Adolescent Development

Jacquelynne S. Eccles
University of Michigan

Allan Wigfield
University of Maryland

Adolescence is a period of many changes ranging from the biological changes associated with puberty, to the social/educational changes associated with the transitions from elementary to secondary school and to the social and psychological changes associated with the emergence of sexuality. With such diverse and rapid change comes a heightened potential for both positive and negative outcomes. And, although most individuals pass through this developmental period without excessively high levels of "storm and stress", a substantial number of individuals do experience difficulty during this period. For example, between 15 and 30 percent (depending on ethnic group) drop out of high school; further, adolescents have the highest arrest rate of any age group; and many consume alcohol and other drugs on regular basis (Office of Educational Research and Improvement, 1988). In contrast, many adolescents do quite well during this period of life: they acquire the skills to move successfully into meaningful adult roles, they develop lasting friendships, and they form healthy, productive identities.

**Biological Changes Associated With Puberty**

As a result of the activation of hormones controlling physical development, most children undergo a growth spurt, develop primary and secondary sex characteristics, become fertile, and experience increased sexual libido during early adolescence (see Brooks-Gunn & Reiter, 1990; Buchanan, Eccles, & Becker, 1992 for details). Because girls experience these pubertal changes approximately 18 months younger than boys, girls and boys of the same chronological age are likely to be at quite different points in physical and social development during early adolescence. Although early maturation tends to advantageous for boys, particularly with respect to their participation in sports activities and social standing in school, early maturation is often problematic for European-American girls because the kinds of physical changes girls experience (such as getting fatter) are not highly valued among many white American groups who value the slim, androgynous female body characteristic of European-American fashion models (see Petersen, 1988; Simmons & Blyth, 1987).
African-American females do not evidence this same pattern perhaps because the African-American culture places higher value on the secondary sex characteristics associated with female maturation.

Statton and Magnusson (1990) traced the long term consequences of early maturation in females: Their early maturing girls obtained less education and married earlier than their later maturing peers despite the lack of any differences in achievement levels prior to the onset of puberty. These researchers attributed this difference to the fact that the early maturing females were more likely to join older peer groups and to begin dating older males; in turn, the early maturing girls in these peer groups were more likely to drop out of school and get married, perhaps because school achievement was not valued by their peer social network while early entry into the job market and early marriage was.

Recently researchers have also studied how the hormonal changes associated with pubertal development relate to changes in children's behavior during the early adolescent years (e.g., see Buchanan et al., 1992). There are direct effects of hormones on behaviors such as aggression, sexuality and mood swings. Hormones also affect behavior indirectly through their impact on secondary sex characteristics, which, in turn, influence social experiences and psychological well-being. For example, when breast development is associated with increases in girls' body image, it is also related to better psychological adjustment, more positive peer relations, and better school achievement (Brooks-Gunn and Warren, 1988).

**Changes in Cognition**

Cognitive changes during this developmental period involve increases in adolescents' ability to think abstractly, consider the hypothetical as well as the real, engage in more sophisticated and elaborate information processing strategies, consider multiple dimensions of a problem at once, and reflect on oneself and on complicated problems (see Keating, 1990). Such cognitive changes are the hallmark of Piaget's formal operations stage, which he assumed began during adolescence (e.g., Piaget & Inhelder, 1973). Although there is still considerable debate about exactly when these kinds of cognitive processes emerge and whether their emergence reflects global stage-like changes in cognitive
skills as described by Piaget, most theorists agree that these kinds of thought processes are more characteristic of adolescents’ cognition than of younger children’s cognition.

Cognitive theorists have also investigated more specific information processing skills, cognitive learning strategies, and metacognitive skills (e.g., Bjorklund, 1989; Siegler, 1986). They find a steady increase during adolescence in information processing skills and learning strategies, in knowledge of a variety of different topics and subject areas, in ability to apply knowledge to new learning situations, and in awareness of one’s strengths and weaknesses as learners. However, in order for these new skills to allow adolescents to become more efficient, sophisticated learners, ready to cope with relatively advanced topics in many different subject areas, they need lots of opportunities to practice using them (Keating, 1990).

These kinds of cognitive changes can affect individuals’ self-concepts, thoughts about their future, and understanding of others. Theorists from Erikson (1963) to Harter (1990) have suggested that the adolescent years are a time of change in children’s self-concepts, as they try to both figure out what possibilities are available to them and develop a deeper understanding of themselves. Such self-reflection requires higher-order cognitive processes. During adolescence, individuals also become much more interested in understanding others’ internal psychological characteristics, and friendships become based more on perceived similarity in these characteristics (see Selman, 1980). Again, these types of changes reflect the broader changes in cognition that occur at this time.

