHAPTER IV
RESULTS OF THE STUDY

The purpose of this study was to examine the relationship between adolescent females' academic achievement in middle school and traits of resilience, including high self-esteem, healthy coping skills, and low adherence to stereotypical gender role beliefs. Additional research questions included an investigation each of these variables individually and in pairs by race and class. This study attempted to answer the following questions:

1. Do gender role beliefs, coping strategies or self-esteem predict academic achievement for middle school adolescent females?

2. How do gender role beliefs, coping strategies, and self-esteem correlate with each other for middle school females?

3. When gender role beliefs, coping strategies, and self-esteem are paired together, which has the greatest impact on academic achievement for females over middle school?

4. What is the relationship between changes in standardized test scores and changes in classroom grades for females over the period of middle school?

5. Will the relationships among gender role beliefs, coping skills, self-esteem and academic achievement for middle school females vary by race or socioeconomic status?
6. Will the mean scores of gender role beliefs, coping skills, self-esteem, and the changes in academic achievement over middle school vary for females by race or socioeconomic status?

Descriptive Data

A total of 591 students participated in this research, although data from just 291 were used in this study. The assessment measurement was administered to 591 male and female ninth-graders in classrooms of eight different schools. Five public school districts, representing Alachua, Bradford, Clay, and Putnam counties and the University of Florida research laboratory school are represented in the sample.

As follow up data collection ensued with the various school administrators, it quickly became apparent that a sizable number of student records were incomplete, thus making it impossible to locate the matching academic records necessary for this research. Therefore, although 357 girls completed the research survey, full information for just 291 of the students was available at the time of data collection, and it was with these data that this study was completed.

Several different standardized tests are represented in the research results. Students who transferred to the five districts from other schools, counties, or states sometimes had differing standardized tests scores from their previous school districts. Therefore, although the majority of the research participants had standardized test records from either the Iowa Tests of Basic Skills (ITBS), or the Comprehensive Tests of Basic Skills (CTBS), other tests are also represented in this sample, including the California Achievement Tests, the Stanford Achievement Test and the Florida Comprehensive Achievement Test.
In some cases student records indicated that standardized tests were taken at the end of fourth grade, although most frequently the tests were administered at the end of fifth grade. The data included in this research, therefore, include records from the students’ last recorded elementary school standardized test score, whether that was fourth or fifth grade.

Each standardized test produces several scores in each subject area tested. For example, the ITBS reports three reading scores: vocabulary, reading and total reading, and four math scores: math concepts, math problems, math computation, and math total. For this research the “total reading” and “total math” scores were recorded as reported in the form of students’ national percentile ranking.

A few participants attended elementary schools that did not assign letter grades for subjects but used another comparable system such as citing “mastery of skills,” “partial mastery of skill,” or “needs improvement.” In these cases, these descriptive evaluations were assigned a number score, with “4” equivalent to an “A” and “1” equivalent to a “D” and then tallied to derive a letter score consistent with the letter grading format reported by the majority of student participants.

There were some differences that emerged as a result of citing course subjects from different school districts. For example, although most schools listed “reading,” some schools listed “language arts” and some schools listed both as separate subjects. Most eighth graders took a course called “math” but some did not take math but took “algebra” instead. For this data collection, the subjects of “reading” and “language arts” are used interchangeably. In the case of a student having two reported classes in the subject of math or reading, both grades were noted and an average grade was derived.
As discussed in Chapter III, in order to analyze the data by socioeconomic class and race, a minimum of 30 respondents for each category was needed. Data collection continued until enough data were collected to permit analyzing findings for White and African American females, and for low- and middle- or high-income students. The total sample consisted of 75 African American females (25.8%), 206 White females (70.8%), 8 Hispanic females (2.7%), 1 Asian American female (0.3%), and 1 Multiethnic female (0.3%). The sample included 106 low income students (36.4%) as reported by the school district as qualified to receive free or reduced lunch, and 185 students (63.6%) of higher income families, as reported by the school district as not qualified to receive free or reduced lunch. The ages of the ninth-grade students ranged from 13 years to 16 years of age, while the average age of the research participant was 14 years and 4 months of age.

Student participants for this study included all of the different ability levels represented at the eight public schools. However the level of consistency of reporting of these levels is poor, i.e., some schools reported their low ability level students and some did not, so therefore the breakdown of this demographic factor is not included in this report. What is known is that this research sample consists primarily of students of normal ability as well as some students from varying exceptionality categories which typically include students with learning, behavioral, and emotional problems, as well as student who qualify for gifted or "honors" classes. There is no reason to think that the ability levels represented in this sample are not a normal representation of typical ninth grade student bodies.
Hypothesis

As stereotypical gender role beliefs among early adolescent females increase, and as healthy coping strategies and self-esteem decrease, it was predicted that academic achievement scores from fifth to eighth grade would decrease. A path analysis with manifest variables was used to test whether the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem would influence the two criterion variables of fifth and eighth grade test score differences and fifth and eighth classroom grade differences.

Students with the highest self-esteem demonstrated the least decline in math grades from fifth to eighth grades, substantiating the hypothesis on one indicator by the results of this research. Data analysis indicated that the predictor variable of self-esteem significantly predicted the differences between fifth and eighth grade classroom grades in math, $r = .15$, $p < .02$. Females with the lowest self-esteem demonstrated the greatest decrease in math grades over middle school. Figure 2 presents a diagram of the results of the path analyses for the hypothesis that yielded statistically significant results. The path coefficients shown in Figure 2 were obtained from the results of four simultaneous, linear multiple regression analyses, one for each of the four criterion variables: (a) change in math grades, (b) change in reading grades, (c) change in math standardized test scores, and (d) change in reading standardized test scores. The predictor variables were scores on the A-COPE, Rosen, and PAQ, and the fifth grade classroom grade or standardized test scores that corresponded to the particular criterion variable (e.g., fifth grade math classroom grade for the regression with math grade change).
In contrast, all other analyses failed to show a significant relationship between the predictor and criterion variables. Specifically, the predictor variables of stereotypical gender role beliefs and coping skills did not significantly predict differences between either fifth and eighth grade classroom grades in reading or math, nor the differences between fifth and eighth grade standardized test score differences in reading. The predictor variable of self-esteem did not significantly predict the differences between fifth and eighth grade classroom grades in reading, nor the differences between fifth and eighth grade standardized test scores in reading or math. Figure 2 presents a diagram of all significant and nonsignificant path analyses for the hypothesis. Figure 3 presents a diagram of the results of all significant path analyses for the hypothesis. Table 1 presents the simple bi-variate correlations for all variables employed in the path analysis for this study.

Research Question 1

How do the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem correlate with each other? Three Pearson product-moment correlation coefficients were calculated to assess the magnitude of the correlation between pairs of these three predictor variables.

Young women who scored the highest on the PAQ also scored the highest on the A-COPE, and young women who scored the highest on the Rosenberg Self-Esteem Scale also scored the highest on the A-COPE, thus substantiating two of the three predicted correlations of Research Question 1. Specifically, stereotypical gender role beliefs correlated significantly with healthy coping strategies, $r = .44$, $p < .0001$ and $r^2 = 19\%$. 
Note. R = reading. M = math. For correlations among the predictor variables, n = 291. For correlations among the predictor variables and the criterion variables for reading grades n = 266, for math grades n = 263, for reading standardized test scores n = 261, and for math standardized test scores n = 258. For correlations between the criterion variables for reading n = 206 and for math n = 203.

