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Academic and emotional functioning in early adolescence: Longitudinal relations, patterns, and prediction by experience in middle school

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Abstract
Adopting a motivational perspective on adolescent development, these two companion studies examined the longitudinal relations between early adolescents' school motivation (competence beliefs and values), achievement, emotional functioning (depressive symptoms and anger), and middle school perceptions using both variable- and person-centered analytic techniques. Data were collected from 1041 adolescents and their parents at the beginning of seventh and the end of eighth grade in middle school. Controlling for demographic factors, regression analyses in Study 1 showed reciprocal relations between school motivation and positive emotional functioning over time. Furthermore, adolescents' perceptions of the middle school learning environment (support for competence and autonomy, quality of relationships with teachers) predicted their eighth grade motivation, achievement, and emotional functioning after accounting for demographic and prior adjustment measures. Cluster analyses in Study 2 revealed several different patterns of school functioning and emotional functioning during seventh grade that were stable over 2 years and that were predictably related to adolescents' reports of their middle school environment. Discussion focuses on the developmental significance of schooling for multiple adjustment outcomes during adolescence.

Although most young people move through the many changes associated with the early adolescent years with few difficulties, up to 25% of adolescents in the United States between the ages of 10 and 14 years manifest academic, emotional, and behavioral difficulties that can affect their long-term educational attainments, emotional well-being, and occupational success. These difficulties include poor academic motivation and school failure, depressed mood, school truancy, and delinquency. Furthermore, it appears that a substantial number of early adolescents manifest several of these adjustment difficulties simultaneously (see Carnegie Council on Adolescent Development, 1989; Dryfoos, 1990; Eccles, Lord, & Roeser, 1996).

In an effort to better understand the factors that contribute to the development, clustering, and progression of difficulties manifest during early adolescence, some researchers have broadened their focus from strictly individual factors to include characteristics of adolescents' social environments (see Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, & MacIver, 1993; Jessor, 1993). Eccles

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and her colleagues (1993), for example, argue that the developmental appropriateness of the home, school, and neighborhood is a key influence on the quality of adolescents' academic motivation, achievement, and mental health during these years.

In the current paper, we explore two issues related to early adolescents' development and social experiences. First, we examine how early adolescents' academic functioning (i.e., their motivation to learn and achievement) is related to the quality of their emotional functioning (i.e., frequency of symptoms of distress) over time. As Masten and her colleagues (1995) have noted, prospective longitudinal studies of both positive and negative developmental outcomes in different domains (e.g., the academic and emotional) are needed to assess the "structure and course of adaptation." By focusing on relation between early adolescents' academic and emotional functioning, two areas of development usually studied in isolation of one another, we highlight the need for (and utility of) an integration of educational and mental health perspectives on adolescent development.

Given the focus on context in this Special Issue, the second issue we address concerns the influence of one normative context of development, the middle school, on the longitudinal course of early adolescents' school motivation, achievement, and emotional functioning. Drawing upon theories of achievement motivation that stress cognitive and social processes (Connell & Wellborn, 1991; Deci & Ryan, 1985; Eccles, 1983; Eccles & Midgley, 1989; Maehr & Midgley, 1991), we propose a conceptual model of the ecology of school. We then use this conceptualization to examine how adolescents' perceptions of middle school are related to changes in their academic and emotional functioning across grades seven and eight. By focusing on school experience and adolescents' development in the academic and emotional domains, we want to demonstrate to educational psychologists the importance of considering the impact of school on children's broader social-emotional development (Good & Weinstein, 1986). Furthermore, we want to demonstrate to developmentalists the importance of considering school as a context that plays an important role in children's social-emotional development (Maughan, 1988).

To examine both (1) the relation of early adolescents' academic and emotional functioning over time, and (2) the impact of their school experiences on these outcomes over time, two different analytic approaches are undertaken. In the first study (Study 1), we examine these issues using a variable-based, correlational analytic approach. In the second study (Study 2), we use a person-centered, cluster analytic approach to examine how different patterns of academic and emotional functioning are associated with different school experiences. Each of these analytic approaches can yield specific insights that are useful for informing the next generation of school reform strategies and school-linked preventive and support services. Variable-centered results can yield information on which school practices in general promote academic and emotional well-being, thus making such practices a logical focus of future school-wide reform efforts. Person-centered results can yield information on the experiences of adolescents who manifest specific patterns of academic and emotional functioning and thus aid in the targeting of intervention strategies for different groups of individuals.

Academic and Psychological Functioning During Early Adolescence

The early adolescent years are marked by important developmental changes in school motivation, academic achievement, and psychological functioning. In terms of school motivation, adolescents increasingly view school as less interesting, important, and useful; and many begin to see themselves as increasingly less academically competent (see Eccles et al., 1989; Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991). These motivational declines are paralleled by a decline in teacher-rated grades (Simmons & Blyth, 1987). In terms of emotional functioning, researchers have documented that certain forms of distress such as depressive affect and anger, and certain problem behaviors such as

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school truancy and misconduct increase during early and middle adolescence (Achenbach, Howell, Quay, & Conners, 1991; Kazdin, 1993; Roeser & Eccles, in press). To date, relatively few studies have examined the co-variation of academic and emotional functioning during early adolescence or the specific intra-psychic processes that link these two domains of functioning.

An education perspective

From an educational perspective, adaptation to the demands of school life is a central life task of early adolescence and one that contributes to youths' overall sense of emotional well-being (Eccles, Lord, Roeser, Barber, & Jozefowicz, 1997; Erikson, 1968; Roeser, 1996). Adolescents' motivation to learn not only predicts their actual effort, learning, and achievement in school, it also represents one important intra-psychic process that links academic functioning with emotional functioning. Two specific motivational processes, adolescents' beliefs about their competence as a learner and their valuing of school, are important to emotional functioning. For instance, studies on the self indicate that children's confidence in their academic abilities can promote feelings of general self-worth (Covington, 1992; Harter, 1985; Lord & Eccles, 1994). Similarly, studies of psychological difficulties in childhood and adolescence indicate that children's academic confidence is an important personal resource that can protect against emotional and behavioral difficulties (Achenbach et al., 1991; Rae–Grant, Thomas, Offord, & Boyle, 1989). Adolescents' belief that school is interesting, important, and instrumental for attaining future goals is indicative of a strong connection between their personal identities and the socially sanctioned pathways to future opportunity in the United States. Such an integration can provide youth with a sense of hope, purpose, and direction that manifests itself in positive behavioral choices, a sense of well-being, and a positive outlook on the future (Eccles, 1983; Erikson, 1968; Finn, 1989). For instance, adolescents who value and are committed to school achieve more, experience less psychological distress, and are less likely to engage in problem behaviors (e.g., delinquent acts, substance abuse) compared to youth who show relatively greater devaluing of schooling (Dryfoos, 1990; Newcombe & Bentler, 1989).

