Adolescent self-esteem and locus of control: A longitudinal study of gender and age differences

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ADOLESCENT SELF-ESTEEM AND LOCUS OF CONTROL: A LONGITUDINAL STUDY OF GENDER AND AGE DIFFERENCES

Nancy H. Chubb, Carl I. Fertman, and Jennifer L. Ross

ABSTRACT

The questions of whether self-esteem and locus of control change during the high school years, and whether gender differences exist in these variables were considered in this study. Participants consisted of 174 students who were ninth graders in 1989 and who were surveyed each spring for four years. Two-way ANOVAs were used to measure changes in self-esteem and locus of control over the four years as well as gender differences. A significant main effect for gender with lower self-esteem scores for girls was found. For locus of control, there was a significant main effect for grade and an interaction between grade and gender.

The period of adolescence in the U.S. today has been viewed in different ways. Some theorists have supported the idea that adolescence is a difficult and stressful period (Blos, 1962; Erikson, 1950). However, recent research has led to a renewed debate on how traumatic this period actually is for the majority of adolescents (Powers, Hauser, & Kilner, 1989).

If adolescence is a tumultuous time, it would be expected that personality variables such as self-esteem and locus of control would change as teenagers struggle with the move toward adulthood. On the other hand, stable self-esteem and locus of control would indicate that adolescence may be less stressful than some theorists have proposed.

Development is a complicated process in which many components influence each other. Psychologists, sociologists, physiologists, educators, psychiatrists, and others, have tried to tease out the elements that are most critical to healthy development (Quadrel, Fischhoff, & Davis, 1993; Zaslow & Takanishi, 1993). This research was designed to contribute to this effort.

It is important to acknowledge that most of the theories of adolescent development are based on research with a limited population: primar-

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ily white, male subjects (Gilbert, 1992; Gilligan, 1988; Hare-Mustin & Marecek, 1990; Kaschak, 1992; Richardson & Johnson, 1984). The possible impact of gender bias upon adolescent research and theory needs to be addressed. When theories developed using male subjects as the norm are applied to female subjects, different results often emerge. Gilbert (1992) states, "Gender refers not only to biological sex but also to the psychological, social, and cultural features and characteristics that have become strongly associated with the biological categories of female and male" (p. 385). Theories of gender differences are in the early stages of development and empirical research is still insufficient. Miller (1986) proposed a theory of women's development that highlighted the importance of relationships to women and normalized this, in contrast to traditional theories which promoted autonomy and separation as goals of healthy development. If society values autonomy and separation over relationships, does this impact on adolescent females' sense of self or feelings of empowerment?

Two important psychological constructs that have been found to influence many aspects of the adolescent's life are self-esteem and locus of control. These personality variables have been used in many research studies and some of the findings of these studies are reviewed here.

Self-esteem

Harter (1990a) defined self-esteem as "how much a person likes, accepts, and respects himself [*sic*] overall as a person" (p. 255). Harter (1990a, 1990b) presented two different theoretical views of self-esteem that both she and Rosenberg (1989) supported in their separate research. The first is from William James who viewed self-esteem as a ratio of a person's perceived success in a certain domain to the importance the person attaches to success in that domain. The second theoretical view is that of C. Horton Cooley who considered self-esteem as originating with the person's perceptions of how significant others viewed the self.

The relationships between self-esteem and other variables have been extensively researched. Low self-esteem has been correlated with low life satisfaction, loneliness, anxiety, resentment, irritability, and depression (Rosenberg, 1985). Blyth & Traeger (1988) found a correlation between high self-esteem and perceived intimacy with parents. High self-esteem has also been correlated with academic success in high school (O'Malley & Bachman, 1979), internal locus of control, higher family income, and positive sense of self-attractiveness (Griffore, Kallen, Popovich, & Powell, 1990).

The first large-scale study of adolescent self-esteem was conducted by Morris Rosenberg (1989) in the early 1960s. Rosenberg looked at the distribution of self-esteem (high, medium, and low) among various groups, such as different socioeconomic groups, religious groups, family of different compositions, and groups with different interpersonal attitudes. Of particular importance were his findings that those groups that he anticipated having lower self-esteem than others often did not. For example, African-American students did not score significantly lower on self-esteem; however, if they went to a predominantly white high school, they did have lower self-esteem despite better academic performance. Apparently, one's reference group is a contributing factor.

