

**Background for Community-Level Work on Educational Adjustment,
Achievement and Attainment in Adolescence:
Reviewing the Literature on Contributing Factors**

EXECUTIVE SUMMARY

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The education of American youth is widely considered an important goal in the United States. The issue of how American youth are faring in their schooling, both compared to others within their own society and compared to youth in other countries, has long been an issue of national concern (National Commission on Excellence in Education, 1983). Indeed, there are many arguments for why we should place such a significant focus on educational adjustment, achievement, and attainment. For instance, adolescents who achieve more academically are more likely to graduate from high school and to attend college (Cairns, Cairns, & Neckerman, 1989; McNeal, 1995). Furthermore, young people’s academic performance and educational attainment are strong predictors of the economic functioning they will experience later in life, such as their income, employment, and occupational status and income (Entwisle, 1990; Kane and Rouse, 1995; Miller, Mulvey, & Martin, 1995). Hence, as adolescents prepare for the transition to adulthood, those who are better adjusted educationally are more likely to make this transition successfully.

This paper reviews the research regarding the factors in adolescents’ lives that predict their educational adjustment, achievement and attainment, limiting our review to the well-being of individuals aged 18 and under¹. The review is limited to studies using rigorous analysis and/or evaluation methods. Specifically, we limit our investigation to: 1) experimental studies (those in which individuals are randomly assigned to either a program or a control group), the most rigorous method for examining what factors influence adolescents’ educational adjustment and the only methodology from which causality can be attributed; and 2) multivariate longitudinal studies (which make up the vast majority of the research reviewed here), considered the “next best” research design. For a limited number of topics where research on educational outcomes is well-established, we include data supplied from meta-analyses, a methodology that is used to summarize the effects of several studies measuring effects on the same outcome. Last, when a topic hasn’t been addressed using more methodologically rigorous methods, we have included cross-sectional studies; these studies are always specifically identified as cross-sectional.

This paper is divided into two parts: social-psychological outcomes of educational adjustment (i.e., social psychological attributes) and educational achievement and attainment. While discussions and debates about the educational achievement of American youth seem to focus increasingly on more scholastic indicators (e.g., grade point average, test scores), a great deal of information can also be gleaned from indicators of adolescents’ psychological orientation to education. Adolescents’ feeling about their academic competence (academic self-concept), as well as their motivation for pursuing academic tasks (achievement motivation), their attachment and investment in school (school engagement), and their hopes and expectations for their

¹ The age range was extended to examine predictors of college attendance, achievement, and college completion.

academic future (educational aspirations and expectations) can have important implications for their later educational well-being. Indeed, these factors have been demonstrated to predict test scores, grade point averages, course selection, and overall educational attainment (e.g., Connell, Spencer, & Aber, 1994; Marsh, 1994), and therefore are important indicators of adolescents' educational progress. Given the importance of these components of adolescents' educational progress, the first section of our paper focuses on key psychological indicators of educational adjustment. The second section of our paper covers the antecedents of the more traditional indicators of educational well-being, including academic achievement, as indicated by grades and test performance, high school completion, and college attendance, and to a lesser extent, college completion.

A key question for those concerned with improving adolescent functioning is what influences adolescents' levels of educational functioning. For each educational outcome, we explore which characteristics of adolescents (individual-level factors), their families (family-level factors), their peers (peer-level factors), their broader communities (neighborhood/community/school-level factors), and societal influences, such as education reform programs and policies (societal/policy-level factors), have been shown to relate to their educational adjustment, achievement, and attainment. Given that the goal of this document is to inform the development of effective programs for enhancing youth outcomes, we also briefly summarize evaluations of intervention programs targeted at adolescents and discuss their effectiveness in improving adolescents' educational outcomes.

Antecedents of Educational Adjustment

We turn first to summarize the major predictors of the four social psychological indicators of adolescents' educational adjustment: achievement motivation, school engagement, academic self-concept, and educational aspirations and expectations. We note the inter-relatedness of these factors – the reader will find that they are frequently listed as individual-level antecedents of each other.

