Development During Adolescence

The Impact of Stage–Environment Fit on Young Adolescents' Experiences in Schools and in Families

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Although most individuals pass through adolescence without excessively high levels of "storm and stress," many do experience difficulty. Why? Is there something unique about this developmental period that puts adolescents at risk for difficulty? This article focuses on this question and advances the hypothesis that some of the negative psychological changes associated with adolescent development result from a mismatch between the needs of developing adolescents and the opportunities afforded them by their social environments. It provides examples of how this mismatch develops in the school and in the home and how it is linked to negative age-related changes in early adolescents' motivation and self-perceptions. Ways in which more developmentally appropriate social environments can be created are discussed.

Over the past 10 to 15 years there has been a dramatic increase in the attention paid to adolescence. Few developmental periods are characterized by so many changes at so many different levels—changes due to pubertal development, social role redefinitions, cognitive development, school transitions, and the emergence of sexuality. The nature and pace of these changes make adolescence an ideal focus for the study of human development. This has become increasingly evident to many developmental scientists.

For a variety of historical and policy-related reasons, much of the work in developmental science has focused on adolescence as a time of risk. With rapid change comes a heightened potential for both positive and negative outcomes. Although most individuals pass through this developmental period without excessively high levels of storm and stress, many individuals do experience difficulty during this period. Between 15% and 30% of adolescents in the United States, depending on the ethnic group, drop out of school before completing high school; adolescents have the highest arrest rate of any age group; and an increasing number of adolescents consume alcohol and other drugs on a regular basis (Office of Educational Research and Improvement, 1988).

Many of these problems appear to begin during the early adolescent years (Carnegie Council on Adolescent Development, 1989). Is there something unique about this developmental period that puts individuals at greater risk for difficulty as they pass through it? This article focuses on this question. Consistent with the view elaborated by Higgins and Parsons (1983), we suggest that the unique transitional nature of early adolescence results, at least in part, from an interaction between developmental changes at both the individual and social environmental levels. In particular, we advance the hypothesis that some of the negative psychological changes associated with adolescent development result from a mismatch between the needs of developing adolescents and the opportunities afforded them by their social environments. We provide examples of how this mismatch develops and operates in two specific social environments, the school and the home. We begin by reviewing the evidence of "problematic" change at the individual level.

"Problematic" Changes Associated With Early Adolescent Development

Research suggests that the early adolescent years mark the beginning of a downward spiral for some individuals, a spiral that leads some adolescents to academic failure and school dropout. For example, Simmons and Blyth (1987) found a marked decline in some early adolescents' school grades as they move into junior high school. Furthermore, the magnitude of this decline was predictive of subsequent school failure and dropout. Similarly timed developmental declines have been documented for such

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motivational constructs as interest in school (Epstein & McPartland, 1976); intrinsic motivation (Harter, 1981); self-concepts and self-perceptions (Eccles, Midgley, & Adler, 1984; Harter, 1982; Simmons, Blyth, Van Cleave, & Bush, 1979); and confidence in one's intellectual abilities, especially following failure (Parsons & Ruble, 1977). There are also reports of age-related increases during early adolescence in such negative motivational and behavioral characteristics as test anxiety (Hill, 1980), learned helplessness responses to failure (Rholes, Blackwell, Jordan, & Walters, 1980), focus on self-evaluation rather than task mastery (Nicholls, 1980), truancy, and school dropout (Rosenbaum, 1976; see Eccles et al., 1984, for full review). Although these changes are not extreme for most adolescents, there is sufficient evidence of a gradual decline in various indicators of academic motivation—such as attention in class, school attendance, and self-perception—over the early adolescent years to make one wonder what is happening (see Eccles & Midgley, 1989, for review).

Similar types of changes have been noted in family interactions. Again, although the findings are neither universal nor indicative of major disruptions for most adolescents and their families, research suggests that there is a temporary increase in family conflict, particularly over issues related to autonomy and control, during the early adolescent years (see Buchanan, Eccles, & Becker, 1992; Collins, 1990; Hauser, Powers, & Noam, 1991; Hill, 1988; Montemayor, 1986; Paikoff & Brooks-Gunn, 1991; Smetana, 1988a, 1988b; Steinberg, 1990, for recent reviews). For example, Hill (1988) and Steinberg (1990), in both their observational and self-report studies, have found increased conflict between mothers and their sons and daughters during the early and middle adolescent years, particularly for early maturing adolescents (e.g., Hill, 1988; Steinberg, 1981, 1987, 1988).

A variety of explanations have been offered to explain these negative changes. Some who have studied child development have suggested that such declines result from the intrapsychic upheaval assumed to be associated with early adolescent development (e.g., Blos, 1965). Others have suggested that it is the coincidence of the timing of multiple life changes. Drawing on cumulative stress theory Simmons and her colleagues (e.g., Blyth, Simmons, & Carlton-Ford, 1983; Simmons & Blyth, 1987) have suggested that the concurrent timing of the junior high school transition and pubertal development accounts for the declines in the school-related measures and self-esteem. To test this hypothesis, Simmons and her colleagues compared the pattern of change on early school-related outcomes for adolescents who moved from sixth to seventh grade in a K–8, 9–12 system with the pattern of change for adolescents who made the same grade transition in a K–6, 7–9, 10–12 school system. This approach unconfounds the conjoint effects of age and school transition operating in most developmental studies of this age period. Simmons and her colleagues found clear evidence of greater negative change among adolescents making the junior high school transition than among adolescents remaining in the same school setting, especially among female adolescents. It is not clear whether these differences are due to the cumulative impact of school transition and pubertal change for young females adolescents who moved to a junior high school at grade seven, to differences in the nature of the school environments in these two educational structures, or to differences in both of these sets of experiences. Simmons and her colleagues (see Simmons & Blyth, 1987) now argue for the latter.