* p < .05. ** p < .005. *** p < .0001.

Figure 2. Significant and nonsignificant path analysis results of predictors of academic achievement, the relationships among predictors, and the relationship between grades and standardized tests.
Note. $M = \text{math}$. For the correlations among the predictor variables, $n = 291$. For the correlations between Rosen and math grades $n = 203$, and for the correlations between the criterion variables $n = 203$.

* $p < .05$.  **$p < .005$.  ***$p < .0001$.

Figure 3. Significant path analysis results of predictors of academic achievement, the relationships among predictors, and the relationship between grades and standardized tests.
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<td>-.07</td>
<td>-.15*</td>
<td>.44*</td>
<td>.36*</td>
<td>.42*</td>
<td>.36</td>
<td>.80*</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. MTH ST 5</td>
<td>.02</td>
<td>.02</td>
<td>-.12</td>
<td>.52*</td>
<td>.38*</td>
<td>.58*</td>
<td>.51*</td>
<td>.65*</td>
<td>.61*</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>11. MTH ST 8</td>
<td>-.00</td>
<td>.02</td>
<td>-.11</td>
<td>.51*</td>
<td>.43*</td>
<td>.55*</td>
<td>.52*</td>
<td>.61*</td>
<td>.68*</td>
<td>.75*</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Note. * p < .05. n ranges from 220 to 291.
indicating that 19% of the variance of PAQ scores overlapped with A-COPE scores.

Secondly, high self-esteem correlated significantly with healthy coping strategies, \( r = .39, p < .05 \) and \( r^2 = 15\% \), indicating that 15% of the variance of the Rosenberg scores overlapped with A-COPE scores.

In contrast, stereotypical gender role beliefs were found to have a low correlation with high self-esteem, \( r = .12, p < .05 \) and \( r^2 = 10\% \). Figure 2 presents a diagram of all significant and nonsignificant paths for Research Question 1. Figure 3 presents a diagram of the results of only the significant paths only Research Question 1.

**Research Question 2**

Which pairs of the predictor variables of stereotypical gender role beliefs, coping strategies, and self-esteem have the greatest impact on the criterion variables of fifth and eighth grade test score differences and fifth and eighth grade classroom grade differences? A path analysis with manifest variables was used to test the six indirect correlational paths between the predictor variables and the criterion variables of fifth and eighth grade test score differences and fifth and eighth grade classroom grade differences. The results of Research Question 2 indicated one significant finding. The interaction of stereotypical gender role beliefs and coping strategies significantly predicted changes in math classroom grades, at \( p > .01 \). The regression coefficients used to assess Research Question 2 are shown in Table 2 and were obtained from the results of four, simultaneous linear multiple regression analyses, one for each of the criterion variables (a) change in math grades, (b) change in reading grades, (c) change in math standardized test scores, and (d) change in reading standardized test scores. The predictor variables were the three two-way interactions of scores on the A-COPE, Rosenberg, and PAQ, and the fifth grade
classroom grade or standardized test score that corresponded with the particular criterion variable (e.g., fifth grade reading classroom grade for the regression with reading grade change).

In contrast, none of the other interactions between stereotypical gender role beliefs, coping strategies, and self-esteem significantly reached or approached conventional levels of statistical significance to predict changes in either standardized test scores in reading or math, or changes in classroom grades in reading or math. The significant data results in this research question are noteworthy and yet, upon further consideration, it was recognized that the analysis as stated did not indicate the full implications of this finding. Data analysis from the hypothesis revealed that individually neither adherence to stereotypical gender role beliefs nor coping skills predicted academic changes, yet analysis from this research question indicates that the interaction between these two variables was a significant predictor of math grades. The question remained: in what direction were the significant changes in math grades? Who scored the highest in math standardized tests?

Further analysis of the significant findings of Research Question 2 was pursued via the post-hoc analysis of Least Squares Means set at \( p < .05 \). Two significant results of the least square mean effect were found. First it was found that the least square mean value of \(-0.16\) for PAQ1 and A-COPE 1 was significantly different than the least square mean value of \(-0.76\) for PAQ3 and A-COPE 2 at \( p < .05 \). Secondly, it was found that the least square mean value of \(-0.13\) for PAQ1 and A-COPE 2 was significantly different than the least square mean value of \(-0.76\) for PAQ3 and A-COPE 2, at \( p < .05 \).
The post-hoc analysis revealed that participants who scored low in stereotypical gender role beliefs and low or medium in coping showed the least decline in math grades. These results indicate that for this sample low PAQ and low A-COPE predicted a math grade decline of 15/100 of a grade point in contrast to the combination of high PAQ and medium A-COPE which predicted a steeper decline of 76/100 of a grade point. Research participants who scored high in stereotypical gender role beliefs and moderate in coping skills showed the most significant loss in math classroom grades, by 76/100 of a grade, in contrast to participants who were low in stereotypical gender role beliefs and low or medium in coping who showed a fairly small decline in math grade, 13/100 – 15/100 of a grade.

**Research Question 3**

What is the relationship between the change in classroom grades and the change in standardized test scores in math and reading? Correlation coefficients were used to test the correlations between the two criterion variables of the change between fifth and eighth grade classroom grades and the change between fifth and eighth grade standardized test scores.

Declines in reading grades from fifth to eighth grades do not have corresponding declines in standardized test scores, according to the results of Research Question 3. Data analysis revealed there was a significant relationship between the change in fifth and eighth grade grades and the change in fifth and eighth grade standardized test scores in math, $r = .26, p < .005$. In contrast, analysis revealed that there was no significant that relationship between changes in fifth and eighth classroom grades and fifth and eighth grade standardized test scores, $r = .15, p < .15$. In other words, changes in math grades
Table 2

**Summary of Simultaneous Regression Analyses for the Interaction of Pairs of Variables Predicting Changes in Four Measures of Academic Achievement**

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Grade</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PAQF x A-COPE</td>
<td>-.03</td>
<td>.03</td>
<td>-.10</td>
</tr>
<tr>
<td>2. PAQF x ROSEN</td>
<td>.00</td>
<td>.00</td>
<td>.17</td>
</tr>
<tr>
<td>3. A-COPE x ROSEN</td>
<td>-.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td><strong>Math Grades</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PAQF x A-COPE</td>
<td>-.07</td>
<td>.03</td>
<td>-.21*</td>
</tr>
<tr>
<td>2. PAQF x ROSEN</td>
<td>.01</td>
<td>.00</td>
<td>.21</td>
</tr>
<tr>
<td>3. A-COPE x ROSEN</td>
<td>.00</td>
<td>.00</td>
<td>.02</td>
</tr>
<tr>
<td><strong>Reading Test Scores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PAQF x A-COPE</td>
<td>-.46</td>
<td>.45</td>
<td>-.06</td>
</tr>
<tr>
<td>2. PAQF x ROSEN</td>
<td>.00</td>
<td>.05</td>
<td>.00</td>
</tr>
<tr>
<td>3. A-COPE x ROSEN</td>
<td>-.03</td>
<td>.05</td>
<td>-.05</td>
</tr>
<tr>
<td><strong>Math Test Scores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PAQF x A-COPE</td>
<td>-.06</td>
<td>.55</td>
<td>.00*</td>
</tr>
<tr>
<td>2. PAQF x ROSEN</td>
<td>.02</td>
<td>.06</td>
<td>.03</td>
</tr>
<tr>
<td>3. A-COPE x ROSEN</td>
<td>-.01</td>
<td>.06</td>
<td>-.01</td>
</tr>
</tbody>
</table>