**Friendships and Peer Groups**

Probably the most often discussed changes during adolescence are the increases in peer focus and involvement in peer-related social, sports, and other extracurricular activities. Many adolescents attach great importance to these types of activities — substantially more importance than they attach to academic activities (Eccles et al., 1989; Wigfield et al., 1991). Indeed, often to the chagrin of parents and teachers, activities with peers, peer acceptance, and appearance can take precedence over school activities, particularly during early adolescence (Grotevant, 1998; Rubin, Bukowski, & Parker, 1998).
Further, European-American adolescents' confidence in their physical appearance and social acceptance is often a more important predictor of self-esteem than confidence in their cognitive/academic competence (Harter, 1998). The extent to which this is true in other ethnic groups has yet to be adequately assessed.

In part because of the importance of social acceptance during adolescence, friendship networks during this period often are organized into relatively rigid cliques that differ in social status within the school setting (see Brown, 1990). The existence of these cliques seems to reflect adolescents' need to establish a sense of identity; belonging to a group is one way to solve the problem of "who am I".

Also, in part because of the importance of social acceptance, children's conformity to their peers peaks during early adolescence (Rubin et al., 1998). Most policy concern has focused on how this peer conformity can create problems for adolescents, and about how "good" children can be corrupted by the negative influences of peers, particularly by adolescent gangs - and indeed gangs do pose serious social problems in many cities. However, although pressure from peers to engage in misconduct does increase during adolescence (see Brown, 1990), most researchers do not accept the simplistic view that peer groups are mostly a bad influence during adolescence. More often than not, adolescents agree more with their parents' views on "major" issues such as morality, the importance of education, politics, and religion. Peers have more influence on things such as dress and clothing styles, music, and activity choice. In addition, adolescents usually seek out similar peers; this means that those involved in sports will have other athletes as friends; those serious about school will seek those kinds of friends. Finally, adolescents usually select peers who share their parents' fundamental values (Ruben et al., 1998).

Brown (1990) concluded that it is poor parenting that usually leads children to get in with a "bad" peer group, rather than the peer group pulling a "good" child into difficulties. In most cases, the peer group acts more to reinforce existing strengths and weakness than to change adolescents' characteristics.

Finally, the quality of children's friendships undergo some important changes during adolescence (see Berndt & Perry, 1990). As suggested by Sullivan (1953), adolescents' friendships are
more focused on fulfilling intimacy needs than younger children’s friendship. This is particularly true for girls.

Changes in Family Relations

Although the extent of actual disruption in parent-adolescent relations is still debated, there is no doubt that parent-child relations change during adolescence (e.g., Buchanan et al., 1992; Collins, 1990; Grotevant, 1998; Smetana, 1995; Petersen, 1988). As adolescents become physically mature they often seek more independence and autonomy, and may begin to question family rules and roles, leading to conflicts particularly around issues like dress and appearance, chores, and dating. However, despite these conflicts over day to day issues, parents and adolescents agree more than they disagree regarding core values linked to education, politics, and spirituality.

Parents and adolescents also have fewer interactions and do fewer things together outside the home than they did at an earlier period — as illustrated by the horror many adolescents express at seeing their parents at places like shopping malls. Both Collins (1990) and Steinberg (1990) argued that this "distancing" in the relations between adolescents and parents is a natural part of pubertal development which has great functional value for both adolescents precisely because it fosters their individuation from their parents, allows them to try more things on their own, and develops their own competencies and efficacy. When parents respond to this distancing in a developmentally supportive fashion while at the same time providing ample guidance and control, their adolescent children exercise their increasing autonomy in a mature, responsible fashion and maintain positive relationships with their parents (see Eccles et al., 1993).

School and Adolescent Development

The Junior High/Middle School Transition

For some children, the early adolescent years mark the beginning of a downward spiral leading to academic failure and school drop out. For example, Simmons and Blyth (1987) found a marked decline
in some early adolescents' school grades as they moved into junior high school - decline that was
predictive of subsequent school failure and drop out. Similar declines have been documented for such
motivational constructs as: interest in school, intrinsic motivation, self-concepts/self-perceptions, and
confidence in one's intellectual abilities, especially following failure. Finally, there are also increases
during early adolescence in such negative motivational and behavioral characteristics as test anxiety,
learned helpless responses to failure, focus on self-evaluation rather than task mastery and both
truancy and school drop out (See Eccles & Midgley, 1989; Wigfield, Eccles & Pintrich, 1996). Although
these changes are not extreme for most adolescents, there is sufficient evidence of gradual decline in
various indicators of academic motivation, behavior, and self-perception over the early adolescent
years to make one wonder what is happening. And although few studies have gathered information on
ethnic or social class differences in these declines, we know that academic failure and drop out is
especially problematic among some ethnic groups and among youth from low SES communities and
families; thus, it is likely that these groups are particularly likely to show these declines in
academic motivation and self-perception as they move into, and through, the secondary school years.