Similarly, Eccles and her colleagues (Eccles & Midgley, 1989; Eccles et al., 1984) have suggested that the change in the nature of the learning environment associated with the junior high school transition is a plausible explanation for the declines in the school-related measures associated with the junior high school transition. Drawing on *person–environment fit* theory (see Hunt, 1975), Eccles and Midgley (1989) proposed that these motivational and behavioral declines could result from inappropriate educational environments for early adolescents in junior high schools. According to person–environment fit 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 well, or be motivated, if they are in social environments that do not meet their psychological needs. If the social environments in the typical junior high school do not fit with the psychological needs of adolescents, then person–environment fit theory predicts a decline in motivation, interest, performance, and behavior as they move into this environment. We elaborate on this perspective and extend it to the family context, focusing on the possible mismatch between adolescents' need for greater autonomy from parental control and the opportunities for such autonomy provided by the adolescents' parents.

Stage–Environment Fit and School-Related Changes

Various explanations have been offered for the declines in early adolescents' school-related motivational orientations associated with the junior high school transition. In this section, the possible role that the school plays in precipitating these declines is discussed. To understand this role, two types of evidence regarding school effects are presented: evidence drawn from studies that follow the standard environmental influences approach and evidence from studies that adopt a developmental variant on the person–environment fit paradigm, or as Eccles and Midgley (1989) have called it, the *stage–environment fit* approach.

General Environmental Influences

Work in a variety of areas has documented the impact of classroom and school environmental characteristics on motivation. For example, the big school–small school literature has demonstrated the motivational advantages of small schools, especially for marginal students (Barker & Gump, 1964). Similarly, the teacher efficacy and teacher–

student relationship literatures document the importance of high teacher efficacy and positive teacher–student relations for positive teacher and student motivation (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Fraser & Fisher, 1982; Moos, 1979). Finally, motivational psychology has demonstrated the importance of participation and self-control on motivation (deCharms, 1980; Deci & Ryan, 1985, 1987). The list of such influences could, of course, go on for several pages. The point is that there may be systematic differences between typical elementary classrooms and schools, and typical junior high classrooms and schools, and that these differences may account for some of the motivational changes seen among early adolescents as they make the transition into middle or junior high school. If so, then some of the motivational problems seen at early adolescence may be a consequence of the negative changes in the school environment rather than characteristics of the developmental period per se (see Higgins & Parsons, 1983, for a full elaboration of this argument).

Stage–Environment Fit

A slightly different analysis of the possible environmental causes of the motivational changes associated with the junior high school transition draws on the idea of person–environment fit. Such a perspective leads one to expect negative motivational consequences for individuals when they are in environments that do not fit well with their needs (Hunt, 1975; Lewin, 1935). 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 the traditional junior high school environment. A poor fit would help explain the declines in motivation associated with the transition to junior high school.

A compelling way to use the person–environment fit perspective is to put it into a developmental framework. Hunt (1975) argued for the importance of adopting a developmental perspective on person–environment fit in the classroom:

> Maintaining a developmental perspective becomes very important in implementing person–environment matching because a teacher should not only take account of a student's contemporaneous needs by providing whatever structure he presently requires, but also view his present need for structure on a developmental continuum along which growth toward independence and less need for structure is the long-term objective. (p. 221)

That is, teachers should provide the optimal level of structure for children's current levels of maturity while providing a sufficiently challenging environment to pull the children along a developmental path toward higher levels of cognitive and social maturity.

What we find especially intriguing about Hunt's (1975) argument is its application to an analysis of the motivational declines associated with the junior high school transition. If it is true that different types of educational environments may be needed for different age groups to meet developmental needs and to foster continued developmental growth, then it is also possible that some types of changes in educational environments may be inappropriate at certain stages of development (e.g., the early adolescent period). In fact, some types of changes in the educational environment may be developmentally regressive. Exposure to such changes is likely to lead to a particularly poor person–environment fit, and this lack of fit could account for some of the declines in motivation seen at this developmental period.

In essence, we are suggesting that it is the fit between the developmental needs of the adolescent and the educational environment that is important. Imagine two trajectories: one a developmental trajectory of early adolescent growth, the other a trajectory of environmental change across the school years. We believe there will be positive motivational consequences when these two trajectories are in synchrony, that is, when the environment is both responsive to the changing needs of the individual and offers the kinds of stimulation that will propel continued positive growth. Transition to a facilitative and developmentally appropriate environment, even at this vulnerable age, should have a positive impact on children's perceptions of themselves and their educational environment. In contrast, negative motivational consequences will result if the two trajectories are not in synchrony. In this case, transition into a developmentally inappropriate educational environment should result in the types of motivational declines that have been associated with the transition into junior high school. This should be particularly true if the environment is developmentally regressive, that is, if it affords the children fewer opportunities for continued growth than previous environments.