Achievement Motivation

The first indicator we address in this section, achievement motivation, refers to the structure of a student's desire to succeed or achieve in academics. Possibly the most widely discussed issue in the education field pertaining to achievement motivation is the distinction between extrinsic and intrinsic motivation. This distinction flows from self-determination theory, which emphasizes the degree to which an individual behaves based on his or her own volition, and is highly related to an emphasis on goals (Deci & Ryan, 2000). With regard to academic achievement, this theory emphasizes why students pursue goals and strive for success in the classroom and makes a critical distinction between tasks that are performed because they have value to the student in and of themselves (intrinsically motivated tasks), and those that are performed because they are rewarded by others (extrinsically motivated tasks) (Deci & Ryan, 1985; Ryan & Deci, 2000). A student's level of achievement motivation predicts how engaged they are in school and their level of academic achievement.

Individual. Factors at the individual-level have received perhaps the greatest attention in the research literature. Students' feelings about their academic competence, the degree to which they feel they belong at school, and their desire to make friends at school all have implications for their achievement motivation (Anderman & Anderman, 1999; Harter et al., 1992). For instance, those who feel more competent, feel they belong at school, and place less emphasis on the importance of being liked by the "popular crowd" tend to endorse more positive forms of achievement motivation. Likewise, the extent to which they have experienced prior educational problems is related to their motivation to succeed in school, with those having more educational problems showing less positive forms of motivation (Connell and Halpern-Felsher, 1997). Finally, there is evidence that boys and girls may hold different forms of motivation in adolescence (Anderman, Maehr, & Midgley, 1999).

Family and Peer Networks. Far fewer studies have examined the characteristics of adolescents' families and peer relationships that have implications for their achievement motivation. Preliminary research has found that adolescents whose parents are more involved in their schooling and who were brought up in more cognitively stimulating homes tend to hold more positive forms of achievement motivation (Connell & Halpern-Felsher, 1997). Further, adolescents whose peers hold more adaptive forms of achievement motivation are more likely to hold these forms themselves (Ryan, 2001).

School. The relationship between adolescents' school environments and their achievement motivation has also been documented in a few longitudinal studies. For instance, adolescents tend to endorse the learning goals that their schools seem to emphasize (Anderman & Anderman, 1999). Likewise, adolescents taught in schools or classrooms using cooperative learning strategies and adolescents who receive greater support from adults at school tend to endorse more adaptive forms of achievement motivation (Nichols, 1996).

School Engagement

The second indicator, school engagement, refers to a student's level of "connectedness" to school. Students' level of engagement in school is related to their academic success in the scholastic realm. School engagement can be indicated by both emotional and behavioral factors, including an adolescent's school attendance, completion and quality of homework, or feelings toward school. We review research examining both types of measures.

Individual. A large body of research has documented important aspects of adolescents' lives that seem to have implications for their school engagement. For instance, adolescents who feel more competent, both broadly and within the academic realm, and those who endorse more positive forms of achievement motivation tend to be more engaged in school (Murdock et al., 2000). Likewise, their prior academic experiences, including being retained a grade and experiencing academic troubles more broadly, as well as their academic achievement and academic track, all seem to predict their levels of engagement in school; the general pattern is that those with higher levels of academic adjustment tend to be more engaged in school (Anderman, 1999). Further, adolescents holding more positive feelings about school, such as a greater sense of belonging or greater interest in making friends, have higher levels of school engagement, whereas those involved in delinquent activities or higher levels of employment

have lower engagement (Connell and Halpern-Felsher, 1997). Finally, key differences between adolescents' school engagement based on their sex and/or their race or ethnicity have also been identified (Berends, 1995; Finn and Rock, 1997; McNeal, 1999).

Family and Peer Networks. The predictors of school engagement expand past the individual level to include adolescents' experiences with their family and their peers. A number of studies have suggested that children from two-parent families and children whose mother had her first child at an older age tend to show higher levels of school engagement (McLanahan and Sandefur, 1994; Levine, Pollack, and Comfort, 2001). Further, positive parent-adolescent interactions are related to higher levels of school engagement (Connell and Halpern-Felsher, 1997; McNeal, 1999). Finally, though few longitudinal studies have examined the implications of adolescents' peer networks for their school engagement, one study found that adolescents who perceive their peers as having higher aspirations have been found to be more engaged in school themselves (Murdock et al., 2000).