Note. *p < .05.
from fifth to eighth grades have corresponding changes in standardized test scores, but changes in reading grades from fifth to eighth grades do not have corresponding changes in standardized test scores. Figure 2 presents a diagram of all significant and nonsignificant path analyses for Research Question 3. Figure 3 presents a diagram of the results of the significant path analyses only for Research Question 3.

Research Question 4

Will the relationships among stereotypical gender role socialization, coping skills, self-esteem and academic achievement for middle school females vary by race or socioeconomic status? The data were analyzed by the use of Pearson product-moment correlations and z tests. By obtaining the Pearson product-moment correlation coefficients and performing $r$ to $z$ transformations, I performed 42 $z$ tests. The 42 pairs of correlations included 21 pairs for race and 21 pairs for socioeconomic status. The Bonferroni-corrected alpha level was $p < .21 (.05/21 = .0025)$.

All results for this research question were nonsignificant and an analysis of the totals was also nonsignificant. First, results indicated that the average correlations were not significantly different for research participants by race, indicating that the relationships between stereotypical gender role socialization, coping skills, self-esteem and academic achievement for middle school females in this sample did not vary by race.

Second, results indicated that the average correlations were not significantly different for research participants by socioeconomic status, indicating that the relationships between stereotypical gender role socialization, coping skills, self-esteem and academic achievement for middle school females did not vary by socioeconomic status in this research sample.
Research Question 5

Will the mean scores of stereotypical gender role socialization, coping skills, self-esteem, and the difference between fifth and eighth grade grades and standardized test scores for middle school females vary by race or socioeconomic status? These data were analyzed by the use of 14 independent $t$ tests, 7 for race and 7 for socioeconomic status. The independent variables were race or socioeconomic status, and the dependent variables were stereotypical gender role socialization, coping skills, self-esteem, fifth and eighth grade test score differences, and fifth and eighth grade classroom grade differences.

Analyses revealed that five of these independent $t$ tests were statistically significant and nine were not statistically significant. Significant results from this research question indicate that African American participants scored significantly higher on the measure of self-esteem than did White participants. Specifically, the mean scores of the Rosenberg Self-Esteem Scale was 34.74 for Whites, with a standard deviation of 6.14, and for Blacks the mean score was 38.27 with a standard deviation of 6.03 indicating that the differences between Whites and Blacks was statistically significant, $t(279) = -0.94$, $p < .00001$.

African American females over the period of middle school declined significantly more on math standardized tests than did White females. Specifically, the mean scores of changes from fifth to eighth grade in math standardized test scores for White students was –1.59 with a standard deviation of 19.05, and for Black students the mean score was –9.73 with a standard deviation of 16.38, indicating that the difference between White and Black scores was statistically significant, $t(213) = 2.98$, $p < .003$. 
African American females over the period of middle school declined significantly on reading standardized tests whereas White females improved slightly. The mean scores of change from fifth to eighth grade in reading standardized test scores for Whites was 0.71 with a standard deviation of 16.52, and for Blacks the mean score was – 4.32 with a standard deviation of 13.51, indicating that the difference between White and Black scores was statistically significant, \( t(215) = 2.16, p < .031 \).

Students from low-income families declined significantly more on standardized math scores than did students from higher-income families. The mean scores of change from fifth to eighth grade in math standardized test scores for higher-income students was – 0.65, with a standard deviation of 18.37. In contrast, for low-income students the mean score was – 8.62 with a standard deviation of 17.75, indicating that the differences between the two groups was statistically significant, \( t(219) = 3.20, p < .002 \).

Students from low-income families declined on reading standardized tests over middle school whereas students from higher-income families improved slightly. The mean scores of change from fifth to eighth grade in reading standardized test scores for higher-income students was 1.146, with a standard deviation of 15.20, indicating a small improvement. In contrast, lower-income students demonstrated a decline, resulting in a mean score of – 4.16 with a standard deviation of 15.79, indicating that the differences between the two groups was statistically significant, \( t(221) = 2.66, p < .009 \).

In contrast, data analysis revealed that mean scores did not differ between Whites and Blacks on measures of stereotypical gender role socialization, coping skills, changes in math grade, or changes in reading grades. In examining differences by socioeconomic class, mean scores did not differ between higher-income and lower-income students on
stereotypical gender role socialization, coping skills, self-esteem, or on changes in math grades or in reading grades. Table 3 lists the means and standard deviations for all predictor and criterion variables by race. Table 4 lists the means and standard deviations for all predictor and criterion variables by socioeconomic status.

In summary, data analysis of this research provided the following results:

**Hypothesis**—substantiated on one path: Participants in this study who reported the highest self-esteem demonstrated the least decline in math classroom grades over middle school.

**Research Question 1**—revealed two significant findings: Participants in this study who reported the highest stereotypical gender role beliefs also reported the highest use of healthy coping strategies, and young women who reported the highest levels of self-esteem also reported the greatest use of healthy coping strategies.

**Research Question 2**—revealed one significant finding: Participants in this study who reported the least stereotypical gender role beliefs and low or medium use of healthy coping skills showed the smallest decline in math classroom grades over middle school.

**Research Question 3**—revealed one significant finding: Participants’ math grades from fifth to eighth grades have corresponding changes in their math standardized test scores, but changes in participants’ reading grades from fifth to eighth grades do not have corresponding changes in their reading standardized test scores.