This analysis suggests a set of researchable theoretical and descriptive questions: (a) What are the developmental needs of the early adolescent? (b) What kind of educational environment would be developmentally appropriate in terms of both meeting these needs and stimulating further development? (c) What are the most common changes experienced by young adolescents as they move into middle or junior high school? (d) Are these changes compatible with the physiological, cognitive, and psychological changes early adolescents are experiencing? If not, is there a developmental mismatch between maturing early adolescents and the classroom environments they experience before and after the transition to the junior high school—a mismatch that results in a deterioration in academic motivation and performance for some children?

Systematic Changes in School Environments With the Transition into Middle or Junior High School

We believe that there are 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. We suggest that these changes contribute to the negative change in students' motivation and achievement-related beliefs assumed to coincide with the transition into junior high school. Although insufficient research has been done on this subject, the existing research provides support for these suggestions.

Remarkably few empirical studies have focused on differences in the classroom or school environment across grades or school levels. Most descriptions have focused on school-level characteristics, such as school size, degree of departmentalization, and extent of bureaucratization. Although differences in these characteristics can have important effects on teacher beliefs and practices and on student alienation and motivation, until recently these links have rarely been assessed. Most attempts to assess the classroom environment have included only one grade level and have related differences in the environment to student outcomes, particularly scores on achievement tests. Although little research has focused on systematic differences in the classroom environment from elementary to junior high school, six patterns have emerged with a fair degree of consistency.

First, junior high school classrooms, as compared with 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 (e.g., Brophy & Evertson, 1976; Midgley & Feldlaufer, 1987; Midgley, Feldlaufer, & Eccles, 1988; Moos, 1979). For example, Brophy, Evertson, and their colleagues (e.g., Brophy & Evertson, 1976) have found consistent evidence that junior high school teachers spend more time maintaining order and less time actually teaching than do elementary school teachers. In our own work, sixth-grade elementary school math teachers reported less concern with controlling and disciplining their students than these same students' seventh-grade junior high school math teachers reported one year later (Midgley et al., 1988).

Similar differences emerge on indicators of student opportunity to participate in decision making regarding their own learning. Ward et al. (1982) found that upper elementary school students are given more opportunities to take responsibility for their schoolwork than are seventh-grade students in a traditional junior high school. In our work (Midgley & Feldlaufer, 1987) both seventh graders and their teachers in the first year of junior high school reported less opportunity for students to participate in classroom decision making than did these same students and their sixth grade elementary school teachers one year earlier. In addition, using a measure developed by Lee, Statuto, and Kedar-Voivodas (1983) to assess the congruence between the adolescents' desire for participation in decision making and their perception of the opportunities for such participation, Midgley and Feldlaufer (1987) found a greater discrepancy when the adolescents were in their first year in junior high school than when these same adolescents were in their last year in elementary school. The fit between the adolescents' desire for autonomy and their perception of the extent to which their classroom afforded them opportunities to engage in autonomous behavior had decreased over the junior high school transition.

Second, junior high school classrooms, as compared with elementary school classrooms, are characterized by less personal and positive teacher–student relationships (see Eccles & Midgley, 1989). For example, in Trebilco, Atkinson, and Atkinson's (1977) study, students reported less favorable interpersonal relations with their teachers after the transition to secondary school than before. Similarly, in our work (Feldlaufer, Midgley, & Eccles, 1988), both students and observers rated junior high school math teachers as less friendly, less supportive, and less caring than the teachers these students had one year earlier in the last year of elementary school. In addition, the seventh-grade teachers in this study reported that they trusted the students less than did these students' sixth-grade teachers.

Third, the shift to junior high school is associated with an increase in practices such as whole-class task organization, between-classroom ability grouping, and public evaluation of the correctness of work (see Eccles & Midgley, 1989). In a study by Ward et al. (1982), whole-group instruction was the norm in the seventh grade, small-group instruction was rare, and individualized instruction was not observed at all. In contrast, the sixth grade teachers mixed whole- and small-group instruction within and across subjects areas (Rounds & Osaki, 1982). Similar shifts toward increased use of whole-class instruction, with most students working on the same assignments at the same time, using the same textbooks, and completing the same homework assignments, were evident in our study of the junior high school transition (Feldlaufer et al., 1988). Several reports have also documented the increased use of between-class ability grouping beginning at junior high school (e.g., Oakes, 1981).

Changes such as these are likely to increase social comparison, concerns about evaluation, and competitiveness (see Eccles et al., 1984; Rosenholtz & Simpson, 1984). They may also increase the likelihood that teachers will use normative grading criteria and more public forms of evaluation, both of which may have a negative impact on many early adolescents' self-perceptions and motivation. These changes may also make aptitude differences more salient to both teachers and students, leading to increased teacher expectancy effects and decreased feelings of efficacy among teachers.

Fourth, junior high school teachers feel less effective as teachers, especially with low-ability students. This difference was one of the largest we found between sixth- and seventh-grade teachers. In mathematics, seventh-grade teachers in traditional junior high schools reported much less confidence in their teaching efficacy than did sixth-grade elementary school teachers in the same school districts (Midgley, Feldlaufer, & Eccles, 1989b). This is true even though the seventh-grade math teachers were more likely to be math specialists than were sixth-grade math teachers.