A mental health perspective

From a mental health perspective, the quality of adolescents' emotional adjustment is viewed as an important precursor to their academic functioning. For instance, epidemiological data show that psychological distress during adolescence can reduce future educational attainments (Kessler, Foster, Saunders, & Stang, 1995). The intra-psychic processes by which emotional distress can impact on academic attainments are many, including motivational and cognitive processes. In terms of motivational processes, there is evidence that when sufficiently intense, children's feelings of anger, hopelessness, and sadness can negatively color their beliefs about themselves, their future, and their interpretation of events, including how they perceive their academic competence (see Cole, 1991; Nolen–Hoeksema, Girgus, & Seligman, 1986). Poor self-perceptions of academic competence can lead to poor academic performance (Eccles, 1983). In terms of cognitive processes, studies of clinical and non-clinical samples of children have demonstrated that depressive symptoms are associated with impaired problem-solving capacities and diminished academic performance (Blechman, McEnroe, Carella, & Audette, 1986; Kovacs, 1989). Investigating both motivational and cognitive processes in relation to psychological distress in normal college students, Brackney and Karabenick (1995) found psychological distress adversely impacted students' academic self-efficacy beliefs and ability to effectively regulate a study environment. It was these factors that mediated the negative impact of students' distress on their actual achievement.

In summary, research from both an educational and a mental health perspective leads us to expect reciprocal relations between early adolescents' academic and emotional functioning over time. We predict that adolescents' academic competence and value beliefs

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will promote positive subsequent achievement and emotional functioning (as measured by infrequent feelings of distress) and that adolescents' emotional functioning will positively affect their subsequent motivational beliefs and achievement in middle school.

School as a Major Context of Adolescent Development

The second main issue we address is how adolescents' experiences in one context of development—middle school—relate to changes in their motivational beliefs, achievement, and emotional functioning over a 2-year period. The transition from an elementary to a secondary school setting is a major normative developmental change experienced by most early adolescents in the United States. This transition usually confronts young people with new social and educational demands. For instance, compared to elementary schools, middle schools are often larger, more departmentalized, and less personal (Eccles et al., 1993; Simmons & Blyth, 1987). Many of the changes associated with the transition to middle school are at odds with the developmental needs of adolescents. The goals for learning emphasized through school policies and practices become more focused on competition at a time of heightened self-consciousness, the quality of teacher–student relationships deteriorate when adolescents are in particular need of adult role models, and provisions for student autonomy decline at a time when adolescents have an increasing desire for autonomy (see Eccles & Midgley, 1989; Midgley, 1993, for reviews). Several investigators have studied the impact of such change on adolescents' school motivation across the school transition event itself (e.g., Eccles et al., 1993; Simmons & Blyth, 1987). In this paper, we focus on the relation of early adolescents' perceptions of middle school to changes in their academic and emotional functioning as they move *through* the middle school years.

Motivational perspectives on schooling

In the past, research on schooling was criticized for being too atheoretical and for focusing too much on static resources rather than the everyday experience of students (Good & Weinstein, 1986; Rutter, 1983). Similar to Bronfenbrenner's (1986) stress on the need to go beyond social address-oriented to more process-oriented models of family influence, motivational researchers interested in school as a central context of development have focused attention recently on the organizational, instructional, and interpersonal processes that impact on children's achievement strivings and behavior (e.g., Connell & Wellborn, 1991; Deci & Ryan, 1985; Eccles et al., 1993; Maehr & Midgley, 1991). Motivational approaches emphasize students' psychological construction of meaning within different learning environments as a key mediator between the "actual" context and their beliefs, affect, and behavior within that context (Ames, 1992; Connell & Wellborn, 1991; Eccles, 1983; Eccles et al., 1993; Maehr, 1991). This individual-level meaning-making process often occurs in relation to how well the learning environment provides opportunities for the child to develop a positive sense of personal competence and autonomy and positive relationships with teachers. To the extent that school is experienced by the child as supporting these needs, their academic engagement, achievement, and mental health will be enhanced (Eccles et al., 1993; Skinner & Belmont, 1993).

Building on this work, we propose a model focused on adolescents' perceptions of school characteristics linked to their sense of personal competence, sense of personal autonomy, and feelings of social support from their teachers. This conceptual model is depicted in Figure 1. Note that in Figure 1 we call the collection of perceptions the "school psychological environment" to emphasize it is the *meaning* of these experiences to adolescents, as assessed by their perceptions, that is being considered here (Maehr, 1991).

Support of competence

Two processes are examined in relation to the support of students' competence development in school. First, several researchers have suggested that individuals' sense of academic

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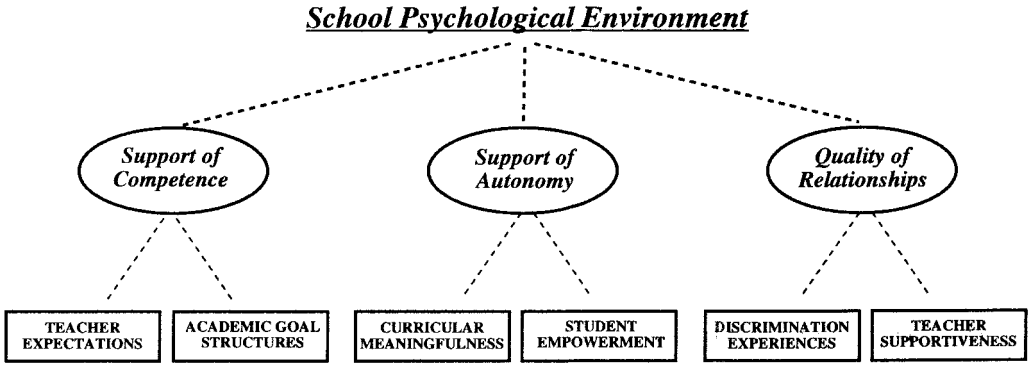


Figure 1. Perceived middle school psychological environment: conceptualization and measures.

competence is influenced quite strongly by the kinds of feedback they receive from their teachers regarding their academic abilities (e.g., Bandura, 1993; Eccles, 1983; Weinstein, 1989). Grades are clearly one important source of feedback and teachers' expectations and positive regard are another (Eccles & Wigfield, 1985; Weinstein, 1989). In addition to affecting competence beliefs, its seems reasonable to suggest that positive teacher regard also provides social-emotional support to adolescents that enhances their valuing of school and emotional well-being over time.

The second process we examine in relation to the support of competence in school concerns the academic goals that are emphasized through school organizational practices and policies. Educational researchers have suggested that the academic "goal structures" created through school and classroom policies and practices affect students' confidence in their ability to master new academic material because they influence adolescents' own definition of academic success (e.g., Ames, 1992; Maehr & Midgley, 1991; Nicholls, 1984). Two main academic goal structures have been examined: a "task goal structure" and an "ability goal structure." A task goal structure emerges when school or classroom practices emphasize task mastery as the main goal of successful learning, recognize effort and improvement as hallmarks of competence, and challenge all students to do their best regardless of their present ability level. Recognition of academic improvement, noncompetitive academic fairs, and an emphasis on project-based learning are examples of practices that can promote a task goal structure. In contrast, an ability goal structure is created when school or classroom practices encourage competition among students, emphasize getting the highest grades rather than deep task engagement as the most important goal of learning, and provide more favorable treatment to the highest achieving students. Recognition of superior relative performance in the form of public award ceremonies, special privileges or public honor rolls that recognize only high achievers, and provision of different educational opportunities for students of different ability levels (e.g., academic tracks) are examples of school level practices that promote an ability goal structure (see Maehr & Midgley, 1996).