**Research Question 4**—no significant findings.

**Research Question 5**—revealed five significant findings: African American participants reported higher levels of self-esteem than White participants; the math
Table 3  
Means and Standard Deviations for Variables by Race

<table>
<thead>
<tr>
<th>Variables</th>
<th></th>
<th>Black</th>
<th></th>
<th>White</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>PAQF</td>
<td>75</td>
<td>3.91</td>
<td>0.63</td>
<td>206</td>
<td>3.95</td>
</tr>
<tr>
<td>A-COPE</td>
<td>75</td>
<td>3.46</td>
<td>0.55</td>
<td>206</td>
<td>3.39</td>
</tr>
<tr>
<td>ROSEN</td>
<td>75</td>
<td>38.27</td>
<td>6.03</td>
<td>206</td>
<td>34.74</td>
</tr>
<tr>
<td>Change in Math Grade</td>
<td>65</td>
<td>-0.37</td>
<td>1.13</td>
<td>166</td>
<td>-0.47</td>
</tr>
<tr>
<td>Change in Math STS</td>
<td>64</td>
<td>-9.73</td>
<td>16.38</td>
<td>151</td>
<td>-1.59</td>
</tr>
<tr>
<td>Change in Reading Grade</td>
<td>66</td>
<td>-0.67</td>
<td>1.05</td>
<td>167</td>
<td>-0.57</td>
</tr>
<tr>
<td>Change in Reading STS</td>
<td>65</td>
<td>-4.32</td>
<td>13.51</td>
<td>152</td>
<td>0.71</td>
</tr>
</tbody>
</table>

Note. Means with common superscripts are significantly different, p < .05.

standardized test scores of African American females declined significantly more than did White females’ math scores; the reading standardized test scores of African American females declined significantly whereas the reading scores of White females improved slightly; students from low-income families declined significantly more on standardized math scores than did students from higher-income families; students from low-income families declined on reading standardized tests whereas students from higher-income families improved slightly.
Table 4

Means and Standard Deviations for Variables by Socioeconomic Status

<table>
<thead>
<tr>
<th>Variables</th>
<th>Lower-income</th>
<th>Higher-income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>PAQF</td>
<td>106</td>
<td>3.89</td>
<td>0.58</td>
</tr>
<tr>
<td>A-COPE</td>
<td>106</td>
<td>3.48</td>
<td>0.47</td>
</tr>
<tr>
<td>ROSEN</td>
<td>106</td>
<td>36.22</td>
<td>6.24</td>
</tr>
<tr>
<td>Change in Math Grade</td>
<td>93</td>
<td>-0.32</td>
<td>1.13</td>
</tr>
<tr>
<td>Change in Math STS</td>
<td>89</td>
<td>-0.86&lt;sup&gt;a&lt;/sup&gt;</td>
<td>17.75</td>
</tr>
<tr>
<td>Change in Reading Grade</td>
<td>93</td>
<td>-0.45</td>
<td>1.11</td>
</tr>
<tr>
<td>Change in Reading STS</td>
<td>90</td>
<td>-4.15&lt;sup&gt;b&lt;/sup&gt;</td>
<td>15.80</td>
</tr>
</tbody>
</table>

Note. Means with common superscripts are significantly different, p < .05.
CHAPTER V
DISCUSSION

The research findings of this study will be presented individually, i.e., the hypothesis and each research question will be presented followed by an explanation and discussion of findings. This will be followed by a discussion of the implications of findings for the study and conclude with limitations of findings and suggestions for further research.

Hypothesis Summary and Explanation of Findings

The hypothesis of this study was that as stereotypical gender role beliefs among early adolescent females increase, and as healthy coping strategies and self-esteem decrease, academic achievement scores from fifth to eighth grade would decrease.

This research partially substantiated the hypothesis. Results showed that students who reported the highest self-esteem demonstrated the least decline in math classroom grades, and females who reported the lowest self-esteem demonstrated the greatest decrease in math classroom grades. In contrast, stereotypical gender role beliefs and coping skills did not significantly predict changes in academic achievement, and self-esteem did not significantly predict the differences in reading classroom grades or reading or math standardized test scores.

The effect of self-esteem on math classroom grades was borne out by this research. These results are consistent with previous studies that report that self-esteem and academic achievement are significantly linked phenomena for middle school youth.
and for adolescent females in particular (Hoge, Smit, & Crist, 1995; Rothenberg, 1995; Wiggins, Schatz, & West, 1994). It is noteworthy that the variable of self-esteem linked with math classroom grades but not with standardized test scores. Few studies have distinguished between the achievement markers of classroom grades and standardized test scores, and that this research does so is an important addition to the literature regarding females' academic achievement.

In contrast, the results of this research indicate that gender role beliefs held by young adolescent females do not predict changes in either indicator of academic performance from fifth to eighth grades. Several explanations may be at the root of these results. Perhaps young women are indeed able to separate gender role beliefs from school behavior; so that any residual stereotypical beliefs (e.g., 'girls shouldn't appear too smart"), do not in fact impact their academic performance. This may be an indication of society's success in the past few decades in portraying to young women that the academic and work worlds are as accessible to them as they are to their male peers (Benokraitis, 1997; Novack & Novack, 1996). African American females, who historically have long participated in the labor force and who tend to score higher on measures of androgyny than their White counterparts, may not see any conflict between femininity and academic achievement (Binion, 1990).

A second possible explanation of the research results may be implicit in the nature of gender roles: an important aspect of the traditional feminine role involves pleasing others. Young women who endorse the feminine role may work hard in school in order to please their teachers and parents. This finding would be consistent with theorists'
observations that young women are influenced by societal messages to put others' needs or desires before their own (Miller, 1984).

A third explanation for the lack of correlation between stereotypical gender role beliefs and academic achievement in this sample may be related to the timing of this research. It may be that if data were collected that assessed the differences between 8th and 12th gender role beliefs and academic performance, a significant relationship would be found. Previous researchers have found a relationship between gender typing and a decrease in academic performance in populations of high school females, with the most stereotypical beliefs held by 12th graders (Eccles & Bryan, 1994; Whitehead, 1996). The matter of timing remains an open question, however. Some researchers have found that flexibility in gender stereotyping seems to increase or decrease depending on the adolescent's social environment, with an increase in flexibility at the entrance to middle school, followed by a stereotypic flexibility decrease during middle and late adolescence (Alfieri et al., 1996).

The third variable of the hypothesis, coping skills, was likewise also not correlated with changes in academic performance. One possible explanation for this may be that young women may be able to effectively compartmentalize their personal and school experiences so that poor coping skills do not interfere with academic performance. There is some evidence to support this explanation. For example, some researchers have found that among resilient African American adolescent females and males, applying oneself to academic endeavors often serves as a coping skill -- a protective factor -- against a stressful environment (Hemmings, 1998; Spencer, et al, 1993).
When research results from the hypothesis are examined as a whole, the findings with regard to young women's self-esteem may in fact corroborate the hypothesis more fully than when each path is considered separately. In this study high self-esteem predicted math but not reading grades, and this is a noteworthy finding considering that math is labeled the 'male domain' and reading the 'female domain' by the rules of gender stereotyping (Eccles, Barber & Jozefowicz, 1999; Eccles & Bryan, 1994; Whitehead, 1996). Thus, although only the self-esteem path of the hypothesis was confirmed by this research, there are clear gender-role implications within the self-esteem finding itself. It may be that young women with higher self-esteem feel buffered from gender role pressures, and therefore are more likely to raise their hands in classes, apply themselves to studying math and science, and earn better grades in math than their less self-confident, more acquiescent female peers. Young women with lower self-esteem may sit on their hands and not answer questions, a form of self-silencing in the public arena of the classroom (Harter et al., 1997; Sadker & Sadker, 1994).