Fifth, there is evidence that classwork during the first year of junior high school requires lower level cognitive skills than does classwork at the elementary level. One rationale often given for the large, departmentalized junior high school system is its efficiency in providing early adolescents with higher level academic work and more varied academic courses taught by specialists in their fields. It is argued that the early adolescents are ready for more formal instruction in specialized subject areas. Two assumptions are implicit in this argument. First, it is assumed that more formal, departmentalized teaching is conducive to the learning of higher order cognitive processes. Second, it is assumed that children in junior high school are undertaking higher order learning tasks in their departmentalized courses.

Both assumptions are being questioned. In an observational study of 11 junior high school science classes (Mitman, Mergendoller, Packer, & Marchman, 1984), only a small proportion of tasks required higher level creative or expressive skills. The most frequent activity involved copying answers from the board or textbook onto worksheets. Similarly, Walberg, House, and Steele (1973) rated the level of complexity of student assignments across Grades 6 through 12. The proportion of low-level activities peaked at Grade 9, the first year after the students in this district made the transition into secondary school. Both of these studies, as well as other studies, suggest that the actual cognitive demands made on adolescents may decrease rather than increase as they make the transition from primary school into secondary school.

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 (see Eccles & Midgley, 1989). There is no stronger predictor of students' self-confidence and sense of efficacy than the grades they receive. If grades change, then we would expect to see a concomitant shift in adolescents' self-perceptions and academic motivation. There is evidence that junior high school teachers use stricter and more social comparison-based standards than do 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. For example, Finger and Silverman (1966) found that 54% of the students in New York State schools experienced a decline in their grades when they moved into junior high school. Similarly, Simmons and Blyth (1987) found a greater drop in grades between sixth and seventh grades for adolescents making the junior high school transition than for adolescents who remained in K–8 schools. The decline in grades is not, however, accompanied by a similar decline in the adolescents' scores on standardized achievement tests, which suggests that the decline reflects a change in grading practices rather than a change in the rate of the students' learning (Kavrell & Petersen, 1984). Imagine what this decline in grades might do to young adolescents' self-confidence, especially if the material is less intellectually challenging.

Such changes are likely to have a negative effect on children's motivational orientation toward school at any grade level. However, we believe these types of school environment changes are particularly harmful at early adolescence, given what is known about psychological development during this stage of life. Past research suggests that early adolescent development is characterized by increases in desire for autonomy and self-determination, peer orientation, self-focus and self-consciousness, salience of identity issues, concern over heterosexual relationships, and capacity for abstract cognitive activity (see Simmons & Blyth, 1987).

Simmons and Blyth (1987) have 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 junior high school seem especially 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. We believe the nature of these environmental changes, coupled with the normal course of individual development, results 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. In the next section we review research findings relevant to these predictions.

It is important, however, to step back and briefly consider why junior high school classrooms might have these characteristics. Several sources have suggested that these characteristics result, in part, from the size and bureaucratic nature of the junior high school as an institution (e.g., Barker & Gump, 1964; Bryk, Lee, & Smith, 1990; Carnegie Council on Adolescent Development, 1989; Simmons & Blyth, 1987). These sources argue that such school characteristics as size, connection to the community, and system of governance, as well as such instructional organization characteristics as departmentalized teaching, ability grouping, normative grading, and large student load, undermine the motivation of both teachers and students. It is difficult for teachers to maintain warm, positive relationships with students if they have to teach 25–30 different students each hour of the day. For the same reason, it is difficult for teachers to feel efficacious about their ability to monitor and help all of these students. Consequently, teachers often resort to more controlling strategies when supervising such a large number of students. These problems are likely to be exacerbated by the negative stereotypes about adolescents

propagated in this culture by presumed experts and by the mass media (see Miller et al., 1990).

Turning Points: Preparing American Youth for the 21st Century (Carnegie Council on Adolescent Development, 1989) outlines a variety of changes in the structure of middle-grades educational institutions (e.g., junior highs, middle schools, and intermediate schools) that would make it easier for teachers to maintain a high sense of self-efficacy, and for both students and teachers alike to have a strong sense of a shared community. In turn, these changes could make it easier for teachers to provide a more positive learning environment for early adolescents.

Impact of Classroom Environmental Changes on Early Adolescents' Motivation: The Michigan Study of Adolescent Life Transitions

To test the predictions outlined above, we conducted a large-scale, two-year, four-wave longitudinal study of the impact of changes in the school and classroom environments on early adolescents' achievement-related beliefs, motives, values, and behaviors (The Michigan Study of Adolescent Life Transitions [MSALT]). The sample was drawn from 12 school districts located in middle-income communities in southeastern Michigan. Approximately 1,500 early adolescents participated at all four waves of the study, moving from the sixth grade in an elementary school into the seventh grade in a junior high school. As is typically the case, the students did not move as a group into the junior high school; they were assigned to various different classes when they arrived at the junior high school. Questionnaires were administered at school during the fall and spring terms of the two consecutive school years.