Although experiences at both the classroom and school level are important, in this paper we use adolescent perceptions of goal structures at the school rather than the classroom level because we are interested in more general school level influences. Past research has documented that a perceived task goal structure is associated with a more adaptive pattern of academic engagement than is a perceived ability goal structure during secondary school (Maehr & Fyans, 1989; Roeser, Midgley, & Urdan, 1996). Eccles and Midgley (1989) suggested that a perceived ability goal emphasis may be especially detrimental during adolescence because youth are increasingly self-conscious and sensitive to comparisons of their competencies with those of their peers. Such an emphasis is also likely to ren-

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der some adolescents in particular (e.g., low achievers) vulnerable to feelings of incompetence, sadness, or frustration because, by definition, only a few students can be the best in their classes or school (Elias, 1989). In contrast, because goals associated with self-improvement and full engagement with academic tasks can be achieved more readily by students of all ability levels, practices that emphasize task goals for learning can support all adolescents' need to feel competent (Roeser et al., 1996). Perceptions of a school emphasis on task goals may also buffer against feelings of emotional distress because adolescents experience such environments as both academically supportive as well as caring, warm, and socially supportive (Roeser et al., 1996).

Support of autonomy

Schools and classrooms can provide "support of autonomy" through opportunities for students to participate in meaningful decision making and to learn "relevant" material. Because such practices afford adolescents the opportunities to improve their decision making skills, regulate their own behavior, and experience a sense of personal empowerment and meaning in school, they should promote school engagement (Connell & Wellborn, 1991; Deci & Ryan, 1985). And, in fact, policies allowing for student input into class discussions, for choice among seating arrangements and academic tasks, and for participation in school governance have been shown to positively affect students' interest in and valuing of school (Eccles et al., 1993). Similarly, curricula that provide opportunities for self-exploration and expression and that provide learning activities that are meaningful, relevant, and related to students' own interests and goals foster greater academic engagement and intrinsic motivation (Blumenfeld, 1992). When mathematics addresses real world problems, social studies covers material that is applied to contemporary issues, and literature representing diverse viewpoints is assigned, adolescents may have more opportunities to connect their own emerging identities with the academic content of their classes. In addition, they may be more likely to feel that they are doing the work because it is interesting to them rather than because it is required for some other purpose such as graduating from high school or getting into the college of their choice.

Quality of relationships with teachers

The quality of the social interactions adolescents have with their teachers is the third characteristic of perceived school environment explored in this paper. Moos (1991) defines this dimension as the extent to which supportive, caring relationships exist in a given setting. Adolescence is a time when relationships with nonparental adults can take on increased meaning because adolescents are looking for guidance and support from adults outside of the home. Consequently, positive relationships with teachers can enhance adolescents' motivation, achievement, and feelings of well-being (Eccles et al., 1993; Roeser et al., 1996; Ryan, Stiller, & Lynch, 1994).

Although there are many dimensions to student–teacher relationships, we focus here on two: emotional support from teachers and issues of differential treatment by race or gender on the part of school professionals. Emotional support refers to the extent to which early adolescents perceive their teachers as sources of support and guidance in the face of personal or social problems encountered at school. Such perceived support may enhance adolescents' academic and emotional functioning (Ryan et al., 1994). Differential treatment refers to adolescents' perceptions of being treated unfairly or disrespectfully by their teachers or school guidance counselors compared to the treatment of their opposite gender or different race peers. For instance, do adolescents perceive that their teachers or guidance counselors discourage them from taking certain classes because of their race or gender? Differential treatment of adolescents by school professionals predicated upon race, gender, or ability level can adversely impact on their academic motivation and performance (AAUW, 1992; Jussim, Eccles, & Madon, 1996; Lee, Croninger, Linn, & Chen, 1996). Although research has documented that subjective experiences of discrimination

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by race are debilitating for adults (Jackson, Brown, Williams, Torres, Sellers, & Brown, 1994), few studies have examined the effect of school-based, discriminatory experiences by race during early adolescence. Negative interactions between school professionals and students predicated upon race or gender, even if infrequent, represent an important kind of "critical incident" that can have long ranging effects on adolescents' developing sense of self, engagement with school, and emotional well-being because such experiences, in part, undermine adolescents' need for relatedness in school.

Summary

Our conceptual model of the school psychological environment focuses on practices linked to adolescents' need for competence, autonomy, and quality relationships with teachers and consequently, the quality of their academic and emotional functioning. We predict that adolescents' perceptions of positive teacher regard, a school task goal structure, empowerment of students, meaningful curricula, and emotional support from teachers in middle school will be associated with increased motivation, achievement, and emotional well-being at the end of eighth grade because such practices support adolescents' needs for competence, autonomy, and relatedness. In contrast, we predict that perceptions of a school ability goal structure and negative treatment by teachers due to one's race or gender are antithetical to adolescents' developmental needs and thus will be associated with diminished motivation, achievement, and emotional well-being over time.

Methods for Studies 1 and 2

Participants

Participants in Studies 1 and 2 are part of the Maryland Adolescent Growth in Context longitudinal study, a study designed to examine the influences of the home, school, neighborhood, and peer group on adolescents' academic, emotional, and social development. Waves of data were collected first in the fall/winter of 1991–1992 during the beginning of the target adolescents' seventh grade school year and again in the spring/summer of 1993 at the end of the adolescents' eighth grade school year. These data points are referred to as "Time 1" and "Time 2" for purposes of this report. The 1041 African American and White adolescents who had data for both time points are used in this paper.[1] Of these, 66% were African American and 51% were male. Adolescents were drawn from each of 23 middle schools that were part of a large county-wide school district in Maryland. Eighteen of the schools housed grades seven and eight, four also included grade six, and one included grades five and six. The families of the adolescents represented a broad range of socioeconomic levels normally distributed around a 1990 pretax family income of "between $45,000 and $49,999" (range: <$5,000 to >$75,000). In 1991, the average education level of the head of household was "some post-high school education," 86% reported being employed, and 65% reported being married or having a live-in partner.