School. Several studies have found links between the characteristics of adolescents' school environments and their participation in prevention programs and their school engagement. For instance, studies have suggested the students from larger schools and schools with a greater percentage of minority students show lower levels of engagement, (Finn and Voelkl, 1993). Likewise, students in schools that place a greater emphasis on academics, promote more adaptive learning goals, and in which teachers are perceived as more supportive tend to have higher levels of engagement (Murdock et al., 2000; Phillips, 1997).

Academic Self-Concept

The third construct, academic self-concept, refers to an individual's perception of his or her level of competence or ability within the academic realm. A student's academic self-concept is related to their level of achievement motivation and academic achievement.

Individual. With regard to the characteristics of the adolescents themselves, individual levels of achievement seem to affect how competent they feel in the academic realm, with those performing better generally having higher levels of academic self-concept. Adolescents' individual experiences outside of the school realm are also related to their academic self-concepts. For instance, those who work greater numbers of hours during high school tend to have lower academic self-concepts (Marsh, 1991a).

Peer and Family Networks. In terms of adolescents' experiences with their families and peers, the contributions their families receive from non-residential fathers and their perceptions of their peers' educational aspirations both seem to promote higher academic self-concepts (King, 1994; Murdock, Anderman, & Hodge, 2000). Further, those who report that their peers have higher educational aspirations tend to hold higher academic self-concepts.

School. A number of school-level factors and intervention programs also seem to be important in predicting adolescents' academic self-concepts. For those with learning disabilities, receiving an academic or counseling program targeted at students with learning disabilities is related to increases in academic self-concept. In contrast, specific classes targeted to

academically talented or gifted students lead to lower self-concepts among the gifted population (Marsh, Chessor, Craven, & Roche, 1995). This latter finding seems to indicate a drawback to adolescents' being surrounded by more competent peers, with those who are tending to feel less competent (Elbaum & Vaughn, 2001). Yet, there also appears to be a positive relationship between schools' moderate use of academic tracking and adolescents' levels of academic self-concept, a finding suggesting that perhaps this effect is only apparent at the extremes (Ireson, Hallam, & Plewis, 2001).

While we have described a number of studies suggesting important predictors of adolescents' levels of academic self-concept, it is important to note that this research is far from conclusive. The findings have typically not been replicated across multiple studies. Further, almost all of the studies documenting predictors of academic self-concept have been correlational in design, and a few were even cross-sectional, making it impossible to determine with certainty the causal direction of the relationship under consideration.

Educational Aspirations and Expectations

The fourth and final social psychological indicator is adolescents' educational aspirations and expectations. Adolescents' aspirations for their educational attainment are defined by how much education they hope or aspire to attain; likewise, their expectations for their educational attainment are defined by how much education they actually expect to attain. These closely related constructs provide indications of the level of importance that adolescents place on education and the degree to which they expect to continue their education into the future and predict educational attainment.

Individual. Adolescents' educational expectations and aspirations can be affected by a variety of aspects of adolescents' experiences and feelings. Students who feel that they are more academically competent and those who are more engaged in school tend to have higher educational expectations and aspirations (Murdock et al., 2000). Likewise, those who have performed better in the academic realm, (i.e., their achievement, their academic track, whether they've been retained a grade, and their level of disciplinary problems) tend to hold higher educational expectations and aspirations (Berends, 1995). Further, those feeling they have greater control over their lives and those working fewer hours tend to hold higher educational expectations or aspirations (Mihalic and Elliott, 1997; Trusty and Harris, 1999).

Family and Peers. A number of characteristics of adolescents' family environment and peer networks have been demonstrated to relate to their educational aspirations and expectations. For instance, adolescents from families with a higher socioeconomic status, whose parents have attained a higher level of education, and who have two parents living in the home have all been documented to have higher educational expectations and aspirations (Berends, 1995; Glasgow et al., 1997; Goyette & Xie, 1999; Goyette & Xie, 1999). Higher educational aspirations are also related to having fewer siblings and being the first generation to have been born in the United States (Goyette & Xie, 1999;). Further, adolescents whose parents are more involved and parent them in a supportive, yet strict way show higher educational expectations and aspirations (Glasgow et al., 1999; Trusty, 1999; Trusty & Harris, 1999). Finally, adolescents whose parents

hold higher expectations for their educational attainment tend to have higher educational expectations themselves (Goyette & Xie, 1999).