Teacher Efficacy

One of the largest differences we found between the sixth- and seventh-grade teachers was in their confidence in their teaching efficacy: The seventh-grade teachers reported less confidence than did the sixth-grade teachers. Although the relation between teacher efficacy and student beliefs and attitudes is yet to be firmly established, Brookover et al. (1979), using schools as the unit of analysis, found negative correlations between teachers' sense of efficacy and students' self-concept of ability and self-reliance. Given these associations, differences in teachers' sense of efficacy before and after the transition to junior high school could contribute to the decline in early adolescents' beliefs about their academic competency and potential.

To test this hypothesis, we divided our adolescent sample into four groups based on median splits of their math teachers' ratings of their personal teaching efficacy (see Midgley et al., 1989b, for a full description of this study). The largest group, 559 of the 1,329 included in these analyses, moved from a high-efficacy sixth-grade math teacher to a low-efficacy seventh-grade math teacher. Another 474 adolescents had low-efficacy teachers both years, 117 moved from low- to high-efficacy teachers, and 179 had high-efficacy teachers both years. Thus, 78% of the early adolescents in our sample moved to classrooms with low-efficacy teachers in the seventh grade. The potential impact of such a shift on the motivation and self-perceptions of early adolescents, especially those having difficulty mastering the academic material, is frightening. We know, in particular, that teachers' low expectations for their students undermine the motivation and performance of low-achieving students (Eccles & Wigfield, 1985). Moving from a high- to a low-efficacy teacher may produce a similar effect.

As predicted, the adolescents who moved from high-efficacy to low-efficacy math teachers during the transition (the most common pattern) ended their first year in junior high school with lower expectations for themselves in math, lower perceptions of their performance in math, and higher perceptions of the difficulty of math than did the adolescents who experienced no change in teacher efficacy or who moved from low- to high-efficacy teachers. Also as predicted, teacher efficacy beliefs had a stronger impact on the low-achieving adolescents' beliefs than on the high-achieving adolescents' beliefs. By the end of the junior high school year, low-achieving adolescents who had moved from high- to low-efficacy math teachers suffered a dramatic decline in confidence in their ability to master mathematics. This drop may signal the beginning of the downward spiral in school motivation that eventually leads to school dropout among so many low-achieving adolescents. It is important to note, however, that this same decline was not characteristic of the low-achieving adolescents who moved to high-efficacy seventh-grade math teachers, suggesting that the decline is not a general feature of early adolescent development but rather a consequence of the learning environment experienced by many early adolescents as they make the junior high school transition. Whether a similar pattern characterizes other subject areas remains to be demonstrated.

Teacher–Student Relationships

As noted earlier, we also found that student–teacher relationships deteriorate after the transition to junior high school. Research on the effects of classroom climate indicates that the quality of student–teacher relationships is associated with students' academic motivation and attitudes toward school (e.g., Fraser & Fisher, 1982; Moos, 1979; Trickett & Moos, 1974). Consequently, there is reason to believe that transition into a less supportive classroom will have a negative impact on early adolescents' interest in the subject matter being taught in that classroom. In a sample of 1,300 students, we looked at the effect of differences in perceived teacher support before and after the transition to junior high school on the value early adolescents attach to mathematics (see Midgley, Feldlaufer, & Eccles, 1989a, for a full description of this study). As predicted, the early adolescents who moved from elementary teachers they perceived to be low in support to junior high school math teachers they perceived to be high in support showed an increase in the

value they attached to math. In contrast, the early adolescents who moved from teachers they perceived to be high in support to teachers they perceived to be low in support showed a decline in the value they attached to mathematics. Again we found evidence that low-achieving students are particularly at risk when they move to less facilitative classroom environments after the transition.

Both of these studies show that the declines often reported in studies of early adolescents' motivational orientation are not inevitable. Instead, these declines are associated with specific types of changes in the nature of the classroom environment experienced by many early adolescents as they make the junior high school transition. The studies also show that a transition into more facilitative classrooms can induce positive changes in early adolescents' motivation and self-perceptions. Unfortunately, our findings also indicate that most adolescents experience a negative change in their classroom experiences as they make the junior high school transition.

Person–Environment Fit in Classroom Decision Making

Neither of these studies, however, directly tests our stage–environment fit hypothesis. To do so, one must directly assess person–environment fit and relate this fit to changes in adolescents' self-perceptions and motivation. Data from MSALT provide an opportunity to do this analysis. Both the adolescents and the teachers in this study were asked to rate whether students were allowed to have input into classroom decisions regarding seating arrangements, classwork, homework, class rules, and what to do next and whether students ought to have input into each of these decisions (as developed by Lee et al., 1983). These questions can be used in the following ways: (a) to plot the developmental changes in adolescents' preferences for decision-making opportunities in the classroom, (b) to determine changes in the opportunity for them to participate in decision making, and (c) to determine the extent of match or mismatch between their preferences and the opportunities actually afforded them in the school environment. Grade-related changes in this match can then be related to developmental changes in the adolescents' self-perceptions and school-related motivation.

Developmental Changes in Fit

Grade-related changes. As noted earlier, both the early adolescents and their teachers reported that there was less opportunity for participation in classroom decision making at the seventh grade than at the sixth grade level. In contrast, there was an increase over time and over the school transition in the early adolescents' desires for participation in classroom decision making. As a consequence of these two divergent patterns, the congruence between early adolescents' desires for participation in classroom decision making and their perceptions of the opportunities available to them was lower in the seventh grade than in the sixth grade (Midgley & Feldlaufer, 1987).