Studies which addressed the question of whether self-esteem changes over time have produced conflicting results. Some research has shown that self-esteem rises during adolescence and early adulthood (Bachman, O'Malley, & Johnston, 1978; Cairns, McWhirter, Duffy, & Barry, 1990; Chiam, 1987; Labouvie, Pandina, White, & Johnson, 1990; McCarthy & Hoge, 1982; O'Malley & Bachman, 1983). In a cross-sectional study of adolescent self-esteem, Simmons, Rosenberg, and Rosenberg (1973) found that self-esteem dropped during early adolescence, with the greatest decrease at age 12. From that point it gradually increased, with a burst at age 16. Once established, self-esteem is resistant to change other than what results from normal developmental processes (Fertman & Chubb, 1992).

In contrast to these findings, Wylie (1979) concluded from an analysis of the longitudinal studies addressing change in self-esteem over time that while some studies did show an increase in self-esteem over time, most indicated no significant change. Savin-Williams and Demo (1984) measured self-esteem in the ninth and tenth grades and concluded that self-esteem is a stable, enduring aspect of the personality.

Most of the studies that evaluated gender differences in self-esteem found that adolescent females score lower on self-esteem than do adolescent males (Cairns, McWhirter, Duffy, & Barry, 1990; Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989; Labouvie et al., 1990; Nottelmann, 1987; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). Simmons and Rosenberg (1975) and Rosenberg and Simmons (1975) found that more girls reported lower self-esteem than did boys during middle and late adolescence but not between the ages of 8 and 11. O'Malley and Bachman (1979) found that females had statistically lower self-esteem than did males, but the authors suggested that the difference in the scores was minimal and significant only because of the large sample size. In a study of 4th-, 6th-, 8th-, and 10th-grade

students, Bohan (1973) found no significant differences between grades or sexes except in the tenth grade. Tenth-grade girls had significantly lower self-esteem than did the younger girls and 10th-grade boys.

Locus of Control

During the last 25 years, one of the most widely researched personality variables has been locus of control, the generalized expectancy of reinforcement as either internal or external to the self (Strickland, 1989). Internal locus of control is the expectation that reinforcement is the result of one's own effort, ability, characteristics, or behavior; external locus of control is the expectation that reinforcement is the result of chance, fate, luck, or powerful others. An individual does not have a clearly defined internal or external locus of control, since locus of control is a continuous variable, not a dichotomous one, and can vary situationally.

The importance of locus of control in understanding human behavior is more clearly understood in its extreme form. Imagine a classroom of "external" students. These students would expect that the teacher's praise, their classmates' friendship, and their grades have nothing to do with any effort or ability on their part. It is only by luck or chance that they have been successful, or unsuccessful. And if that is the case, why bother expending any effort? On the other hand, imagine a classroom of students who believe that through their own efforts and behaviors they could bring about the desired ends. Two very different classrooms, not because of intelligence, socioeconomic status, sex, or any of the other common ways we identify differences in people, but because of perceived locus of control.

Most of the research on this construct has been correlational and much of it that was done prior to the 1980s has been summarized in three volumes edited by Lefcourt (Lefcourt, 1981, 1983, 1984). Internal locus of control has been correlated with many socially desirable variables, such as staying in high school (Ekstrom, Goertz, Pollack, & Rock, 1986), taking responsibility for one's own actions, being more independent, and exhibiting greater self-control (Lefcourt, 1976), reduced anxiety (Nunn, 1988), the ability to defer lesser short-term rewards for long-term goals (Miller, 1978; Strickland, 1973), positive adjustment at home, school, and with peer relationships (Nowicki & Duke, 1983; Nunn, 1987), and being raised in a home environment that is warm, protective, and nurturing (Chandler, Wolf, Cook, & Dugovics, 1980; Crandall & Crandall, 1983; Nowicki & Schneewind, 1982; Lefcourt, 1976).

Some studies did not find a relationship between locus of control and the variables of interest. Locus of control was not found to be related to problem behavior during adolescence (Jessor & Jessor, 1977) or social desirability (Nowicki & Strickland, 1973).

Research on the ability of locus of control to change as a result of interventions has produced conflicting results (Nowicki & Duke, 1983). Fertman and Chubb (1992) found that a one-week psychoeducational program for adolescents did not result in a significant change in locus of control, measured six months later. Autry and Langenbach's (1985) study showed that teaching 10-, 11-, and 12-year-old boys self-monitoring behaviors in combination with external-regulating procedures resulted in locus of control becoming more internal. A similar result was found in a summer camp experience which was designed to highlight the connection between behavior and consequences (Nowicki & Strickland, 1973). It seems that locus of control can be influenced by interventions, at least in the short term, but that it is not an easily changed aspect of the personality.