School/Programs. Studies have also documented the role that school environments can play in affecting adolescents' educational aspirations and expectations. For instance, students attending schools with lower per-pupil expenditures schools that are located in low-income neighborhoods and that have teachers with a lower interest in the adolescents' education tend to have lower expectations and aspirations, as do those attending schools with higher levels of average student ability and public schools (Marsh; 1991b; Murdock et al. 2000; Regnerus, 2000).

Programs that increase adolescents' social psychological adjustment to school. A handful of rigorous experimental studies have documented program initiatives that increase the four psychological indicators of adolescents' educational adjustment outlined in this section. These programs have ranged from school-based initiatives, such as service-learning programs, to programs targeted toward adolescents' families.

Mentoring programs and academic enhancement programs seem to offer the greatest potential for positively influencing multiple aspects of adolescents' social-psychological adjustment to school. These programs have been found to increase adolescents' school engagement (though not always every form of engagement) and, to a lesser extent, adolescents' levels of academic self-concept and expectations (e.g., Big Brothers/Big Sisters program, the Quantum Opportunities Program and the Boys and Girls Clubs of America). Likewise, programs aimed at increasing the academic achievement (and at times the social adjustment) of at-risk youth have also been demonstrated to increase adolescents' school engagement, as well as their educational attainment (Hahn, 1994; Schinke, Cole, & Poulin, 2000; Tierney, Grossman, & Resch, 1995).

Other types of programs have been identified as successful in increasing one, but not other, components of adolescents' social psychological adjustment to school. For instance, counseling programs for middle school and high school students (and academic programs for middle school students) seem to increase the levels of academic self-concept in students with a learning disability. Likewise, cooperative learning strategies have been linked to increases in students' endorsement of positive forms of achievement motivation. Participation in "career academy" schools has been linked to higher levels of school engagement in at-risk youth, as has participation in a family-based program aimed at preventing substance abuse. Further, participation in a youth employment program and service learning is linked to higher educational expectations in adolescents.

Antecedents of Educational Achievement and Attainment

We now turn to the second set of indicators, academic achievement and educational attainment. The indicators of academic achievement that we cover are test performance and school grades. The educational attainment measures to be covered include high school completion or dropout, postsecondary school attendance and postsecondary school completion. As stated above, students with higher levels of achievement during adolescence are more likely to complete high school and to attend and complete college than their peers with lower levels of

achievement (Adelman, 1999; Cairns, Cairns, & Neckerman, 1989). Further, high school test scores predict later success in the job market, such as higher wages (Blau & Kahn, 2000). Finally, lower levels of education and skills are associated with lower levels of economic success, including a greater likelihood of living in poverty and receiving government assistance (Boisjoly, Harris, & Duncan, 1998; Gottschalk, McLanahan, & Sandefur, 1994). Since adolescents' academic achievement is related to their later success in life, the following discussion of the various antecedents of academic achievement and educational attainment will help us understand what leads to academic success during adolescence and later in life.

Academic Achievement

Individual. The individual-level factors found to predict adolescents' academic achievement include their levels of academic ability, their prior levels of achievement, their psychosocial well-being, their gender, their race, their participation in extracurricular activities, and their employment. For instance, Black and Latino adolescents have lower average levels of achievement than White and Asian adolescents (Felgin 1995; Guo 1998; McNeal, 1999). With regard to an adolescent's gender, females receive higher grades, on average, than males, yet males, on average, perform higher on math and science tests (Conger, Conger, & Elder, 1997; Guo, 1997; Jordan & Nettles, 1999). Some studies show females performing higher on tests of verbal ability or reading performance (Smith, 1990). Further, as might be expected, adolescents with higher levels of ability have higher levels of achievement, on average, than those with lower levels of ability. Similarly, adolescent prior achievement, as indicated by their earlier grades or test scores, is perhaps the most significant predictor of their current levels of achievement, with those scoring higher tending to show higher later achievement as well (Gortmaker, Salter, Walker, & Dietz, 1990; Gutman & Eccles, 1999; Jordan & Nettles, 1999; Zaff et al., 2001).