Measures

Face-to-face interviews and self-administered questionnaires were collected from the target adolescents and their primary caregiver in the family's home. At the end of each school year

1. Adolescents of mixed racial-ethnic heritage were omitted due to their small number and our resulting inability to conduct meaningful analyses with such small groups. Of the original sample of 1,481, based upon youth self-reports, 67% were African American, 21% were White, and 12% reported a mixed racial-ethnic heritage. In this study, we included 1,041 adolescents who participated at both times of data collection. This represents a 71% retention rate for the study. Analyses were conducted to determine how this continuous sample of adolescents compared to those who did not participate at Time 2. In general, mean comparisons indicated that the youth who did not participate in the study during Time 2 were from poorer families, were slightly older, and did slightly less well in school academically during Time 1 compared to adolescents in the continuous sample. No significant differences between groups were found for adolescents' gender, race, self-esteem, anger, or depressive symptoms, nor were differences between groups found on the head of household's marital or employment status.

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achievement and attendance measures were collected from school records. We used mainly youth self-report and school record measures in this paper. Parent reports were used to describe family demographic characteristics and to validate the clusters that emerged in the person-centered analyses of Study 2. Scale construction was guided by theoretical concerns and factor analyses. A full description of this process is available from the second author. The specific constructs used in this paper are described below and sample items are presented in an appendix at the end of this report.

School functioning

School functioning was assessed by measures of adolescents' academic motivation and academic performance.

Academic motivation. We used self-perceptions of academic competence and academic values as indices of academic motivation. The items used 5- and 7-point Likert scales. Our academic competence scale was a composite of two self-report subscales. The first subscale, self-concept of academic ability (based on scales developed by Eccles and her colleagues; Eccles, 1983; Eccles et al., 1989) assesses adolescents' beliefs about their competence in math and other school subjects relative to their same-aged peers (Time 1 α = .78, Time 2 α = .82). For instance, we asked youth "Compared to other kids your age, how well do you do in math?" The second subscale, self-efficacy in school, was developed by Cook and his colleagues (see Cook et al., in preparation).[2] Items in this scale assessed adolescents' reports of their ability to meet teachers' and parents' educational expectations, complete academic work on time, participate in class activities, work in groups, etc. (Time 1 α = .80, Time 2 α = .83). Second-order factor analyses revealed that a single underlying dimension accounted for 71% and 74% of the variance in these subscales during seventh and eighth grade, respectively. Subscales were converted to *z* scores and averaged together to form the higher order academic competence scales.

Both new items and those developed by Eccles and her colleagues (see Eccles, 1983; Eccles & Wigfield, 1995; Eccles et al., 1989) were used to assess adolescents' valuing of academics. The academic values scales were composites of three subscales: academic importance, intrinsic reasons for going to school, and perceived utility of school as a pathway to later opportunities. The academic importance subscale assessed how important adolescents found math and other school subjects (Time 1 α = .81, Time 2 α = .81). The intrinsic reasons subscale assessed how much adolescents liked to learn, enjoyed their classes, and came to school because they wanted to learn (Time 1 single item, Time 2 α = .75). The perceived utility of school subscale assessed the extent to which adolescents believed that education was an instrumental pathway to later life opportunities (Time 1 α = .69, Time 2 α = .69). Second-order factor analyses confirmed a single underlying construct for these subscales that accounted for 54% and 57% of the variance at each time, respectively. Again, subscales were converted to *z* scores and averaged together to form the higher order academic values scales.

Academic achievement. To assess academic achievement, end of year academic grade point average (GPA) was created from school record data. GPA was an average of adolescents' grades in the core academic subjects (English, math, science, health/social sciences). This measure was constructed for the adolescents' eighth grade school year and was assessed on a 5-point scale (1 = *Failing,* 2 = *Ds,* 3 = *Cs,* 4 = *Bs,* 5 = *As*).

Emotional functioning

The quality of adolescents' emotional functioning was conceptualized as their lack of

2. Another project funded by the MacArthur Network on Successful Adolescent Development in High Risk Settings was undertaken by Thomas Cook and his colleagues. This project was a population study of all students attending middle school in the district in which our project was taking place. Thus, our sample is a small but representative subsample of this larger study and measures were shared across projects. This study is described in a forthcoming book by Cook (1998) and in an article by Jessor (1993).

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symptoms of emotional distress in the previous 2 weeks or a month. Youth self-reports of symptoms of distress were used (as were parent reports in Study 2). Youth self-report items were drawn from the Symptoms Checklist 90-Revised (SCL-90-R; Derogatis, Rickels, & Rock, 1976) and Kovac's (1992) Children's Depression Inventory (CDI). At Time 1, adolescents' were asked to report how frequently in the past month they had experienced each of several symptoms of anger or depressive mood using a 5-point Likert scale (1 = *almost never*, 5 = *almost always*). First-order factor analyses differentiated the anger (α = .81) and depressive symptoms (α = .82) scales from one another. At Time 2, the same anger scale was administered (α = .77) and the CDI was used to assess depressive affect. For both time points, a higher order scale was formed by since 79% (Time 1) and 71% (Time 2) of the variance in the two subscales was accounted for by a single underlying dimension. The anger and depressive symptoms subscales were converted to *z* scores, averaged, and then reversed to form the higher order emotional functioning scales. Poor emotional functioning (the low end of the scale) was indicated by a high frequency of symptoms relative to peers whereas positive emotional functioning (the high end of the scale) was indicated by relatively infrequent feelings of distress in the past month or so.

School perceptions and experiences

School measures, collected at Time 2, assessed adolescents' perceptions of organizational, instructional, and interpersonal processes related to the support of competence, the support of autonomy, and the quality of teacher–student relationships and interactions in their middle school.

Support of competence. Two constructs assessed adolescents' perceptions of the support for competence in their middle school: Perceived teacher regard and academic goal structures. Adolescents' view of their teachers' expectations and positive regard was assessed with a single item asking whether the adolescents believed that their teachers viewed them as "a good student" (1 = *strongly disagree*, 5 = *strongly agree*). Items that tapped adolescents' perceptions of school-level goal structures were adapted from the work of Midgley, Maehr, and their colleagues (see Maehr & Midgley, 1996; Midgley et al., 1995; Roeser et al., 1996 for reliability and predictive validity information). The school task goal structure scale assessed adolescents' perceptions of their school as a place where all students were challenged to do their best, effort was recognized as important, and self-improvement and task mastery were emphasized as important hallmarks of scholastic competence. The school ability goal structure scale assessed adolescents' perceptions of their school as a place that emphasized competition, getting better grades than other students, and special treatment for the highest achieving students in the school. Factor analysis of the general context perceptions differentiated each of the hypothesized school goal structure scales and both scales were internally consistent ($\alpha \geq .70$).

Support of autonomy. Two scales were created to assess the support of autonomy dimension of the perceived school environment: A student empowerment scale and a curricular meaningfulness scale. Items for the student empowerment scale assessed adolescents' reports of opportunities to (a) make decisions concerning seating and the selection of work partners in their classes and (b) share their own ideas in classroom discussions (Eccles & Midgley, 1989). The curricular meaningfulness scale assessed the perceived relevance of the problems and material covered in science, English, social studies, and math classes to the adolescent. Both the student empowerment (α = .70) and the curricular meaningfulness (α = .82) scales were internally consistent.