Locus of control appears to become more internal over time (Knoop, 1981). The Youth in Transition project, a longitudinal study, found that in adolescent boys, locus of control became more internal from tenth grade to one-year post-high school, with the greatest change occurring between the tenth and eleventh grades (Bachman, O'Malley, & Johnston, 1978). Cairns et al. (1990) had similar results. Their study spanned eighteen months, with the average age of 17 at the first of two measurement times. From Time 1 to Time 2 locus of control became significantly more internal.

Results on gender differences in locus of control have varied. Some studies found that females have more external locus of control than do males (Cairns et al., 1990) while other studies did not find differences in locus of control (Adame, Johnson, & Cole, 1989; Dellas & Jernigan, 1987). Archer and Waterman (1988) reviewed 22 studies for gender differences on several variables including locus of control. In 15 of the studies no gender differences were found; in six studies, the males were more internal; and in one study, the females were more internal. Archer and Waterman concluded that there is not enough evidence in the research to show that there are gender differences.

Of interest in the present study is whether the personality constructs of self-esteem and locus of control remain stable during the important years of adolescence. The study also seeks to assess if there are gender differences in these constructs during the four years of high school.

METHOD

Subjects

Participants were students from a school district located in a community which is a combination of a small, working-class town, a middle-

class suburban area, and a substantial rural area. This group of students was participating in a larger study which assessed various community, school, and family influences on adolescents.

The larger study, the Community and School Activity Project, seeks to explore the interactions between adolescents, their families, schools, and communities from an ecological perspective. This has involved the collection of data, using questionnaires, from three sequential 9th-grade cohorts, beginning in 1989, and following the first group for four years, the second for three years, and the third for two years.

From the initial cohort of 236 students who were first surveyed in 1989, 174 students were used in this study because data were available on each of them for four consecutive years. The 25% attrition rate was due to missing one year of data collection or having an incomplete questionnaire (41%), moving (28%), dropping out of school (19%), or officially withdrawing from school (11%). In the first year of data collection, the participants included all the ninth grade students in the school district's only junior high school. During the next three years these students were assessed in their senior high school.

At the time of the initial data collection, the average age of the 236 students was 15 years; 95% of the students were white; the majority of the rest of the students were African-American; 57% were female; 43% were male; 78% lived with two parents, including stepparents, 14% lived with one parent, and 8% lived with someone other than a parent. The 174 students in the study did not differ from the original group in age or race. However, the attrition group had almost equal numbers of males and females so that the final sample of 174 students included 41% males and 59% females.

Procedures

There were four phases of data collected: in April 1989, April 1990, March 1991, and February 1992. The questionnaires were administered by trained staff members from the Maximizing Adolescent Potentials (MAPS) Program at the University of Pittsburgh during regular school days, in the students' health classes, English classes, or social studies classes, depending on the year. Most of the regular teachers chose to leave the classroom, though occasionally one would stay and do paper work in the back of the room. Questionnaires took approximately 30 minutes to complete. One of the MAPS staff members returned to the school in the following weeks to administer the questionnaire to students who had been absent.

Students were informed of the voluntary nature of completing the questionnaire and assured of confidentiality. In the first year no student elected not to participate; in subsequent years approximately five students each year chose not to participate.

Instruments

A questionnaire was used to assess students on the variables of interest to this study and included the Rosenberg Self-Esteem Scale and the Nowicki-Strickland Locus of Control Scale for Children.

Self-Esteem. The Rosenberg Self-Esteem Scale consists of ten items for which there are four possible responses: strongly agree, agree, disagree, and strongly disagree. By summing responses, a total self-esteem score is calculated for each student. The scores range from 10, low self-esteem, to 40, high self-esteem.

Rosenberg (1979) summarizes the research on the scale's reliability and validity. Two small college samples had two-week test-retest reliability coefficients of $r = .85$ and .88. Along with face validity, the scale has also demonstrated convergent validity with the Coopersmith Self-Esteem Inventory, with the scales correlated at $r = .60$ (Robinson & Shaver, 1973).