Adolescents' use of time outside of school is also related to their achievement outcomes. For instance, adolescents who work over 20 hours per week during the academic school year experience lower levels of achievement (Jordan & Nettles, 1999; Singh, 1998; Steinberg & Cauffman, 1995). Yet, neither working low to moderate hours each week or working during the summer months has negative implications for adolescent achievement (Marsh, 1991b). Further, research suggests that adolescents who spend greater amounts of time participating in extracurricular activities have higher levels of achievement (Eccles & Barber, 1999; Jordan & Nettles, 1999). In contrast, the amount of time that adolescents spend watching television each day seems to have little implication for their long-term academic achievement, although their current television use is related to low contemporaneous achievement (Collins, Wright, Anderson, Huston, Schmitt, & McElroy, 1997; Gortmaker, Salter, Walker, & Dietz, 1990). Use of other types of media, such as listening to the radio and music recordings, appears to be negatively associated with their academic achievement (Smith, 1992). Doing many hours of chores each week also appears to have negative implications for achievement (Smith, 1992).

Family. A large number of family background and family process factors have also been documented to predict adolescents' academic achievement. Research has consistently suggested that adolescents whose parents are more involved in their lives have higher levels of academic achievement than those whose parents are less involved (McNeal, 1999). Greater levels of family income and parental education are associated with higher levels of achievement (Conger,

Conger, & Elder, 1997; Gamoran, 1992; Gutman & Eccles, 1999). Most studies show that adolescents raised with or living with two biological parents have higher levels of academic achievement than adolescents from single-parent or step-parent families (McNeal, 1999). However, there are a few studies that do not find this relationship (Guo, 1998). Further, research has documented a negative relationship between number of siblings and academic achievement, with adolescents who have a larger number of siblings having lower levels of achievement than those with fewer siblings (Conger, Conger, & Elder, 1997).

Peers. There is a dearth of high-quality research on the relationships between the characteristics of adolescents' peers and their academic functioning. The existing studies suggest that peers may affect adolescents' achievement outcomes positively or negatively, depending on their orientation. Adolescents who spend greater amounts of time with their peers have been shown to have lower academic achievement outcomes (Jordan & Nettles, 1999). However, more rigorous research is certainly needed to provide conclusive evidence on the effects of peers on adolescents' academic adjustment.

School/Neighborhood/Community. A number of studies have examined the effects of school type, school structure, and teacher characteristics on adolescents' educational outcomes. For instance, some aspects of a teacher's background appear to be related to student achievement, including attendance at an exclusive college or university and training in the subject that they teach (especially for math and science teachers) (Druva & Anderson, 1983; Ehrenberg & Brewer, 1994; Goldhaber & Brewer, 1997). Students from higher tracks have higher levels of achievement and schools with more fluid tracking systems and cooperative learning systems promote higher levels of overall achievement for their students (Argys, Rees, Brewer, 1996; Gamoran, 1992; Gamoran, 1996). Students attending schools with higher mean school SES levels and who attend Catholic and magnet public schools tend to have higher achievement levels (Gamoran, 1992; Gamoran, 1996; Lee & Smith, 1995; Marsh, 1991b).

Societal/Policy. Research on class size and vouchers, two educational reform policies, has been mixed. Yet, experimental evidence has provided some evidence of positive implications of lower class sizes and the use of vouchers among African American and disadvantaged students (Mostellar, 1995; Howell, Wolf, Peterson, & Campbell, 2000).

Educational Attainment

In this section, we cover the antecedents of educational attainment including high school completion or dropout and postsecondary school attendance and attainment. As with the other sections, this review of the literature is a comprehensive, though not exhaustive, review covering major antecedents of schooling outcomes. As our focus is on adolescents, most of the studies we include examine young people when they are younger than age 22.

Graduating from high school is a major milestone for adolescents and helps them make a successful transition into adulthood. Adolescents who complete high school and those who attend at least some college have higher levels of economic well-being, social psychological well-being and health than those who do not complete high school (Entwisle, 1990; Kane & Rouse, 1995). In this review of the literature on the antecedents of educational attainment,

individual, family, peer, neighborhood, school, community, and societal factors were all found to predict adolescents' likelihood to complete high school and to attend and complete college.