The circuitous relationship between self-esteem and gender role socialization in this research adds to existing research that validates theorists' speculation of a close relationship between self-esteem, gender beliefs, and academic achievement (Harter et al., 1997). For example, Rose and Montemary (1994) found that young women who scored high on masculinity measures had the highest levels of self-esteem as well as the highest levels of perceived scholastic competency; that study did not include academic achievement scores, however. This research has gone one step further by assessing gender role beliefs, self-esteem and comparing two important markers of academic performance.
Research Questions and Explanations of Findings

Research Question 1 and Explanation of Findings

Research Question 1 examined whether stereotypical gender role beliefs, coping strategies, and self-esteem correlate with each other. Results from this research indicate that young women who reported high endorsement of stereotypical gender role beliefs also reported the greatest use of healthy coping skills. Young women who reported high self-esteem also reported the greatest use of healthy coping skills. In contrast, no significant correlation was found between gender role beliefs and self-esteem.

The results of this research indicate that high endorsement of stereotypical gender role beliefs is linked with greater use of healthy coping skills. An explanation for this finding may lie in the types of questions used in this measure to assess healthy coping skills. Of the six subscales for the A-COPE utilized for this study, a large percentage of the coping strategies portrayed were relationship-oriented. For example, respondents could indicate that when they were feeling stress they "talked to their mother" or "spent time with friends," behaviors endorsed by the rules of female socialization practices. In addition, the A-COPE is a quantity-based measure, so consequently the greater the number of coping skills utilized, the higher or more positive a score the respondent earns.

Research results also indicated that high self-esteem was linked to greater use of healthy coping skills. This finding is consistent with other studies that report similar findings, and frequently cited by researchers focusing on minority adolescents who use assertive coping skills, such as problem-solving strategies and demonstration of ethnic pride (Kimbauer, 1992; Rotheram-Borus et al, 1996). This result also echoes findings that African American young women benefit from racial socialization, learning valuable
coping skills such as assertiveness, willfulness, and independence, while simultaneously building strong self-esteem (Ward, 1996).

Research Question 2 and Explanation of Findings

Research Question 2 examined whether pairs of stereotypical gender role beliefs, coping strategies, and self-esteem would impact academic achievement over middle school. Results indicate that the interaction of stereotypical gender role beliefs and coping strategies significantly predicted changes in math classroom grades. Further analysis found that young women who scored low in femininity and low or medium in coping exhibited the least decline in math grades. Research participants who scored high in femininity and moderate in coping demonstrated the greatest loss in math grades, by 0.75 of a grade. In contrast, participants who were low in femininity and low or medium in coping exhibited a fairly small decline in math grade, 0.16 of a grade. None of the other interactions between stereotypical gender role beliefs, coping strategies, and self-esteem, however, significantly predicted changes in either standardized test scores in reading or math, or changes in classroom grades in reading or math.

The results of this research indicate that young women who scored low in femininity paired with low or medium coping skills scores exhibited the least decline in math grades as compared to females who scored high in femininity paired with moderate coping skills scores. The difference in math grade decline was significant, declining 0.16 of a letter grade for those young women who scored low in femininity and low or medium in coping, but declining 0.75 of a letter grade for those who scored high in femininity and moderate in their use of healthy coping skills. This particular finding seems to indicate that for young women, the combination of not subscribing to
stereotypical gender beliefs while also employing a moderate amount of healthy coping skills, enables them to withstand the effects of societal messages that discourage females from attaining visible success in math. These results are an addition to the resiliency literature that has found that youth who have an internal locus of control and are less likely to go along with the crowd show few signs of stress despite high exposure to stressful situations (Blocker & Copeland, 1994; Johnson, 1997).

Research Question 2 serves as an important corollary to the hypothesis of this research. The hypothesis results, that gender-role beliefs and coping skills by themselves do not predict math performance, were clarified and extended by Research Question 2, indicating that in combination gender-role beliefs and coping skills do in fact significantly impact young women's academic performance in math.

The failure of pairs of stereotypical gender role beliefs or coping strategies to predict changes in standardized test scores in reading or math, or changes in classroom grades in reading or math may indicate that there are other factors that have a significant impact on adolescent females' academic performance. The educational literature is replete with research documenting the influence of numerous factors on academic success that delineates aspects of a youth's educational experience, from variables in the middle school environment, such as school structure and positive teacher regard (Roeser & Eccles, 1998), to the influence of peers (Guay, Boivin, & Hodges, 1999) to variations in motivation including competence beliefs and values (Roeser & Eccles, 1998; Roeser, Eccles, & Sameroff, 1998). Researchers working from a framework of resiliency theory have documented the positive effects of creativity, humor, perseverance and optimism on academic achievement (Floyd, 1996; Parr, Montgomery, & DeBell, 1998). It is entirely
possible that one or more of these factors, paired with the predictor variables of coping skills, self-esteem or gender-role beliefs, would indeed point to a predictive relationship regarding academic achievement for middle school females.

Research Question 3 and Explanation of Findings

Research Question 3 investigated the relationship between changes in classroom grades and changes in standardized test scores over middle school in math and reading. Results indicated that changes in math grades from fifth to eighth grades have corresponding changes in standardized test scores, but changes in reading grades from fifth to eighth grades do not have corresponding changes in standardized test scores.

The results of this research indicated that changes, and specifically documented declines, in math grades for this sample have corresponding changes in standardized test scores, but changes, specifically declines, in reading grades for this sample do not have corresponding changes in standardized test scores. These findings of the inconsistent relationship between classroom grades and standardized test scores are an addition to current discussion in the field of assessment, frequently voicing concerns regarding the difference between what standardized tests claim to assess and what is actually taught in the classroom (Clemson-Ingram & Fessler, 1997; Stake, 1995). Many in the public sector as well as academic scholars cite serious concerns regarding assessment practices currently in use in this country's public schools (Lederman, 1998). Concerns range from the misuse of standardized tests by primary and secondary schools for placement and tracking, and by colleges and universities for admission requirements, to the recognition that standardized tests represent an incomplete form of assessment (Chenoweth, 1997). Educators worry about the inconsistent and sometimes capricious assigning of classroom
grades (Cross & Frary, 1996). Other areas of debate regarding assessment include concerns regarding reliability and validity of standardized tests (Ahlgren, 1996; Guthke, Beckmann, & Dobat, 1997; Sacks, 1997), test bias (Roznowski & Reith, 1999) and generalizability (Cronbach, Linn, Brennan & Haertel, 1997).

By finding consistent declines in math classroom grades and standardized test scores, but not in reading grades and standardized test scores, this research adds to the mixed results in the assessment literature. For example, Wentzel (1988) reported finding that young women's math and reading classroom grades remained stable over time, yet their standardized test scores in math and reading decline steadily. A different finding was documented in an ethnographic investigation of African American female high school students, whose standardized test scores consistently dwarfed their classroom grades (Fordham, 1993). Another explanation for the discrepancy between girls' grades and test scores is that grades may reflect differences between a different set of testing situations that favors boys in the standardized testing situations and favors girls in classroom testing situations (Lips, 1993).

**Research Question 4 and Explanation of Findings**

Research Question 4 examined whether the relationships among stereotypical gender role socialization, coping skills, self-esteem and academic achievement for middle school females would vary by race and socioeconomic status. The research found that the relationships among stereotypical gender role socialization, coping skills, self-esteem, and academic achievement for middle school females did not vary by race or socioeconomic status.
The lack of variations by race and socioeconomic status for the variables of gender role beliefs, coping skills, and self-esteem speaks to the pervasiveness of these characteristics throughout society that cuts across race and social class. This finding is consistent with research that has examined Western culture's ubiquitous socialization practices (Murray, 1998). For example, longitudinal studies of African American students from low socioeconomic backgrounds revealed the prevalence of the same gender stereotypes prevalent among White higher economic students (Swanson & Spencer, 1997).