Locus of control. The Nowicki-Strickland Locus of Control Scale for Children is a 40-item scale which measures the degree to which people believe that reinforcement is a result of their own behavior (internal locus of control) or a result of fate or chance (external locus of control). Responses are "yes" or "no" to each item, with each response in the external direction receiving a point. Scores can range from 0 (internal locus of control) to 40 (external locus of control) (Nowicki & Strickland, 1973).

Nowicki and Duke (1983, and Robinson and Shaver, 1973) summarized reliability and validity information on the scale. Test-retest reliability was calculated with a six-week interval at .75 for a group of 54 12- to 15-year-old children. A similar result, a test-retest reliability of .71, was found with a group of tenth graders. One study found that test-retest reliability dropped to .52 with a year interval. A Spearman-Brown split-half reliability of .74 was found for grades nine through eleven. Validity has been primarily examined through correlating the scale with other scales that measure locus of control, such as the Bialer-Cromwell Scale (MacDonald, 1973) and correlating scores to other constructs, such as state-trait anxiety and attitudes toward home, school and peers (Nowicki & Duke, 1983; Nunn, 1987, 1988). Results have indicated that the scale has fair concurrent validity with other locus of control measures and the relationships between locus of control and other constructs are in the expected directions.

RESULTS

Self-esteem. To determine whether self-esteem changed from ninth to twelfth grade and whether there were gender differences in self-

esteem and in its pattern of change among high school students, a two-way analysis of variance (ANOVA) was used. The results revealed a significant main effect for gender but not for grade, and no significant interaction between gender and grade. Male self-esteem was consistently higher than female self-esteem throughout high school. As shown in Table 1, the difference in self-esteem scores for males and females over the four years was significant ($p = .0013$).

Self-esteem mean scores and standard deviations for all students, for females and for males, for grades, 9, 10, 11, and 12 are presented in Table 2. Mean scores for males and females are plotted in Figure 1.

Table 1

Analysis of Variance for Self-Esteem by Gender and Grade

Source	df	MS	F	p
GENDER	1	838.00	10.76	.0013
ERROR	170	77.88		
GRADE	3	33.70	2.36	.0705
GENDER X GRADE	3	12.56	.88	.4451
ERROR	510	14.26		

Table 2

Self-Esteem Mean Scores and Standard Deviations by Grade for Females, Males, and Total Sample

Group	n	9th grade	10th grade	11th grade	12th grade	total
females	102					
M		28.81	28.82	28.65	29.37	28.91
SD		5.33	5.34	5.77	5.88	
males	70					
M		31.70	31.19	30.20	31.56	31.16
SD		5.23	4.82	5.65	5.68	
total sample	172					
M		29.99	29.79	29.28	30.26	29.83
SD		5.49	5.23	5.74	5.86	

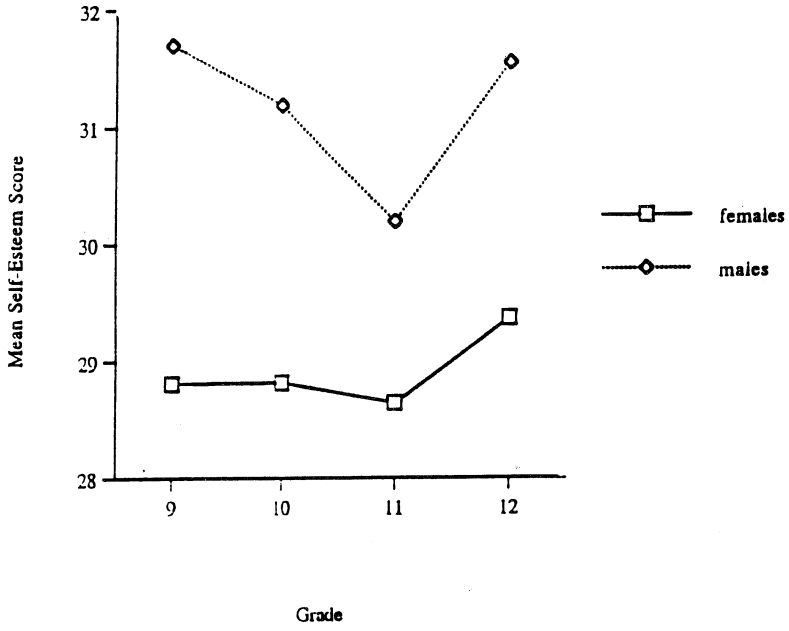

Figure 1. Average self-esteem score at each grade level.