A variety of explanations have been offered to explain these "negative" changes: Some have
suggested that declines such as these result from the intrapsychic upheaval assumed to be associated
with early adolescent development (e.g. Blos, 1979). Others have suggested that it is the coincidence
of the timing of multiple life changes (e.g., Simmons & Blyth, 1987). Still others have suggested that
it is the nature of the junior high school environment itself that is important. Drawing upon Person-
Environment Fit theory, Eccles and Midgley (1989) proposed that the negative motivational and
behavioral changes associated with early adolescence could result from the fact that traditional junior
high schools are not providing appropriate educational environments for early adolescents. According
to Person-Environment theory, behavior, motivation and mental health are influenced by the fit
between the characteristics individuals bring to their social environments and the characteristics of
these social environments. Individuals are not likely to do very well, or be very motivated, if they are
in social environments that do not fit their psychological needs. If the social environments in the
typical middle grades schools do not fit very well with the psychological needs of adolescents, then
person - environment fit theory predicts a decline in the adolescents' motivation, interest, performance,
and behavior as they move into this environment. There is some evidence for each of these
perspectives.

**The relation of changes in school environments to motivational changes during early adolescence.**

Work in a variety of areas has documented the impact of classroom and school environmental
characteristics on motivation. For example, the big school/ small schools literature has demonstrated
the motivational advantages of small secondary schools especially for marginal students (Barker &
Gump, 1964). Similarly, the teacher efficacy literature has documented the positive student
motivational consequences of high teacher efficacy (Ashton, 1985). Finally, organizational psychology
has demonstrated the importance of participatory work structures on worker motivation (Lawler, 1976).
The list of such influences could, of course, go on. The point is that there may be systematic differences
between the academic environments in typical elementary schools, and those in typical junior high
schools and middle schools; if so, these differences could account for some of the motivational changes
seen among early adolescents as they make the transition into junior high school or middle school.

Eccles and her colleagues (e.g., Eccles et al., 1993) have called this kind of phenomenon “Stage-
Environment Fit”. At the most basic level, this perspective suggests the importance of looking at the fit
between the needs of early adolescents and the opportunities afforded them in their middle grades
school environment. A poor fit would help explain the declines in motivation associated with the
transition to either junior high or middle school. More specifically, these researchers suggested that
different types of educational environments may be needed for different age groups in order to meet the
individual's developmental needs and to foster continued developmental growth. Exposure to the
developmentally appropriate environment would facilitate both motivation and continued growth; in
contrast, exposure to a developmentally inappropriate environment, especially a developmentally
regressive environment would create a particularly poor person-environment fit, which, in turn, would
lead to declines in motivation as well as in the attachment to the goals of the institution.
Eccles and Midgley (1989) further argued that many early adolescents experience developmentally inappropriate changes in a cluster of classroom organizational, instructional, and climate variables, including task structure, task complexity, grouping practices, evaluation techniques, motivational strategies, locus of responsibility for learning, and quality of teacher-student and student-student relationships as they move into either middle school or junior high school. They argued, in turn, that these experiences contribute to the negative change in students' motivation and achievement-related beliefs assumed to coincide with the transition into junior high school. Recent research supports these suggestions. For example, Simmons & Blyth (1987) point out that most junior high schools are substantially larger than elementary schools and instruction is also more likely to organized and taught departmentally. As a result of both of these differences, junior high school teachers typically teach several different groups of students each day and are unlikely to teach any particular students for more than one year. In addition, students typically have several teachers each day with little opportunity to interact with any one teacher on any dimension except the academic content of what is being taught and disciplinary issues. Thus, the opportunity for forming close relationships between students and teachers is effectively eliminated at precisely the point in the students' development when they have a great need for guidance and support from non-familial adults (see Carnegie Report on Adolescent Development, 1989). Such changes in student-teacher relationships, in turn, are likely to undermine the sense of community and trust between students and teachers - leading to a lowered sense of efficacy among the teachers, an increased reliance on authoritarian control practices by the teachers, and an increased sense of alienation among the students. Such changes are also likely to decrease the probability that any particular student's difficulties will be noticed early enough to get the student necessary help - thus increasing the likelihood that students on the edge will be allowed to slip onto negative trajectories leading to increased school failure and drop out.

There is also consistent evidence of counter-productive changes in the authority relations between students and teachers. For example, despite the increasing maturity of students, junior high school classrooms, compared to elementary school classrooms, are characterized by a greater emphasis on
teacher control and discipline, and fewer opportunities for student decision-making, choice, and self-management. Such a mismatch between young adolescents' desires for autonomy and control and their perception of the opportunities in their environments should result in a decline in the adolescents' intrinsic motivation and interest in school; and this is exactly what happens (see Mac Iver & Reuman, 1988).