Research Question 5 and Explanation of Findings

Research Question 5 investigated whether the mean scores of stereotypical gender role socialization, coping skills, self-esteem, and the means scores of the differences over middle school between reading and math classroom grades and standardized test scores would vary by race and socioeconomic status.

A number of significant results were found for this research question regarding both race and socioeconomic status. African American participants scored significantly higher on the measure of self-esteem than did White participants. This is consistent with previous research findings (AAUW, 1992; Orenstein, 1994). The relatively high self-esteem of African American females may be explained in part to racial socialization, the installation of positive ethnic feelings and resistance to oppression imparted by African American parents to their children (Stevenson, 1994; Ward, 1996). Bowman and Howard (1985) found that racial socialization was positively related to increased grades by African American high school students. Significant differences were not found between White and Black participants regarding gender-role beliefs or use of coping skills.
In contrast to their strong scores on the measure of self-esteem, African American females over the period of middle school declined significantly more on math standardized tests compared to their own previous performance than did White females. Furthermore, African American females over the period of middle school also declined significantly in reading standardized test scores, whereas White females improved slightly.

This finding extends previous research regarding race-based differences in achievement levels. Many researchers have focused on initial differences in preparedness between White and Black students, examining factors as wide and varied as heredity, social, cultural, and psychological factors, and test bias (Halle, Kurtz-Costes, & Mahoney, 1997; Jencks & Phillips, 1998). A large component of many states' educational preparedness programs, such as Head Start, are based on research indicating that lack of readiness for school can cause severe academic disadvantage for students (Ripple, Gilligam, Chanana, & Zigler, 1999).

Researchers that investigate middle and high school academic achievement in an effort to identify factors that may explain declining performance have examined many critical aspect of environmental and societal factors including poverty, low socioeconomic status, and racism (Black & Krishnakumar, 1998; Jimerson, Egeland, & Teo, 1999; McLoyd, 1998). Some of the factors that have been identified that may uniquely contribute to lowered academic performance by African Americans include the perception of a discriminatory job ceiling (Taylor et al, 1994), academic disidentification (Osborne, 1997) and what Fordham and Ogbu call the "Burden of Acting White" (1986). Few studies have documented a race-based comparative decline in academic achievement
at the critical middle school juncture and this research therefore contributes to the professional literature in this way.

Students from low-income families declined significantly more on standardized math scores than did students from higher-income families. Students from low-income families declined on reading standardized tests over middle school whereas students from higher-income families improved slightly. This finding again serves to extend previous research. Numerous studies have documented that persistent poverty is the largest single risk factor for low academic achievement (McLoyd, 1998; Pungello et al., 1996) and for low achievement tests in particular (Conger et al., 1997). A large regional evaluation of middle school youth found that nearly 50 percent of all eighth-graders in the United States are below the basic level in math, with the lowest scores exhibited by students in low-income districts, rural areas, and girls in general (Southern Regional Education Board, 1998).

The gap between low-income and higher-income and Black and White students that this research documented also serves to expand the research literature. For example, the Education Watch report, an examination of student achievement both nationally and by state, reports that between 1970 and 1988 the gap between low-income and minority students and other students narrowed appreciably, but since 1988 the gap has begun to widen again, so that now in most subjects and in most grade levels, achievement gaps in 1996 were greater than in 1988 (Freel, 1998). In contrast, data analysis revealed that mean scores did not differ between Whites and Blacks on measures of stereotypical gender role socialization, coping skills, changes in math grade, or changes in reading grades.
Theoretical Implications

This research study had both a theoretical and practical intent. Theoretically it was designed to test a model that would integrate theory on gender role socialization with resiliency theory. The results offer mixed support for the components of the proposed model. Findings of this research that self-esteem is a predictor of adolescent females' math classroom grades is consistent with and adds support for the previously established theoretical model of resilience. Female adolescents who reported the highest self-esteem declined the least in their math classroom grades over the period of middle school. However, the inclusion of gender role socialization as a risk factor in the proposed resiliency model of this study was not directly supported by this research. Gender role beliefs as an isolated factor did not predict academic achievement; only by implicating gender role beliefs as a contributing factor of females' self-esteem could this proposal be supported.

Relationships among the proposed protective factors were found, although the implications of these relationships to resiliency theory are not completely clear. Among this sample high stereotypical gender role beliefs correlated with the highest use of healthy coping strategies, and high self-esteem correlated with greater use of healthy coping strategies. The finding linking high stereotypical gender role beliefs with the greatest use of healthy coping strategies is not consistent with previous research findings (Bednar, Wells, & Peterson, 1989; Kimbauer, 1992). It is possible that these results may be attributed to the assessment measures that were utilized in this study. It could be that the preponderance of relationship-oriented coping strategies on the assessment measure coincided with the stereotypical feminine approach to coping with problems. In contrast,
the finding of this research linking high self-esteem with greater use of healthy coping skills has been reported in the literature, particularly in reports of positive adjustment on the part of African American females who benefit from racial socialization (Stevenson et al., 1997).

Findings inconsistent with the proposed model were also apparent by the lack of significant relationship between stereotypical gender role beliefs and a change in math classroom grades or standardized test scores. No significant relationships were found regarding gender role beliefs and academic achievement when the data were analyzed for race, socioeconomic class or the entire sample. In addition, the lack of a significant relationship between coping skills and a change in math classroom grades or standardized test scores is also not consistent with the predictions from the proposed model.

Research Implications

The critical transition period of middle school for females has not received the same research attention that has been devoted to the elementary or high school levels. This research found that there are important distinctions between academic achievement indicators for young women in the subjects of math and reading. By isolating the subjects of reading and math over the middle school period, this research provided valuable information regarding the timing of females' decline in academic achievement that deserves further research attention.

This research detected notable differences between standardized test scores and classroom grades for middle school females for reading but not for mathematics. Likewise, notable distinctions were found in the predictive ability of the variables of coping skills, self-esteem, and gender-role beliefs in relationship to the markers of
academic achievement. Finally, the findings indicate that socioeconomic status and race are the most significant predictors of academic decline for adolescent females.

Practical Implications and Recommendations

The immediate and practical implications of this research will be of interest to parents, educators and school counselors in particular, since the use of interventions that are based on protective resiliency factors is inherent to school counseling.

The finding of this research that the protective factor of self-esteem can indeed make a difference in terms of girls' math grades over middle school can easily be put into practice. Programs are currently in place in public schools that address self-esteem for students such as Project Da Da Kidogo, a program that aims to reduce risk factors and enhance protective factors including self-esteem for African American female adolescents (Woo, 1998). Healthy use of coping skills is a critical life skill that can be readily addressed by school counselors, teachers, parents, and other community figures, an effort made simpler by the availability of stress management programs for all ages.