Locus of control. To examine changes in locus of control from ninth to twelfth grade and whether there were gender differences in locus of control and in its pattern of change among high school students, a two-way ANOVA was computed (see Table 3). There was no significant main effect for gender, but there was a significant main effect for grade and a significant interaction between gender and grade, with $p = .0001$ and $p = .0431$, respectively. Between ninth and twelfth grades, locus of control became less external each year for both males and females with the exception of a slight increase in externality for males between ninth and tenth grades. Figure 2 illustrates the differences in the mean scores for males and females from 9th to 12th grades. The significant interaction reflects the finding that the scores of females and males moved in opposite directions between ninth and tenth grades, with a large drop in female scores in the internal direction. Means and standard deviations for the locus of control scores for the four years are reported in Table 4.

DISCUSSION

Results of the study showed that self-esteem did not change significantly over the four years of high school. This finding adds support to

Table 3

Analysis of Variance for Locus of Control by Gender and Grade

Source	df	MS	F	p
GENDER	1	4.64	0.06	.8089
ERROR	172	79.16		
GRADE	3	92.43	7.63	.0001
GENDER X GRADE	3	33.11	2.73	.0431
ERROR	516	12.11		

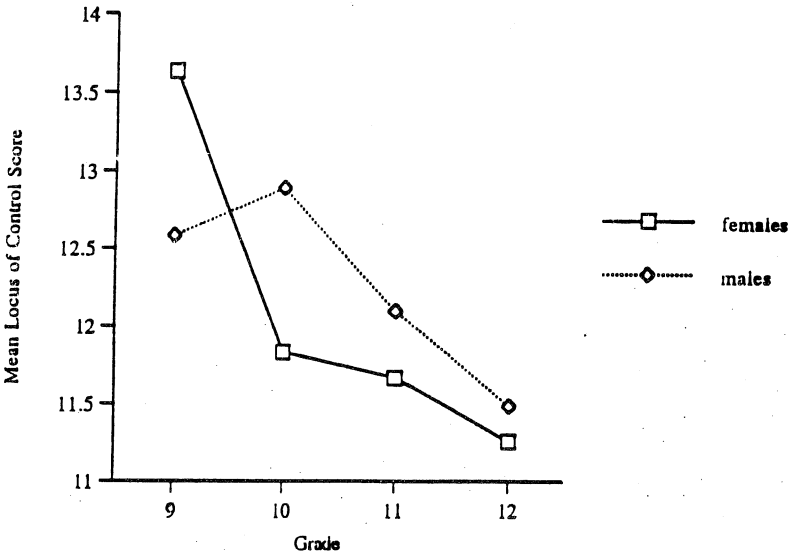

Figure 2. Average locus of control score at each grade level.

other research which found self-esteem not to change over time (Brack, Orr, & Ingersoll, 1988; Savin-Williams & Demo, 1984; Wylie, 1979).

This result differs from that of Bachman and O'Malley's (1977) longitudinal study of 1,600 young men which found that self-esteem in-

Table 4

Locus of Control Mean Scores and Standard Deviations by Grade for Females, Males, and Total Sample

Group	n	9th grade	10th grade	11th grade	12th grade	total
females	102					
M		13.64	11.83	11.67	11.26	12.10
SD		5.20	4.83	5.30	4.95	
males	72					
M		12.58	12.89	12.10	11.49	12.26
SD		5.52	6.11	5.74	5.72	
total sample	174					
M		13.20	12.27	11.85	11.35	12.17
SD		5.34	5.40	5.48	5.27	

creased steadily from the beginning of tenth grade to the end of twelfth grade, and beyond. The differences in their finding and the finding in this study may be due to their large sample size and the timing of their testing.

Likewise, these results do not support McCarthy and Hoge's (1982) conclusion that it is cross-sectional, and not longitudinal, studies that find self-esteem remains stable over time. Again, the size of the samples and the timing of the measurements probably contributed to these discrepancies.

While self-esteem was stable for males and females during the four years of high school, males had significantly higher self-esteem than did females. These findings are consistent with other research on gender differences which have found that adolescent males have higher self-esteem than do females (Brack, Orr, & Ingersoll, 1988; Cairns, McWhirter, Duffy, & Barry, 1990; Eccles et al., 1989; Labouvie et al., 1990; Nottelmann, 1987; Richman, Clark, & Brown, 1985; Rosenberg & Simmons, 1975; Simmons & Rosenberg, 1975; Wigfield et al., 1991). Moran and Eckenrode's (1991) study produced almost identical results using the Rosenberg Self-Esteem Scale with a smaller high school sample. O'Malley and Bachman's (1979) conclusion that their results, showing that female high school seniors have significantly lower self-

esteem than do male seniors, were a function of sample size is not supported by the present study. In this study, the gender differences in self-esteem are at their peak in ninth grade, so the contributory factors seem to have had their influence prior to and have been maintained throughout high school.