Individual. A number of individual-level factors have been found to predict adolescents' levels of educational attainment. For instance, after controlling for background factors, Blacks, and sometimes Asian Pacific/Islanders and Latinos, are found to have higher levels of educational attainment than Whites (Haveman & Wolfe, 1995; McNeal, 1995). Evidence is mixed regarding the effects of gender; yet, much of the research shows that females are more likely to graduate from high school and to attend college than males (Haveman & Wolfe, 1995; Leventhal, Graber, & Brooks-Gunn, 2001; Marsh, 1991). Further, adolescents with high levels of ability and those who had higher levels of achievement throughout high school are more likely to graduate from high school and to attend and complete college than adolescents with lower levels of ability or lower levels of prior achievement (Astone & McLanahan, 1991; Rowe, Vesterdal, & Rodgers, 1998; Weng, Newcomb, & Bentler, 1988; Zaff, Moore, Papillo, & Williams, 2001).

Adolescents' psychosocial adjustment to education also appears to be related to their educational attainment. For example, adolescents with higher levels of school engagement, higher levels of self-esteem and academic self-concept, a more internal locus of control (feeling of control over things that occur in one's life), and higher educational expectations were all found to have higher levels of educational attainment (Finn & Rock, 1997; French & Conrad, 2001; Leventhal, Graber, & Brooks-Gunn, 2001).

Likewise, adolescents' behavior outside of the school context has implications for their educational attainment. For instance, adolescents who engage in high-risk behavior (e.g., delinquent behavior, drug and alcohol use, early pregnancy) have been found to be less likely to graduate from high school (Cairns, Cairns, & Neckerman, 1989; French & Conrad, 2001; Mensch & Kandel, 1988; Myers, Moore, Morrison, Nord, & Brown, 1992).

Finally, adolescents' use of their out-of-school time is related to their levels of educational attainment. For example, those who participate in extracurricular activities are more likely to graduate from high school and to attend college than those who do not (Eccles & Barber, 1999; Mahoney & Cairns, 1997; Zaff, et al., 2001). Likewise, research on the effects of adolescent employment has clearly shown that adolescents who work long hours during the school year, often defined as 20 hours per week or more, are less likely to graduate from high school and to attend college (D'Amico, 1984; Marsh, 1991; Steinberg & Cauffman, 1995). Yet, the implications of other forms of employment, such as employment during the summer months, do not appear to be negative (Marsh, 1991).

Family. A large number of family-level factors have also been found to predict adolescents' likelihood of graduating from high school. For instance, adolescents whose families have a higher income or whose parents have higher levels of education are more likely to complete high school and complete college (Haveman & Wolfe, 1995; Mensch & Kandel, 1988). The link between public assistance receipt and adolescents' educational attainment is less consistent, although one study found that among poor adolescents, public assistance receipt was associated with higher levels of educational attainment.

A number of studies, with a few exceptions, have found that adolescents living with two biological parents have higher levels of educational attainment, on average, than adolescents from single-headed families or step-families (Astone & McLanahan, 1991; McNeal, 1995; McLanahan, 1997; Mensch & Kandel, 1988). Further, some studies have suggested that having a greater number of siblings and being born later in the birth order of the family are both related to a decreased likelihood of graduating from high school (Haveman & Wolfe, 1995; Myers et al., 1992). Research is not as clear as to whether number of siblings predict an adolescent's likelihood of attending college.

Peers. Research has found that adolescents' peer relationships are related to their educational attainment outcomes. For example, antisocial adolescents who were rejected by their peers have been found to be more likely to drop out of high school (French & Conrad, 2001). Further, research has suggested that adolescents who spend their middle school years socializing with people who drop out high school are more likely to drop out themselves (Cairns, Cairns, & Neckerman, 1989). Finally, the academic orientation of adolescents' peers, such as how positively or negatively oriented they are, has implications for their likelihood of attending college (Zaff et al., 2001).

School/Neighborhood/Community. A number of neighborhood factors have been found to predict adolescents' levels of educational attainment. For instance, adolescents who live in a neighborhood with a higher percentage of youth who drop out of high school have a lower likelihood of graduating from high school themselves than those living in neighborhoods with a lower percentage of youth who have dropped out (Haveman & Wolfe, 1995). They also found that adolescents whose families move more often are less likely to graduate than those who move less often.