Maturational differences in the desire for autonomy. Another way to look at developmental change is to look for interindividual differences at the same time point between same-aged children of different maturational levels. At this age, the extent of pubertal development provides a good indicator of individual differences in physical maturation for female adolescents. We related an indicator of physical maturation to the female adolescents' desire for input into classroom decisions using the Lee et al. (1983) items. Consistent with the intraindividual longitudinal pattern of age-related change reported above, the more physically mature female adolescents expressed a greater desire for input into classroom decision making than did their less physically mature female peers (Miller, 1986). Unfortunately, as was true for the longitudinal results, the more physically mature female adolescents did not perceive greater opportunities for participation in classroom decision making. Although the female adolescents with varying degrees of pubertal development were in the same classrooms, the more physically mature female adolescents (i.e., the early developers) reported fewer opportunities for participation in classroom decision making than did their less mature peers (i.e., the on-time and late developers).

These maturational differences were even more striking when we looked at the within-year changes in these female adolescents' perceptions of the opportunities they had to participate in classroom decision making. We calculated the mean change in their perceptions of opportunities from the fall to the spring testing waves. We then looked at this change as a function of their pubertal status. The early-maturing female adolescents reported less opportunity to participate in classroom decision making in the spring term than they had reported in the previous fall term. In contrast, the late-maturing female adolescents in these same classrooms showed an increase over the course of the school year in these opportunities (Miller, 1986). How can this be, given that these adolescents were in the same classrooms? Did the teachers actually treat these female adolescents differently (i.e., did the teachers respond to earlier physical maturity with more controlling behavior)? Or did the female adolescents perceive a similar environment differently (i.e., did the early-maturing female adolescents perceive the same level of adult control as providing less opportunity for self-determination than did the late-maturing female adolescents)?

Research in educational psychology, developmental psychology, and general psychology suggests that either or both of these explanations could be accurate: Teachers do respond differently to various children in the same classroom depending on a variety of characteristics (Brophy & Evertson, 1976), and people do perceive similar environments differently depending on their cognitive or motivational orientation (see Baron & Graziano, 1991). More detailed classroom observations are needed to determine the exact nature of the relation between teachers' behavior and adolescents' perceptions.

More important for the issues central to this article, the degree of mismatch between these female adolescents' desires for input and their perceptions of these opportu-

nities in their classroom environment was related to their pubertal status: There was a greater degree of mismatch among the more physically mature female adolescents than among the less mature female adolescents. In fact, by the end of the school year, almost twice as many early-maturing female adolescents reported experiencing the "can't but should" type of mismatch (e.g., answering no to the question "Do you get to help decide what math you work on during math class?" but yes to the question "Should you have a say about this?") as did their less physically mature classmates.

This last set of results is especially interesting in light of the findings of Simmons and her colleagues (e.g., Simmons & Blyth, 1987; Simmons et al., 1979), who found that the pubertal status of female adolescents at the time of the junior high school transition is related to changes in their self-esteem and their self-reports of truancy and school misconduct. The more physically mature female adolescents reported the highest amount of truancy and school misconduct after they made the junior high school transition. Simmons and her colleagues suggested that experiencing both school and pubertal transitions simultaneously puts these female adolescents at particular risk for negative outcomes. Alternatively, it is possible that it is the size of the mismatch between their desire for a less controlling adult environment and their perceptions of the actual opportunities for participation that puts them at risk for the most negative motivational outcomes.

Motivational Consequences of a Poor Developmental-Stage–Environment Fit

As previously discussed, person–environment fit theory suggests that the mismatch between young adolescents' desires for autonomy and control and their perceptions of the opportunities in their environments should result in a decline in the adolescents' intrinsic motivation and interest in school. From a developmental perspective, the exact nature of the mismatch should also be important. Given the appropriate developmental progression toward increased desire for independence and autonomy during the early adolescent period, adolescents who experience decreased opportunities for participation in classroom decision making along with an increased desire for participation in such decisions (i.e., a "can't but should be able to" mismatch) should be more at risk for negative motivational outcomes than adolescents experiencing other forms of mismatch (such as the "can but shouldn't be able to" mismatch).

In a longitudinal analysis of the Lee et al. (1983) items, Mac Iver and Reuman (1988) provided some support for this prediction. Mac Iver and Reuman compared the changes in intrinsic interest in mathematics for adolescents reporting different longitudinal patterns in their responses to the actual and preferred decision-making items across the four waves of data. Consistent with the prediction, some adolescents perceived their seventh-grade math classrooms as putting greater constraints on their preferred level of participation in classroom decision making than their sixth-grade math classrooms. These adolescents evidenced the largest and most consistent declines in their intrinsic interest in math as they moved from the sixth grade into the seventh grade. They are the students who are experiencing the type of developmental mismatch we outlined in our discussion of the stage–environment fit paradigm.