Quality of relationships with teachers. A single, 5-point Likert item tapped adolescents' perceptions of emotional support from teachers. The item asked how often adolescents felt they could depend on their teachers to help them if they had a social or personal problem at school (1 = *almost never*, 5 = *almost always*). Although this item was part of a larger social support scale in the overall study, it

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was singled out for purposes of this paper to look at the specific relations of perceived support within the context of school to adolescents' academic and emotional functioning. Items assessing adolescents' perceptions of negative, discriminatory treatment by teachers or school counselors due to their race or gender were created for this study. Adolescents were asked how often they believed that their teachers had perceived them as less smart, graded or disciplined them more harshly, called on them less in class, or discouraged them from taking certain classes due to their race or sex.

Demographic characteristics. Youth reports were used to assess ethnic/racial status and gender. Primary care givers reported on their marital status, education level, occupational status, and mean 1990 pre-tax family income. Educational level was coded 1 = *less than a high school diploma,* 2 = *high school graduate,* 3 = *less than a college degree,* 4 = *college degree or higher.* Occupational status was coded using the Nam and Powers' (1983) category system with scores ranging from 0 to 99. Lower values on the occupational status scale were associated with lower skill and lower prestige occupations. Total 1990 pre-tax family income was assessed on a forced-choice scale ranging from 1 = *less than $5,000* to 16 = *more than $75,000* with each scale value representing a $10,000 incremental range.

Overview of Study 1

Using variable-centered analysis techniques (Magnusson & Bergmann, 1988), in Study 1 we examined the concurrent and cross-time relations between school motivation and emotional functioning. Correlations were used to assess the concurrent relations at both seventh and eighth grade; hierarchical regressions were used to examine the longitudinal relations between adolescents' academic motivation and emotional functioning, controlling for their sociodemographic backgrounds. We also examined the predictive relations of the school perception measures on change in motivational beliefs and emotional adjustment over time and on achievement at the end of eighth grade using regression techniques.

Results of Study 1

Within and cross-time relations between academic and emotional functioning

We assessed the within-grade, bivariate relations among early adolescent' academic motivational beliefs, achievement, and emotional adjustment. During seventh grade, positive emotional functioning was positively associated with adolescents' beliefs about their academic competence, $r(998) = .24$, $p \leq .001$, values associated with school, $r(998) = .24$, $p \leq .001$, and academic achievement, $r(998) = .17$, $p \leq .001$. The same pattern of correlations, though stronger in magnitude, were found during eighth grade. Positive emotional functioning was positively correlated with adolescents' beliefs about their academic competence, $r(886) = .45$, $p \leq .001$, values associated with school, $r(886) = .42$, $p \leq .001$, and academic achievement, $r(886) = .34$, $p \leq .001$.

Next, hierarchical regression analyses were used to assess the longitudinal predictive effects of adolescents' demographic characteristics and Time 1 motivational beliefs and emotional functioning on their academic and emotional functioning assessed at Time 2. Results are presented in Table 1. In general, the regression models accounted for moderate amounts of variance in the eighth grade outcomes (adjusted r squares ranging from .23 to .33) and revealed the predicted pattern of reciprocal relations between academic motivation and emotional well-being.

Eighth grade motivational beliefs. Seventh grade academic competence beliefs were the strongest predictors of eighth grade competence beliefs and seventh grade academic values were the strongest predictors of eighth grade academic values. Time 1 emotional functioning was also a significant positive predictor of subsequent feelings of academic competence: That is, adolescents who reported less frequent feelings of anger and sadness at Time 1 reported feeling more academically competent 2 years later. In contrast,

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Table 1. *Standardized regression coefficients for eighth grade academic and emotional functioning outcomes regressed on demographics and prior academic and emotional functioning*

	End of Eighth Grade Outcomes											
	Academic Competence			Academic Values			Academic GPA			Emotional Functioning		
Predictors	Step 1	Step 2	(*r*)	Step 1	Step 2	(*r*)	Step 1	Step 2	(*r*)	Step 1	Step 2	(*r*)
Demographics												
Parental occupational status	–.04	–.01	(.03)	–.04	.00	–(.05)	–.01	–.01	(.21)	–.05	–.05	(.05)
Parental educational status	.08*	.03	(.10)	.07	.05	(.01)	.25**	.22**	(.35)	.11**	.09**	(.14)
Family income	.04	.02	(.09)	–.04	–.04	–(.03)	.11**	.09*	(.28)	.05	.04	(.12)
Marital status	.05	.02	(.08)	.03	.01	–(.01)	.00	–.02	(.20)	.04	.00	(.10)
Race	.03	.01	(.00)	.14**	.09**	(.13)	–.23**	–.23**	–(.30)	–.04	–.04	–(.08)
Gender	.01	.01	(.02)	.12**	.10**	(.12)	.27**	.27**	(.29)	.03	.04	(.04)
Seventh grade adjustment												
Academic competence		.42**	(.51)		.15**	(.33)		.25**	(.31)		.17**	(.31)
Academic values		.13**	(.34)		.36**	(.45)		.00	(.08)		.09**	(.25)
Emotional functioning		.08**	(.20)		.00	(.12)		.06*	(.16)		.35**	(.42)
R^2 change		.26			.20			.07			.21	
F change	2.32*	40.17**		6.01**	33.08**		49.81**	46.70**		4.55**	32.86**	
Total adjusted R^2	.01	.27		.03	.23		.26	.33		.02	.23	

Note: (*r*) refers to the bivariate correlation of the predictor with the outcome measure. Gender was coded 1 = Male, 2 = Female; Race was coded 1 = White, 2 = African-American; Marital Status was coded 1 = No Partner, 2 = Married/Live In Partner.
*$p \leq .05$. **$p \leq .01$.

seventh grade emotional adjustment showed no significant relation to eighth grade academic values in the regression analyses.

Eighth grade achievement. Both demographic and prior adjustment factors were significant predictors of eighth grade GPA. Of particular interest, even after accounting for the significant effects of parental education, family income, gender, race, and seventh grade feelings of academic competence, seventh grade emotional functioning showed a significant positive predictive effect on eighth grade GPA. Apparently, a lack of symptoms of emotional distress early in middle school is associated with higher actual achievement at the end of middle school.

Eighth grade emotional functioning. Seventh grade emotional adjustment was the strongest predictor of subsequent emotional adjustment. Additionally, seventh grade perceptions of academic competence and academic values were significant positive predictors of eighth grade emotional adjustment even after accounting for demographic variables. In this case, positive motivational beliefs early in middle school are associated with diminished symptoms of distress 2 years later at the end of middle school.

Prediction of eight grade outcomes by middle school environment perceptions

Table 2 presents results for the regression analyses in which adolescents' middle school environment perceptions were used to predict eighth grade outcomes. Statistical controls for adolescents' demographic characteristics and Time 1 academic and emotional functioning were included in these regression analyses. Because the results of Table 2 are an extension of the hierarchical regression results presented in Table 1, we calculated the amount of explanatory variance that the school perception measures contributed to each outcome above and beyond the demographic and prior adjustment measures. The school context measures accounted for an additional 11% of the variance in adolescents' academic competence beliefs, 20% in their academic values, 7% in their school achievement, and 19% in the quality of their emotional functioning at the end of eighth grade.