It is interesting that most of the research on self-esteem in the elementary school years has found no gender differences (Bohan, 1973; Simmons & Rosenberg, 1975). Between the elementary and high school years the effects of puberty and the impact of gender roles may have negatively influenced girls relative to boys. The reasons for lower self-esteem in high school girls need to be further explored. One explanation reported in the research by the American Association of University Women (Freiberg, 1991) is that the adults in adolescent lives send different messages to males as compared with females about their adequacy. Studies continue to show that girls receive different amounts and types of reinforcement from teachers. It is also possible that girls are aware of the lower status society places on relationship tending and the higher status on autonomy and independence. Longitudinal studies which measure changes in self-esteem from elementary school to high school would increase our understanding of what happens in early adolescence.

For the total sample there is a clear trend toward less external locus of control for each year during the high school years. Other research has produced similar results (Cairns et al., 1990; Knoop, 1981). Bachman, O'Mallay, and Johnston's (1978) longitudinal study of adolescent boys found the biggest decrease in external locus of control to be between tenth and eleventh grade. In the present study, the biggest drop in externality also occurred for males in this period, although for females the largest drop was from ninth to tenth grade, a time when external locus of control was increasing slightly for males. This decrease in external locus of control for adolescents may be a result of greater freedoms experienced with increasing age. It seems appropriate that adolescents would gradually feel more self-empowered over time.

A significant difference in locus of control between males and females was not found. This supports the findings of other researchers (Adame et al., 1989; Archer & Waterman, 1988; Dellas & Jernigan, 1987). However, there was a significant interaction between gender and grade. Between ninth and tenth grade, locus of control became less external for females, while for males it became slightly more external. It may explain why there have been inconsistent findings on gender differences in locus of control. This interaction has not been noted in other studies and deserves further study.

Several possible explanations for the interaction could be proposed. First, between ninth and tenth grade most girls have gone through the changes of puberty and settled into their new bodies. Boys, on the other hand, are still changing, as puberty begins later and lasts longer. Another possible reason for this difference in locus of control direction is that in the ninth grade these students were at the top grade level of the junior high school. For boys, the move to high school means losing "top dog" billing in terms of social relationships and sports positions. Given that girls still prefer to date older boys, tenth grade opens up new social opportunities for girls. Or perhaps by the end of tenth grade, the girls had settled comfortably into high school and felt more empowered than when they were in junior high school.

CONCLUSIONS

As a stage of development, adolescence is important because of the developmental tasks encountered and because it sets the stage for adulthood. As implied by the word "development," changes in adolescents are occurring over time, and one of the best methods for evaluating change is to study the same people throughout their lives. This study is a series of snapshots of the same 174 9th-grade students, taken each spring for four years. It provides a rare look into normal adolescent personality development. Parents, educators, and others involved with adolescents can better meet the needs of this population if they understand the factors that promote healthier development. This research contributes to our knowledge of adolescent development during the high school years and provides information that will help better target future research.

Adolescent females reported lower self-esteem than did adolescent males, which was consistently true throughout high school. Further research would be helpful by addressing the discrepancies between male and female self-esteem and by determining the effectiveness of providing programming to support the development of greater self-esteem in our adolescent females.

While this study found no significant gender differences in locus of control, it did become less external over the four years of high school. This is consistent with other research on this construct. For girls and boys, there appears to be, on the average, a steady increase in their sense of personal empowerment.

It seems that the critical years for self-esteem development and academic tracking occur earlier than high school. Further research is needed that examines the early adolescent years in order to increase knowledge of how gender differences in self-esteem develop. Programs which are more focused can then be evaluated.

One of this study's strengths is also one of its weaknesses. This is a fairly homogeneous sample and one must be cautious in generalizing to other populations. Simmons and Rosenberg (1975) and Freiberg (1991) showed that in the African-American population, girls do not have the same problems with low self-esteem. Similar longitudinal research with culturally diverse populations would further add to our understanding of the similarities and differences in adolescent development that are due to cultural differences as well as gender. The relatively small sample size is also a possible limitation of this study.

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