Stage–Environment Fit in Perceived Control in the Family

Research from several investigators (e.g., Buchanan et al., 1992; Palkoff & Brooks-Gunn, 1991; Steinberg, 1990) suggests that adolescents' relationships with their parents also undergo a stressful period during early and middle adolescence. This stress is often focused on issues of control and autonomy within the family, which are renegotiated during this developmental period. By necessity, children's relationships with their parents are asymmetrical in terms of power and authority; but as children mature, they need to take more and more responsibility for themselves until they eventually leave their natal home and take full responsibility for their own lives. In the optimal situation, parents will reinforce and stimulate this process of growing autonomy, self-determination, and independence. However, it is likely that the renegotiation processes associated with these developmental trajectories will not be smooth. It is not easy for parents to determine the optimal level of autonomy versus control for their children at all ages. According to a stage–environment fit perspective, one would predict strained relationships wherever there is a poor fit between the child's desire for increasing autonomy and the opportunities for independence and autonomy provided by the child's parents.

Early adolescence seems a likely developmental period for asynchrony to emerge within the family context. Social changes in the world of adolescents substantially increase the opportunity for them to experience independence outside the home. The transition to junior high school, and cultural beliefs regarding appropriate amounts of adult supervision for children of different ages, lead to a dramatic increase in the amount of unsupervised age-mate contact during this developmental period (Higgins & Parsons, 1983). This increase creates the opportunity for adolescents to spend a lot of time in relationships that are likely to be more symmetrical in terms of interpersonal power and authority. Such experiences may lead early adolescents to expect greater power symmetry in their relationships at home. The opportunity to be exposed to a broader range of families is also likely to increase with the junior high school transition, because these schools are typically larger and draw their attendance from a more diverse range of neighborhoods and communities. This broadened exposure may lead early adolescents to question the legitmacy of their parents' rules (Higgins & Parsons, 1983; Laupa & Turiel, 1986; Smetana, 1988a, 1988b; Tisak, 1986). Exposure to a broader range of belief systems, along with increasing cognitive maturity, may, in turn, lead adolescents to try to integrate and coordinate diverse social perspectives and to evaluate interpersonal relationships (Damon & Hart, 1982; Selman, 1980).

These changes, in turn, may lead early adolescents to question their parents' authority and to push for a more symmetrical relationship with their parents. Finally, parents, in response to their child's emerging sexuality, may become more concerned about his or her safety and may actually become more restrictive than they were during the period of middle childhood, further exacerbating the perceived asynchrony in the adolescent's mind. However, as the family adjusts to these changes, one would expect new authority relationships to emerge and the strain to decrease over the adolescent years (see Montemayor, 1983).

Perhaps the best support for this analysis comes from the work of Smetana (1988a, 1988b, 1989). Drawing on evidence regarding age changes in children's understanding of both moral versus social conventional reasoning and the legitimacy of adult authority, Smetana has conducted in-depth interviews with adolescents and their parents about authority relationships within the family and about the nature and origin of conflicts in the family. Like others, Smetana found that most parent–adolescent conflicts focused on mundane issues, such as cleaning one's room and curfew. The conflicts often resulted because adolescents now defined these issues as personal issues, issues that the individual should decide, whereas the parents still defined these issues as conventional issues, issues for which parents have some right to establish rules. In cross-sectional comparisons, Smetana found a linear age-related increase in the adolescents' view that most of these issues are personal rather than conventional. Shifts in the parents' views were less systematic. Of particular importance for the stage–environment fit hypothesis, the greatest increase in mismatch between the adolescents' and their parents' views occurred during the early adolescent period (Grades 5–8) and mirrored increases in reported conflict (Smetana, 1989).

We are in the process of examining similar issues in our study of adolescent development (the MSALT study described earlier). We assessed family decision making in two ways. Both the adolescents and their parents responded to two items derived from the Epstein and McPartland (1977) scale of family decision making: "In general, how do you and your child arrive at decisions?" *I tell my child just what to do* (1), *We discuss it and then we decide* (3), *I usually let my child decide* (5); and "How often does your child take part in family decisions that concern her/himself? *never* (1); *always* (4). The adolescents were also asked to rate how they thought decisions ought to be made in their family, and the extent to which they think "their parents treated them more like a kid than like an adult."

Consistent with the analyses reported earlier, we found both an increase over time in adolescents' desire for greater participation in family decision making, and positive associations between the extent of the adolescents' participation in family decision making and indicators of both intrinsic school motivation and positive self-esteem (Flanagan, 1985, 1986, 1989; Miller & Taylor, 1986; Yee, 1986, 1987; Yee & Flanagan, 1985). Even more interestingly from the stage–environment fit perspective, the parents reported that they included their children more in family decision making than the adolescents perceived to be true (Flanagan, 1986; Yee, 1987). For girls in particular, the discrepancy between the adolescents' and the parents' perception of the opportunities for the adolescents to participate in family decision making increased over the four waves in our study (Yee, 1987). Most important, the pattern of changes in early adolescents' self-esteem and intrinsic versus extrinsic motivation for school work were systematically, and predictably, related to changes in their perceptions of the opportunity to participate in family decision making at home. As our developmental stage–environment fit perspective on adult control implies, the adolescents who reported decreasing opportunities to participate in family decision making showed a decrease in their self-esteem and intrinsic motivation over the period of this study; the opposite pattern of change occurred for the adolescents who reported increasing opportunities to participate in the decision-making process (Flanagan, 1985, 1989; Yee, 1987). The opportunity to participate in family decision making also predicted better adjustment to the junior high school transition (Eccles et al., 1990). Thus, not only may a mismatch between authority relationships in the home precipitate increased conflict, it may also be detrimental to the adolescents' self-esteem and school-related motivation.