Eighth grade motivational beliefs. The strongest predictor of eighth grade academic competence beliefs in this model was again seventh grade academic competence beliefs. However, the school measures were also significant predictors: Perceived positive teacher regard and curricular meaningfulness were related to increases in adolescents' competence beliefs over time whereas perceptions of a school ability goal structure predicted decreases in these beliefs over time.

The school perceptions also contributed to the prediction of adolescents' academic values at the end of eighth grade. In addition to significant positive effects of race, prior competence beliefs, and prior values, adolescents' perceptions of positive teacher regard, of a school emphasis on task mastery, effort, and improvement (school task goal structure), of meaningful curricula, and of emotionally supportive teachers all predicted increases in their valuing of academics over time. In contrast, adolescents' perceptions of a school emphasis on competition and relative ability (school ability goal structure) and negative treatment due to their race or gender predicted declines in their academic values over time.

Eighth grade GPA. Three of the school perception measures significantly predicted year-end eighth grade GPA after accounting for the demographic and prior adjustment measures. Perceived teacher regard was a positive predictor whereas both perceived school ability goal structure and differential treatment by race were negative predictors of eighth grade GPA.

Eighth grade emotional functioning. A pattern of predictors similar to the one for eighth grade GPA was found for youths' self-reported emotional adjustment at the end of eighth grade. After controlling for demographic characteristics and prior reports of emotional functioning, adolescents' perceptions of an emphasis on ability and competition (school ability goal structure), of negative

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Table 2. *Standardized regression coefficients for eighth grade outcomes regressed on demographics, prior adjustment, and perceptions of eighth grade middle school psychological environment*

	End of Eighth Grade Outcomes							
	Academic Competence		Academic Values		Academic GPA		Emotional Functioning	
Predictors	*B*	(*r*)	*B*	(*r*)	*B*	(*r*)	*B*	(*r*)
Demographics								
Parental occupational status	–.01	(.03)	.00	–(.05)	–.01	(.21)	–.05	(.05)
Parental educational status	.02	(.10)	.04	(.01)	.22**	(.35)	.07*	(.14)
Family income	.03	(.09)	–.03	–(.03)	.09*	(.28)	.04	(.12)
Marital status	.01	(.08)	.00	–(.01)	–.02	(.20)	–.01	(.10)
Race	.00	(.00)	.08**	(.13)	–.22**	–(.30)	.01	–(.08)
Gender	–.04	(.02)	.03	(.12)	.21**	(.29)	–.08**	(.04)
Seventh grade adjustment								
Academic competence	.37**	(.51)	.09**	(.33)	.20**	(.31)	.10**	(.31)
Academic values	.01	(.34)	.22**	(.45)	–.05	(.08)	.02	(.25)
Emotional functioning	.04	(.21)	–.04	(.12)	.02	(.16)	.28**	(.42)
Eighth grade school perceptions								
Positive teacher academic regard	.22**	(.42)	.21**	(.45)	.21**	(.36)	.19**	(.40)
School ability goal structure	–.06*	–(.26)	–.09**	–(.33)	–.07*	–(.23)	–.09**	–(.34)
School task goal structure	.02	(.25)	.09**	(.39)	.02	(.09)	.00	(.18)
Curricular meaningfulness	.14**	(.30)	.18**	(.40)	–.05	–(.01)	–.02	(.09)
Student empowerment	.03	(.24)	.01	(.30)	.02	(.10)	.00	(.13)
Differential treatment by race	–.03	–(.24)	–.07*	–(.29)	–.09*	–(.33)	–.22**	–(.45)
Differential treatment by gender	–.01	–(.21)	–.08*	–(.29)	–.01	–(.28)	–.16**	–(.47)
Teacher emotional support	.05	(.21)	.08**	(.29)	.00	(.05)	.00	(.14)
F value	34.13**		40.67**		33.01**		39.71**	
Total adjusted R^2	.38		.43		.40		.42	

Note: (*r*) refers to bivariate correlation between predictor and outcome. Gender was coded 1 = Males, 2 = Females; Race was coded 1 = White, 2 = African-American; Marital Status was coded 1 = No Partner, 2 = Married/Live In Partner.
*$p \leq .05$. **$p \leq .01$.

treatment by gender, and of negative treatment by race in school all predicted diminished emotional adjustment over time. In contrast, perceptions of positive teacher regard predicted positive change in emotional adjustment during the middle school years.

Discussion of Study 1

Results of Study 1 corroborate findings from other studies of school-aged children and adolescents showing a relation between academic and emotional functioning (Achenbach et al., 1991; Blechman et al., 1986; Kovacs, 1989; Nolen–Hoeksema et al., 1986). During both seventh and eighth grade, adolescents who were getting higher grades and who had positive school motivation (i.e., self-perceptions of ability, academic valuing, confidence in meeting teachers' and parents' educational expectations, ability to learn from groups, etc.) also showed positive emotional functioning (i.e., less symptoms of distress in the prior 2–4 weeks). These statistical associations were moderate in size.

The longitudinal nature of our data also allowed us to explore the directionality of effects between academic and emotional functioning. As predicted, our findings showed bidirectional longitudinal associations between

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these domains of functioning during early adolescence. From an educational perspective, we had predicted that youth who reported relatively more positive competence and value beliefs related to school at the beginning of seventh grade would report less frequent symptoms of psychological distress 2 years later. Findings were consistent with these predictions. It appears that adolescents' perception of academic competence is an important personal resource, a resource that can contribute to feelings of esteem (Harter, 1985; Roeser & Eccles, in press) and can protect against emotional and behavioral difficulties (Rae–Grant et al., 1989). Similarly, it appears that positive academic values indicate adolescents' integration of the aims of schooling in their emerging identities and also the existence of a good psychological fit between their developmental needs and their school environment (Eccles, 1983; Eccles & Midgley, 1989). As such, adolescents' valuing of school provides a sense of direction and purpose to their development that keeps them engaged in school-related activities (Finn, 1989) and protects them against feelings of distress or involvement in problem behaviors (Dryfoos, 1990).

We also predicted from a mental health perspective that adolescents' emotional adjustment would be significantly related to their subsequent academic functioning. We found partial support for this prediction. Positive emotional functioning in seventh grade was associated with positive academic competence beliefs and school grades among adolescents at the end of eighth grade, even after accounting for their prior motivation and demographic characteristics. This suggests that adolescents' academic competence beliefs and quality of emotional functioning are related in reciprocal ways over time. Although we did not test this here, one way poor emotional functioning may undermine adolescents' subsequent academic achievement is through a negative impact on their academic self-perceptions (see Cole, 1991; Kovacs, 1989). This causal pathway has received some support in studies of college students (Brackney & Karabenick, 1995). Contrary to our hypotheses, we found no longitudinal association between prior emotional functioning and subsequent valuing of education. This suggests some specificity in terms of how adolescents' general emotional functioning affects their achievement motivation.