Characteristics of adolescents' schools also have implications for their levels of attainment. For instance, research has found that adolescents who attend schools with even moderate levels of violence are less likely to graduate than students attending schools that were less violent (Grogger, 1998). A relationship has also been found between adolescents' track in their school and their likelihood of completing high school, with those in the academic track less likely to drop out of high school than students in lower tracks (Borus & Carpenter, 1984; McNeal, 1995). School policies regarding the minimum age at which students can drop out of school and parental permission to drop out also seem to have implications for high school dropout rates, with students who are legally able to drop out at an earlier age and with more permissive systems being more likely to do so (Angrist & Krueger, 1991; Chaplin, 1999). Likewise, school types vary in their effectiveness in improving schooling outcomes. Adolescents who attend Catholic schools are more likely to graduate from high school and to attend college than adolescents from comprehensive public schools; although the research on this topic is far from definitive (Neal, 1997; Zaff et al., 2001).

Programs that increase adolescents' academic achievement and educational attainment. Rigorous research on programs targeting educational outcomes is relatively sparse. In particular, studies including a rich set of control variables to take account of confounding factors and selection bias are in short supply. However, several programs that have been experimentally evaluated address these shortcomings. Such experimental evaluations show that early childhood programs, youth development programs, and mentoring programs can be effective in improving

adolescents' academic achievement during their secondary school years and in improving their subsequent educational attainment. Yet, the effectiveness of these programs varies by their type and the specific educational outcome of interest. For instance, vocational or employment-based programs with the goal of improving employability have shown effectiveness in improving educational outcomes such as school attendance and academic course-taking, but have shown less effectiveness in improving adolescents' academic outcomes such as achievement (Jekielek, Cochran, and Hair, 2001). High quality early childhood programs have been effective in improving academic and educational attainment outcomes, although programs vary in how long the effects last (Barnett, 1995). Likewise, youth development programs with academic components, parental involvement components, as well as social support programming have also been effective in improving adolescents' educational adjustment and schooling, although effectiveness varies by program and by outcome and level of implementation (e.g., Grossman & Sipe, 1992; Hahn, 1994; Harrell, Cavanaugh, & Sridharan, 1999; Myers & Schrim, 1999). More academically- focused after-school programs seem to be more effective in improving academic achievement levels (Schinke, Cole, & Poulin, 2000). Finally, high quality mentoring programs with intensive case management by program staff and mentors who are dedicated to establishing long-term relationships with their assigned mentees have been consistently effective in improving adolescents' achievement and educational attainment levels (Tierney, Grossman, & Resch, 1995; Cave & Quint, 1990; McPartland & Nettles, 1991).

It should be noted that sometimes programs have demonstrated effectiveness for some subgroups but not others. For example, programs in all of the above categories are found to be more effective for low-income or otherwise disadvantaged youth who are at increased risk for academic failure than for more advantaged adolescents. College preparatory programs and vocational programs have sometimes been more effective for certain racial and ethnic subgroups than for others.

Overall Conclusions and Implications for Programs

This document reviews the association between adolescents' characteristics, social relationships, background, and experiences and their educational adjustment, achievement, and attainment. It provides evidence of factors at the individual-, family-, peer-, school- and neighborhood-, and societal- and policy-level that have implications for adolescents' levels of educational well-being. While more high-quality research is certainly needed to provide definitive answers regarding which factors are most important in predicting adolescents' educational adjustment, achievement, and attainment, a number of factors have been demonstrated to have implications for these outcomes. In Addition, programs and policies geared toward one component of youths' lives seem to be able to affect adolescents' outcomes, although it is unlikely that these effects will solve all of adolescents' educational difficulties, given the myriad factors that affect their lives. Below is a list of overall conclusions and recommendations based on the common antecedents of educational outcomes found in the literature review.

- *Programs may seek to identify at-risk youth based on their individual characteristics.* The review documented a number of individual characteristics related to educational outcomes including their ability, prior achievement, race, age, and gender.