Becoming aware of times of particular stress in adolescents' lives and reaching out at that time can make a tremendous difference for young women, since many of these times are predictable; For example, September often brings a period of adjustment to a new school, feelings of loneliness and isolation, or feeling overwhelmed by school size, whereas January tends to bring science fair projects, placement tests, and winter illnesses (Martirano, 1997). Some excellent books written specifically for young people about coping include, Fighting invisible tigers: A stress management guide for teens by Hipp (1995) and Coping with family stress by Gooden (1989).
The findings from this research that math declines in both standardized test scores and classroom grades for middle school females is distressing. Parents, school counselors, and educators should make renewed efforts to reach out to middle school females in whatever ways possible to continue to hold their interest and efforts in math (and science). Changing the curriculum, instruction, and assessment practices of math and science in middle and high school are important ways to encourage young women to maintain their interest and grades in these subjects. Hildebrand (1998) urges educators to rethink the traditional hierarchical paradigm typically embedded in the teaching of math and science and instead to utilize a perspective that incorporates a more collaborative, i.e., feminine, approach to science. For example, high school physics in Australia has recently become a haven for young women after the assessment protocols were changed to incorporate more female-oriented modalities. Feminist constructivist educators urge teachers to embrace multiple perspectives and diverse experiences as a way of encouraging females to become more involved in math and science in middle and high school (Meece & Jones, 1996).

The significant decline in standardized test scores in both math and reading of African American middle school females that was documented by this research is troubling. A key to intervening with this population may be found in resiliency literature that calls attention to the academic success of African American youth. For example, an ethnographic study of 20 African American highly achieving 12th graders found that these students benefited from three protective mechanisms: a supportive, nurturing family, interactions with committed, concerned educators and other adults; and the development of two key personality traits—optimism and perseverance (Floyd, 1996).
The significant decline in standardized test scores in math and reading of students from low-income families noted by this research is a vivid indicator of the adverse consequences of poverty on children. Counselors have an implicit interest in advocating on behalf of low-income students in as much as the long-lasting consequences of childhood poverty include low and declining academic achievement.

The results of this research should be of interest to educators and policy makers in decisions regarding the timing of intervention efforts. Federal and state resources have been geared toward early intervention for preschoolers in an attempt to equalize school readiness; in 31 states the Head Start program operates through grade 3. However, findings indicate that neither Head Start nor the post-kindergarten program consistently effect school achievement scores (Bickel, 1998; Zigler & Styfo, 1994). The results of this study suggest that perhaps academic and social interventions should also focus on the middle school years with the goal of eliminating the declines in academic achievement by all students, and by minority and low socioeconomic groups in particular.

Educators should strive to make math and science friendlier for adolescent females. Strategies that have been showed to help in this regard include person-friendly instructional practices in math, small classroom size, and adequate teacher-student ratios (Eccles, 1997). School counseling interventions that create an environment conducive to learning for adolescent females include promoting cooperation, conflict resolution, assertiveness skills, communication skills, problem solving, decision making and healthy stress management (Henderson, 1998).
Limitations

This study is limited by the exclusive reliance on self-report measures to assess self-esteem, coping skills, and gender-role beliefs. Although there was consistency among the various instruments, it would have been preferable to have independent corroboration from other sources such as teachers, parents, friends, or direct observations.

A second limitation arises from the reliance on different tests to produce the participants' standardized test scores. Although this was allotted for by the use of $z$ transformations, a measure of inconsistency in the findings of standardized test scores was introduced. Generalizability from this study should be made cautiously. This sample was a mix of rural and small city adolescents in north Florida, and generalizing beyond this population may introduce problems of external validity.

Finally, a potential problem of internal reliability in this research was the timing of the survey administration. By having students complete the survey when they had advanced to ninth grade, and yet using their eighth grade achievement test scores introduces the possibility of maturation between the end of eighth grade and the beginning of ninth grade. In ideal circumstances, students would have completed the assessment measures on or near the same day as they completed their eighth grade standardized tests.

Future Research

This study points towards the need for future research to continue to address the issue of timing in regards to girls' academic decline. The decline in academic performance by young women has been documented to occur sometime between kindergarten and high school. This research has served the useful purpose of isolating
some of the factors at work during the middle school years, but it may have left other influential factors undetected. Ideally this investigation should be extended by research with a longitudinal design. Assessing girls in fifth, ninth, and twelve grades for gender role beliefs, coping skills, and self-esteem and correlating these outcomes with academic performance would likely reveal the most valid clues regarding ways in which young women can be assisted in maintaining academic achievement throughout their academic careers.

Perhaps most vividly, this study indicates the importance of researching academic achievement by race and socioeconomic status. In order for practical models to be developed and implemented that can make a difference in the lives of this nation’s diverse adolescents, future studies should likewise be designed to assess these issues by gender, race, ethnicity and socioeconomic status.
APPENDIX A
INFORMED PARENTAL CONSENT FOR STUDY PARTICIPATION

Dear Parent/Guardian,

I am a doctoral student in the Department of Counselor Education at the University of Florida, conducting research under the supervision of Dr. Mary Howard-Hamilton on factors that affect academic achievement in middle school students. The purpose of this study is to determine if children’s self-esteem, coping skills, and attitudes about gender roles affect their grades and their scores on 8th grade standardized tests. The results of this study may help middle school teachers better understand the factors that affect academic performance and allow them to better help students achieve academically.

I am asking your permission for your child to complete a questionnaire that asks about coping skills, self-esteem, and gender roles, but he or she will not have to answer any question that he or she does not wish to answer. I will administer the questionnaire in one of your child’s regularly scheduled classes. This one-time session will take about 20 minutes, and your child will not be missing any other school activity. With your permission, I will obtain from school personnel the scores from your child’s 5th and 8th grade standardized tests and grade-point-averages. Although the children will be asked to write their names on the questionnaire for matching purposes, their identity will be kept confidential to the extent provided by law. I will replace their names with code numbers, and all records will be kept in a locked file in my office. Results will only be reported in the form of group data. Participation or non-participation in this study will not affect the children’s grades or placement in any programs. Children who do not have parental/guardian permission to participate will remain in the classroom with those who are participating, and may read a book.

You and your child have the right to withdraw consent for your child’s participation at any time without consequence. There are no known risks or immediate benefits to the participant. No compensation is offered for participation. If you have any questions about this research project, please contact me at (352) 392-0731 (277) or my faculty supervisor, Dr. Howard-Hamilton, at (352) 392-0731 (239). Questions or concerns about research participants’ rights may be directed to the UFIRB office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

Tovah Sands
SIGN & RETURN THIS SECTION

I have read the procedure described above. I voluntarily give my consent for my child,
(printed name)__________________________, to participate in Tovah Sands' study of academic achievement. I have received a copy of this description.

Parent/Guardian ___________________________ Date __________

2nd Parent/Witness ___________________________ Date __________
APPENDIX B
PERSONALITY ATTRIBUTE QUESTIONNAIRE

Instructions

1. On the following pages are a series of questions about some personal characteristics. For each one, you are to rate yourself on those characteristics. For example, how artistic are you? On the scale below, "very artistic" is indicated at the far right and "not at all artistic" is indicated at the far left.