Results from Study 1 also demonstrate that adolescents' school experiences are significantly related to change in their academic and emotional functioning during the middle school years. We turn first to the results for adolescents' perceptions of organizational and interpersonal processes related to the support of competence. As predicted, those aspects of the school environment that supported adolescents' need for competence in an encouraging, noncomparative manner (positive teacher regard and school task goal structure) were associated with positive changes in motivation over time and positive achievement at the end of eighth grade. In contrast, adolescents' perceptions of their school as emphasizing competition and social comparison (school ability goal structure) were associated with diminished motivation and emotional functioning (i.e., increased feelings of anger, sadness, and hopelessness) over time, and lower achievement at the end of eighth grade. Apparently, from the viewpoint of adolescents, an emphasis on competition and relative ability in middle school is both academically and emotionally debilitating, presumably because this is a developmental period when they are particularly sensitive to social comparisons (Eccles & Midgley, 1989; Midgley, 1993).

We also examined adolescents' perceptions of instructional practices that supported their autonomous functioning. We predicted that meaningful curricula and student empowerment in school would support adolescents' need for autonomy and thus would positively impact on their motivation, achievement, and emotional well-being. These predictions were only partially supported. We did find that adolescents who perceived their school curricula as meaningful, relevant, and applicable to their lives also reported increased feelings of academic competence and valuing over time. Contrary to our prediction, adolescents' reports of opportunities for choice and for ex-

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pressing their voices in their classes (i.e., student empowerment) were unrelated to the eighth grade outcomes examined here. This may have been due to the nature of the school measure used in which we asked adolescents about autonomy provisions in their school *in general* rather than about such provisions in specific classes. When asked about specific classes, adolescents' reports of provisions for autonomy are positively associated with their achievement motivation (Eccles et al., 1993). It could also be that the explanatory variance contributed by the empowerment scale to the outcomes was redundant with that contributed by other aspects of a "developmentally appropriate environment" including teacher emotional support, emphasis on task goals for learning, meaningful work, and positive teacher expectations (see Roeser & Eccles, 1998).

Adolescents' reports of several aspects of their relationships with teachers were also examined in relation to their eighth grade academic and emotional functioning. We predicted that students who felt they could count on their teachers in times of need would show decreased symptoms of emotional distress and increased valuing of school over time because such support addressed their need for relatedness with teachers. Consistent with other work (e.g., Ryan et al., 1994), perceptions of supportive teachers was related to an increase in academic values over time but no relation of such support to changes in emotional adjustment over time was found. Students may have turned to other sources of support for their emotional needs or may not have actually relied on their teachers for assistance even if they believed that they were available to provide support.

We also found that perceived negative treatment by teachers or guidance counselors had a debilitating effect on adolescents' school motivation and emotional functioning as predicted. Perceptions of differential treatment by race and gender, though occurring infrequently according to the adolescents in this study, were associated with an increase in emotional distress and a decrease in valuing of education over time. Such experiences, while likely to be detrimental at any age, may be particularly upsetting during early adolescence when youths' explorations of themselves and their feelings are particularly salient and when the need for supportive relationships with non-parental adults is particularly important. More research is needed to better understand the origins, correlates, and developmental significance of such experiences, but as our results indicate, not surprisingly, such experiences negatively impact on adolescents' mood, academic values, and performance.

In summary, results of Study 1 using variable-centered analyses suggested reciprocal relations between academic and emotional functioning over time. Results also showed that adolescents' perceptions of specific organizational, instructional, and interpersonal processes in middle school contributed significantly to the prediction of change in their academic and emotional functioning over time.

Introduction to Study 2

To supplement the variable-centered analyses in Study 1, person-centered, cluster analytic techniques (Magnusson & Bergmann, 1988) were used in Study 2 to identify different patterns of adaptation related to school motivation and emotional functioning. In using this approach, we explored the possibility that only some of the youth who manifest poor school motivation show broader patterns of psychological distress and only some of the youth experiencing psychological distress do poorly in school (Durlak, 1985). Further, we wanted to assess whether or not different patterns of adaptation found during the beginning of middle school would relate to adolescents' adjustment 2 years later. We also examined how adolescents' perceptions of middle school related to the different emergent patterns of academic and emotional adjustment. Eccles and Midgley (1989) hypothesized that the quality with which school practices support the needs of adolescents should predict the quality of their academic *and* emotional functioning. In Study 2 we ex-

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amined this prediction using person-centered approaches.

Describing patterns of adjustment during early adolescence

Previous research on adjustment during adolescence was used as a guide in determining which emergent patterns of adjustment to retain for analysis. Because research suggests that most youth traverse the early adolescent years with few problems (Carnegie Council on Adolescent Development, 1989) we expected that the largest group of our adolescents would report positive academic competence beliefs, positive academic values, and positive emotional functioning (i.e., low levels of psychological distress). We predicted that these adolescents would also have positive perceptions of their school in terms of the support of competence, autonomy, and relationships with teachers (Connell & Wellborn, 1991; Eccles et al., 1993).

Second, given declines in many adolescents' achievement motivation around the transition into secondary school (see Eccles & Midgley, 1989), we expected to find a group of youth who reported relatively low motivation for school but who still looked like they were on track for positive development later in adolescence in terms of their actual academic achievement and the quality of their emotional functioning. Although these adolescents might be beginning to psychologically disengage from school, we predicted they should not yet manifest other signs of broad-based difficulties. Further, we predicted that such a group would have more negative perceptions of their school environment given their relatively poorer motivation compared to the positively adjusted group described above (Eccles et al., 1993; Roeser, 1996).

Third, we predicted that we would find a subgroup of adolescents who remained motivated for school and achieved quite well but who also experienced frequent feelings of sadness, hopelessness, or anger (i.e., poor emotional functioning). Little is known about whether or not early adolescents who show increased psychological distress in the middle school years are the same adolescents who begin to disengage from school at this time (Knitzer, Steinberg, & Fleisch, 1991). It seems plausible that some youth will continue to function well in school despite feelings of emotional distress. Although speculative, we predicted that these adolescents would perceive their school environment as supportive of their needs given their continued connection with school in the presence of more general feelings of distress.

Fourth, we expected to find a substantial group of adolescents with multiple signs of difficulty. In her review, Dryfoos (1994) estimated that approximately one in four adolescents by age 15 engages in a high risk lifestyle characterized by poor school motivation, academic failure, truancy, depressed mood, and other risky behaviors. Based on this synthesis, we predicted that approximately 25% of our sample would show signs of such a "high risk lifestyle." Furthermore, we predicted that these youth would perceive their schools as less favorable and supportive than youth who were doing better academically and emotionally (Carnegie Council on Adolescent Development, 1995; Dryfoos, 1990; Eccles et al., 1993).