- *Program staff should work to promote social-psychological outcomes of educational adjustment.* Social psychological indicators of educational adjustment were found to predict each other as well as academic achievement and educational attainment. Programs may be able to influence positively these social psychological indicators of educational adjustment if program staff and volunteers develop relationships with students lending support and encouragement to students, communicating their beliefs in the students' ability to achieve academically, and attempting to increase adolescents' interest in and motivation toward school.
- *Programs should influence adolescents' involvement in prosocial activities during nonschool hours.* Adolescents' individual choices of how they spend their time out of school are related to their educational outcomes. For instance, participation in extracurricular activities predicts academic achievement and educational attainment.
- *Program staff should discourage young people from participating in risky behaviors and activities.* Adolescents who avoid involving themselves in risky behaviors and activities have higher levels of educational adjustment. Research has shown that adolescents who are rebellious and aggressive, who use drugs or alcohol, who are involved in delinquent and sexual risk behaviors, and who get pregnant and have children at early ages are less likely to graduate from high school.
- *Program staff should discourage students from participating in extensive employment during the school year.* Participation in extensive employment (typically measured as over 20 hours) during the school year predicts lower academic achievement and educational attainment.
- *Programs may want to link parents to information on education programs and better-paying employment opportunities.* Adolescents whose families have higher incomes and whose parents are better-educated and in higher status occupations are more likely to be psychologically well-adjusted to school and to have higher levels of academic achievement and educational attainment than adolescents from lower income families or those with lower-educated families.
- *Programs may seek to increase the prevalence of healthy marriages and provide helpful services for single parent families.* There is evidence that the structure of an adolescent's family has implications for his or her academic achievement and educational attainment. It is fairly clear that adolescents who are raised with both biological parents have higher levels of educational adjustment, achievement, and attainment than those that are not. However, the literature on the benefits of marriage for children also emphasizes the importance of marriages that are low-conflict and free from domestic violence. Further, programs aimed at addressing some of the key factors that may account for lower achievement among adolescents from single parent families (such as lower levels of parental supervision or time, lower economic well-being or poorer parental mental health) may have positive implications for adolescents.

- *Programs should try to involve parents in their children's lives.* The quality of adolescents' relationships with their parents appears to be important for their educational success. For instance, adolescents whose parents are more involved in their lives have higher levels of educational adjustment than those whose parents are less involved. However, some forms of involvement appear to matter more than others. Research suggests that adolescents who have parents who communicate to them their interest in their well-being and their high expectations for them in the educational realm have improved school engagement, achievement, and attainment.
- *Programs should provide a positive atmosphere in which adolescents can develop relationships with positive peers.* Adolescents' relationships with their peers also appear to be related to their educational outcomes. The few studies on the peer relationships and adolescents' educational adjustment have suggested that peers are able to affect children in negative or positive ways, depending on their academic and behavioral orientation. Associating with high-achieving peers who have positive attitudes toward school and high aspirations appears to have positive implications for students' educational adjustment in school and the likelihood of graduating from high school. Likewise, some evidence shows that adolescents who spend large amounts of time with peers in unsupervised settings are more likely to have lower academic outcomes.
- *Programs interested in improving adolescents' educational attainment outcomes may want to encourage adolescents to take college track courses.* Research on tracking demonstrates that students who are in classrooms with high achieving peers achieve more, even after controlling for base achievement levels. Similarly, students who are in lower level tracks seem to achieve at lower levels than those in academic tracks, after controlling for base achievement levels.
- *Programs may seek to identify youth who are at greater educational risk based on their neighborhood and school background.* A number of school, neighborhood, and community level factors were found to be related to adolescents' educational outcomes. Again, these may be used as indicators of educational risk as they appear to be difficult to change.
- *Programs may seek to support educational policies that support adolescents' positive educational development.* As effects of policies on adolescents' educational success during the secondary school years become clearer, programs may support those that conclusively improve adolescents' schools and educational outcomes. More and particularly more rigorous research is necessary to understand which educational reform efforts and policies, such as standards based reform, school uniforms, and/or school choice, positively affect adolescents' outcomes. Much of the research that has been conducted has not met our criteria for inclusion, so the effects of such programs and policies are not clearly or fully understood. Therefore, we are not able to make any recommendations regarding educational reforms and policies.