If you think you are moderately artistic, your answer might be D; if you are very inartistic, you should choose A, etc.

2. For each question, select the letter on the scale that best describes you and indicate it on the answer sheet in the same column as the item number.

QUESTIONS

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Not at all aggressive</td>
<td>Very aggressive</td>
</tr>
<tr>
<td>2. Not at all independent</td>
<td>Very independent</td>
</tr>
<tr>
<td>3. Not at all emotional</td>
<td>Very emotional</td>
</tr>
<tr>
<td>4. Very submissive</td>
<td>Very dominant</td>
</tr>
<tr>
<td>5. Not at all excitable in a major crisis</td>
<td>Very excitable in a major crisis</td>
</tr>
<tr>
<td>6. Very passive</td>
<td>Very active</td>
</tr>
<tr>
<td>7. Not at all able to devote self completely to others</td>
<td>Able to devote self completely to others</td>
</tr>
<tr>
<td>8. Very rough</td>
<td>Very gentle</td>
</tr>
<tr>
<td>9. Not at all helpful to others</td>
<td>Very helpful to others</td>
</tr>
</tbody>
</table>
13. Indifferent to to other’s approval A . . . . . B . . . . C . . . . D . . . . E Highly needful of other’s approval
22. Very cold in relations to others A . . . . . B . . . . C . . . . D . . . . E Very warm in relations to others
24. Goes to pieces under pressure A . . . . . B . . . . C . . . . D . . . . E Stands up well under pressure
Male-Female Comparisons

You will now be asked to consider the same characteristics again. This time you will be given a description from only one end of the scale. In each case, you are being asked to compare the typical male 9th grade student and the typical female 9th student on that characteristic. For example, how artistic is the typical male student in comparison to the typical female student? Indicate the letter that best expresses your judgement on the answer sheet. (Note that the item numbers are continued from the previous set).

Example:

Artistic:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much more artistic</td>
<td></td>
<td>Slightly more</td>
<td>No difference</td>
<td>Slightly more</td>
<td>Much more</td>
</tr>
<tr>
<td>characteristic of male</td>
<td></td>
<td>male</td>
<td>female</td>
<td></td>
<td>characteristic of female</td>
</tr>
</tbody>
</table>

25. Aggressive
26. Independent
27. Emotional
28. Dominant
29. Excitable in a major crisis
30. Passive
31. Able to devote self completely to others.
32. Gentle
33. Helpful to others
34. Competitive
35. Home oriented
36. Kind
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much more</td>
<td>Slightly more</td>
<td>No</td>
<td>Slightly more</td>
<td>Much more</td>
</tr>
<tr>
<td>characteristic</td>
<td>male</td>
<td>difference</td>
<td>female</td>
<td>characteristic</td>
</tr>
<tr>
<td>of male</td>
<td></td>
<td></td>
<td></td>
<td>of female</td>
</tr>
</tbody>
</table>

37. Needful of other's approval  
38. Feelings easily hurt  
39. Aware of feelings of others  
40. Make decisions easily  
41. Gives up very easily  
42. Cries easily  
43. Self-confident  
44. Feels superior  
45. Understanding of others  
46. Warm in relations with others  
47. Strong need for security  
48. Stands up under pressure
APPENDIX C
ROSENBERG'S SELF-ESTEEM SCALE

Instructions

On this page is a set of 10 questions. For each one, select the letter on the scale provided that best indicates you. Indicate this answer on the corresponding number of your answer sheet.

A-------------------B-------------------C-------------------D
Strongly agree       Agree       Disagree       Strongly disagree

49. I feel that I'm a person of worth, at least on an equal plane with others.

50. I feel that I have a number of good qualities.

51. All in all, I am inclined to feel that I am a failure.

52. I am able to do things as well as most other people.

53. If you are still reading carefully, mark “5” on your answer sheet.

54. I feel I do not have much to be proud of.

55. I take a positive attitude toward myself.

56. On the whole, I am satisfied with myself.

57. I wish I could have more respect for myself.

58. I certainly feel useless at times.

59. At times I think I am no good at all.
APPENDIX D

ADOLESCENT COPING ORIENTATION FOR PROBLEM EXPERIENCES

Instructions

For the following items, you are asked to record how often you use each behavior. Use the following scale to indicate your response to the questions below. For each item, select the letter that best describes your behavior and indicate this on your answer sheet.

“When you face difficulties or feel tense, how often do you . . . ?”

A---------B---------C---------D---------E
Never        Hardly ever     Sometimes   Often       Most of the time

60. Talk to your mother/guardian about what bothers you
61. Do a strenuous physical activity (jogging, biking, etc.)
62. Work hard on school work or school projects
63. Talk to a brother or sister about how you feel
64. Cry
65. Try to see the good things in a difficult situation
66. Go to church or temple
67. Try to keep up friendships or make new friends
68. Organize your life and what you have to do
69. Say nice things (“warm fuzzies”) to others
70. Try to reason with parents and talk things out, compromise
71. Try to help other people solve their problems
72. Apologize to people
“When you face difficulties or feel tense, how often do you...?”

A-----------------B-------------------C-------------------D-------------------E
Never          Hardly ever         Sometimes          Often          Most of
               the time

73. Try, on your own, to figure out how to deal with your problems.
74. Go along with parents' requests and rules
75. Talk to a minister/priest/rabbi
76. Get a job or work harder at one
77. Be with a boyfriend or girlfriend
78. If you are still reading carefully, mark “5” on your answer sheet.
79. Try to improve yourself (get body in shape, get better grades, etc.)
80. Talk to your father/guardian about what bothers you
81. Get more involved with activities at school
82. Do things with your family
83. Pray
84. Talk to a friend about how you feel
85. Try to make your own decisions
86. Try to think of the good things in your life
87. Be close with someone you care about
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BIOGRAPHICAL SKETCH

Tovah Sands is fulfilling the dream of a lifetime by completing her degrees and pursuing a career as a counselor educator. Tovah Sands returned to higher education as a nontraditional student, going straight through to earn her undergraduate, masters, educational specialist, and doctorate degrees at the University of Florida. She worked as a graduate assistant teaching, doing research, and engaging in clinical practice while completing her degrees and raising her son, the joy of her life.

You must live what you teach. Therefore, as a counselor educator, Tovah Sands takes to heart the admonishment to lead a balanced life. Friends, family, dancing, hiking, and spending quality time with her son are all extremely important to her and gave her the energy she needed to complete her professional training. She believes that the key to a balanced life include perseverance, trust in G-d, and lots of love and encouragement from wonderful family and friends.

Counselor education is a way for Tovah Sands to combine her love of counseling, young people, writing, and advocacy into a profession. Tovah Sands has accepted a faculty position at California State University, Northridge, in the Department of Educational Psychology and School Counseling.
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Mary Howard-Hamilton, Chair  
Associate Professor of Counselor Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

James Archer, Jr.  
Professor of Counselor Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Martin Heesacker  
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Silvia Echevarria-Rafuls  
Assistant Professor of Counselor Education
This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 1999

Dean, College of Education

Dean, Graduate School