Finally, junior high school teachers appear to use a higher standard in judging students' competence and in grading their performance than do elementary school teachers. There is no stronger predictor of students' self-confidence and efficacy than the grades they receive. If grades change, then we would expect to see a concomitant shift in the adolescents' self-perceptions and academic motivation. There is evidence that junior high school teachers use stricter and more social comparison-based standards than elementary school teachers to assess student competency and to evaluate student performance, leading to a drop in grades for many early adolescents as they make the junior high school transition (e.g., Simmons and Blyth, 1987).

Eccles and Midgley (1989) argued that these types of school environmental changes are particularly harmful at early adolescence given what is known about psychological development during this stage of life. Early adolescent development is characterized by increases in desire for autonomy, peer orientation, self-focus and self-consciousness, salience of identity issues, concern over heterosexual relationships, and capacity for abstract cognitive activity (see Brown, 1990; Eccles & Midgley, 1989; Keating, 1990; Simmons & Blyth, 1987). Simmons & Blyth (1987) argued that adolescents need a reasonably safe, as well as an intellectually challenging, environment to adapt to these shifts - an environment that provides a "zone of comfort" as well as challenging new opportunities for growth. In light of these needs, the environmental changes often associated with transition to middle grade schools are likely to be particularly harmful in that they emphasize competition, social comparison, and ability self-assessment at a time of heightened self-focus; they decrease decision-making and choice at a time when the desire for control is growing; they emphasize lower level cognitive strategies at a time when the ability to use higher level strategies is increasing;
and they disrupt social networks at a time when adolescents are especially concerned with peer relationships and may be in special need of close adult relationships outside of the home. The nature of these environmental changes, coupled with the normal course of individual development, is likely to result in a developmental mismatch so that the "fit" between the early adolescent and the classroom environment is particularly poor, increasing the risk of negative motivational outcomes, especially for adolescents who are having difficulty succeeding in school academically.

**The High School Transition**

Although there is less work on the transition to high school, the existing work is suggestive of similar problems (Jencks & Brown, 1975). For example, high schools are typically even larger and more bureaucratic than junior high schools and middle schools. Bryk, Lee, and Holland (1994) provide numerous examples of how the sense of community among teachers and students is undermined by the size and bureaucratic structure of most high schools. There is little opportunity for students and teachers to get to know each other and, likely as a consequence, there is distrust between them and little attachment to a common set of goals and values. There is also little opportunity for the students to form mentor-like relationships with a nonfamilial adult and little effort is made to make instruction relevant to the students. Such environments are likely to further undermine the motivation and involvement of many students, especially those not doing particularly well academically, those not enrolled in the favored classes, and those who are alienated from the values of the adults in the high school. These hypotheses need to be tested.

Most large public high schools also organize instruction around curricular tracks that sort students into different groups. As a result, there is even greater diversity in the educational experiences of high school students than of middle grades students; unfortunately, this diversity is often associated more with the students' social class and ethnic group than with differences in the students' talents and interests (Lee & Bryk, 1989). As a result, curricular tracking has served to reinforce social stratification rather than foster optimal education for all students, particularly in
large schools (Dornbusch, 1994; Lee & Bryk, 1989). Lee and Bryk (1989) documented that average school achievement levels do not benefit from this curricular tracking. Quite the contrary - evidence comparing Catholic high schools with public high schools suggests that average school achievement levels are increased when all students are required to take the same challenging curriculum. This conclusion is true even after one has controlled for student selectivity factors. A more thorough examination of how the organization and structure of our high schools influences cognitive, motivational, and achievement outcomes is needed.

**On the More Positive Side**

Difficulties with secondary school transitions, however, are by no means universal (e.g., Fenzel & Blyth, 1986; Hawkins & Berndt, 1985; Nottelmann, 1987. Hirsch and Rapkin (1987), for example, found no change in self esteem in students making the transition from sixth grade into a junior high school. These authors did report, however, an increase in depressive symptomatology in girls making the transition as compared to boys. Although some of these differences across studies undoubtedly reflect variations across studies in populations, school environments, and varying methodological techniques, it is likely that individual differences in young adolescents' responses to school transitions also play a role. In support of this hypothesis, several studies have found negative changes for some youth and not for others. For example, Simmons and Blyth (1987) found that girls already involved in dating and showing the most advanced pubertal development were most at risk for negative changes in their self-esteem in conjunction with the transition to junior high school. Similarly, Midgley, Feldlaufer & Eccles (1989) found more extreme negative effects of the junior high school transition on low achieving students. Finally, Lord, Eccles, and McCarthy (1994) found that adolescents who did well in school during their elementary school years and who have confidence in their academic and social abilities adapt quite well to the junior high school transition. In addition, the increases in their self-
esteem following this transition serve a protective role in their mental health development throughout their high school years (Eccles, Lord, Roeser, Barber, & Jozefowicz, 1997).
References