Similar results characterize our data on interindividual pubertal status effects. Miller and Taylor (1986) tested the relationship between female pubertal status and self-esteem. Consistent with other studies (e.g., Simmons & Blyth, 1987), the early-maturing sixth-grade girls reported lower self-esteem than did their less physically mature classmates. However, consistent with the person–environment fit perspective, only early-maturing girls who felt they had relatively little opportunity to participate in family decision making reported lower self-esteem. There was no effect of pubertal status on self-esteem among those sixth-grade female adolescents who reported relatively high opportunity to participate in their family's decision making.

Conclusion

We have argued that optimal development takes place when there is good stage–environment fit between the needs of developing individuals and the opportunities afforded them by their social environments. We have provided evidence of the negative effects of the decrease in personal and positive relationships with teachers after the transition to junior high school and have argued that this decline is especially problematic during early adolescence when children are in special need of close relationships with adults outside of their homes. We have also noted the increase in ability grouping, comparative and public evaluation, and whole-class task organization at a time when young adolescents have a heightened concern about their status in relation to their peers. We have described studies that suggest that the first year of junior high school

is characterized by a decrease in the emphasis on higher level thinking skills at a time when cognitive development would suggest the need for more complex academic tasks. Finally, we discussed, and provided evidence where available, the negative consequences of these kinds of developmentally inappropriate environmental changes on early adolescents' school motivation and academic self-concepts.

The role of opportunity for self-determination and participation in rule making was also discussed, and the importance of the need for a match between the individual's increasing desires for autonomy and self-determination and the opportunities for such autonomy provided in the home and at school was emphasized. Although adolescents desire more freedom from adult control than children do, they do not want total freedom and they do not want to be emotionally detached from their parents. Instead, they desire a gradual increase in the opportunity for self-determination and participation in decision making and rule making. Furthermore, research suggests that adolescents develop best when these increasing opportunities occur in environments that are emotionally supportive (Baumrind, 1971; Ryan & Lynch, 1989).

Unfortunately, our research suggests that many early adolescents do not have these experiences in either the school or family setting. After the transition to junior high school, early adolescents are often confronted with a regressive environmental change: They experience a decrease in the opportunity to participate in classroom decision making when they move into junior high school. Not surprisingly, there is also a decrease in intrinsic motivation and an increase in school misconduct associated with this transition, and these changes are most apparent among the adolescents who report experiencing the greatest mismatch between their needs and their opportunities to participate in classroom decision making. Such motivational changes are not apparent in adolescents who report the more developmentally appropriate increase in opportunity for participation in classroom decision making.

Although our analysis of the family data is not as complete as our analysis of the classroom data, we have found evidence suggesting that a similar process is occurring in the family. Excessive parental control is linked to lower intrinsic school motivation, to more negative changes in self-esteem following the junior high school transition, to more school misconduct, and to relatively greater investment in peer social attachments. However, because this study is correlational, it is possible that excessive parental control is the consequence rather than the cause of these negative adolescent outcomes. Nevertheless, the preliminary longitudinal analyses suggest that the causal links are at least bidirectional. Although we have focused on excessive parental control, other studies have documented the negative consequences of too little parental control at this age (see Dornbusch et al., 1985; Fuligni & Eccles, 1990; Steinberg, 1990).

Clearly, these results point to the importance of designing educational and family environments for early adolescents that provide a better match to their developing needs and desires. The existing structure of many junior high schools appears to create a climate that undermines both teacher and student motivation. The large size of the schools, coupled with departmentalized teaching and large student loads, makes it difficult for teachers and students to form close relationships. In turn, a lack of close student–teacher relationships and a generally negative stereotyping of adolescents could be responsible for the prevalence of low teacher efficacy and high use of controlling motivational strategies in junior high school classrooms. Field studies of the more successful middle and junior high schools provide numerous examples of classrooms and schools that have more positive and developmentally appropriate learning environments—classrooms and schools with higher teacher efficacy, greater opportunity for meaningful student participation in both school and classroom decision making, and more positive student–teacher relationships (see Bryk et al., 1990; Carnegie Council on Adolescent Development, 1989; Dryfoos, 1990; Eccles & Midgley, 1989; Lipsitz, 1981). Early adolescents in these schools do not demonstrate the same declines in intrinsic motivation and school attachment stereotypically associated with students in junior high schools; they also do not engage in the same amount of school misconduct as students in more traditional junior high schools. However, many junior high schools do not provide such a developmentally appropriate environment (see Eccles & Midgley, 1989).

There is a similar need for developmentally responsive family environments. Existing research suggests that there is variability in how families adapt to their children's movement into adolescence and that adolescents fare best in family environments that provide a good fit to their increasing need for autonomy. Adolescents fare more poorly in families that respond to their development either by throwing up their hands and relinquishing control or by cracking down too much. Families, like schools, are confronted with a difficult problem: providing an environment that changes in the right way and at the right pace. Unfortunately, we know less about how to help families achieve this balance than we know about how to design schools that help teachers achieve the right balance. There is a great need for programs that will help parents with this difficult task.

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