Lastly, we were interested in the predictive implications of patterns identified at seventh grade for adjustment measures collected 2 years later. We expected some continuity in adjustment over time based on the patterns identified at the beginning of seventh grade. We reasoned that these patterns were likely to reflect a more general capacity of adolescents to cope with the multiple changes in body, cognition, and social environments characteristic of this period. Insofar as these patterns were indicative of adolescents' general organization of strengths and vulnerabilities (i.e., their "competence"), we expected that they would continue to exert an influence on their development over time. Evidence of such continuity has emerged in other studies. For example, Eccles et al. (1997) found that patterns of adolescents' adaptation to the junior high school transition were predictive of their academic beliefs, achievement, self-esteem, and psychological distress 3–5 years later. Similar continuities in academic achievement, motivation, and conduct have been found

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from childhood to adolescence in other research studies (Entwistle & Hayduk, 1988; Masten et al., 1995).

Overview of Study 2

Cluster analysis

Q-type cluster analytic techniques were employed in Study 2 to identify groups of adolescents with different patterns of academic and emotional adjustment. Q-type cluster analysis is a technique that considers the interdependence among variables within persons and thereby classifies persons into relatively homogenous groups based upon their similarity across a series of measures (Magnusson & Bergmann, 1988). The clustering was based on three seventh grade variables: academic competence beliefs, academic values, and emotional functioning as reported by the youth.

Cluster validation measures

Several new variables from the longitudinal study were added in Study 2 to assess the validity of the cluster solution (Aldenderfer & Blashfield, 1984). These validation measures were indicators of academic and emotional functioning that were not used to generate the groups. Validation measures were collected from adolescents, parents, and school records and included youths' reports of their self-esteem, parents' perceptions of their youth's academic and emotional functioning, and school grades from the end of *seventh* grade. Sample items for each of these scales are presented in the Appendix.

Self-esteem. A 6-item scale tapped adolescents' self-perceptions of being happy, self-confident, and comfortable with themselves at Time 1. Items were assessed on 5-point Likert items. This self-esteem scale has proven reliable across diverse samples including this one ($\alpha = .80$) and has shown concurrent validity in terms of predicted relations with academic achievement, self-perceptions of competence in various domains, and psychological distress (see Eccles et al., 1997; Lord & Eccles, 1994; Roeser & Eccles, 1998). The scale was standardized for purposes of this study.

Parent reports of child's academic functioning. Parents were asked six questions about their child's academic functioning at Time 1. Items assessed parents' perceptions of how well their child was doing at school, their child's adjustment to middle school, the amount of trouble the child got into in school, the child's level of achievement motivation, and the future chances that their child would do well in school, skip school, or be held back a grade. Due to the fact that individual items were assessed on different metrics, items were *z* scored, combined into a unit weighted scale ($\alpha = .75$), and keyed to reflect "Parental Concerns about Academic Adjustment" with higher scores indicated greater concerns.

Parent reports of school failure. A single yes/no item assessing parents' reports of whether or not their child had "failed or done very poorly in a class in the last 2 years" was also included as a validation measure. This item was assessed at Time 1.

Parent reports of child's emotional functioning. Parents were also asked at Time 1 how often their child manifested different symptoms of distress. Items were assessed on 5-point Likert scales (1 = *almost never*, 5 = *almost always*) and were adapted from the SCL-90-R (Derogatis et al., 1976). Initial factor analysis yielded four subscales: anger ($\alpha = .74$), depressed mood/anxiety ($\alpha = .78$), attentional problems ($\alpha = .80$), and aggressive/antisocial behavior ($\alpha = .73$). A higher order scale was constructed that accounted for 67% of the variance in these four subscales. Subscales were converted to *z* scores, averaged, and reversed to form the higher order emotional functioning scale. Higher scores on this scale reflected positive emotional functioning (i.e., relative absence of distress) whereas lower scores indicated poor emotional functioning (i.e., relatively frequent symptoms of distress).

School grades. Academic GPA for the adolescents' *seventh grade* school year was calcu-

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lated based on their performance in the core academic subjects. This measure reflected achievement both during and 6 months following the collection of the Time 1 measures used to cluster the adolescents. GPA was standardized for purposes of this study.

Middle school perceptions. The same school perception scales used in Study 1 were included in Study 2. These measures were collected at the end of adolescents' eighth grade school year (Time 2) and included perceptions of a task and ability goal structure, positive teacher regard, student empowerment, meaningful curricula, emotion support from teachers, and negative treatment in school due to race or gender.

Results of Study 2

Based on the emergent structure of our data, on our initial hypotheses concerning plausible patterns of academic and emotional adjustment, and on considerations of parsimony, a four-cluster solution was extracted using Ward's method and Euclidean distance as the measure of similarity among youths' self-reported academic competence, academic values, and emotional functioning at Time 1. Clusters were conceptualized as different academic and emotional "statuses" to reinforce the notion that they describe adolescents' status on these indicators relative to that of their peers in this particular sample at a particular point in time. The four adjustment statuses (groups) that emerged were labeled as Positive Adjustment (n = 418, 40%), Poor Academic Value (n = 147, 14%), Poor Emotional Adjustment (n = 152, 15%), and Multiple Risks (n = 324, 31%).[3] Figure 2 depicts the group means on the clustering variables at both seventh and eighth grade. Table 3 summarizes the statistical differences between groups on the clustering measures at both measurement times.

As displayed in the left hand side of Table 3, youth characterized by different academic and emotional statuses differed in the predicted manner during seventh grade (Time 1). Adolescents characterized by Positive Adjustment or Poor Emotional Adjustment showed higher self-ratings of academic competence and values compared to youth characterized by Poor Academic Value, who in turn reported higher levels of academic competence and valuing of school than youth characterized by Multiple Risks. In addition, adolescents in the Multiple Risk group reported the most frequent feelings of emotional distress in seventh grade (i.e., the poorest emotional adjustment), followed by adolescents in the Poor Emotional Adjustment, Poor Academic Value, and Positive Adjustment groups who reported fewer symptoms of distress (i.e., more positive emotional functioning), respectively.

Validating the clusters during seventh grade. Table 4 summarizes differences between the groups on the validation measures. Newman–Keuls comparisons showed that all groups dif-

3. Demographic differences between the groups were examined. Chi-square analyses showed no significant differences among the groups in terms of gender composition, χ^2 (3, 1041) = 5.76, p = .12, and a significant effect of group membership by race, χ^2 (3, 976) = 17.76, p < .01. Though not a statistically significant result, females were slightly more likely to be in the Poor Emotional Functioning group, whereas males were slightly more likely to be represented in the Poor Academic Value group. White adolescents were overrepresented in the Poor Academic Value and the Multiple Risks groups, whereas African Americans were overrepresented in the Poor Emotional Functioning group. Significant three-way interactions by gender, race, and cluster membership clarified these main effects. White males were overrepresented in the Poor Academic Value group, whereas White females and African American males were overrepresented in the Poor Emotional Functioning group. A nonsignificant trend concerning marital status and group membership was also found, χ^2 (3, 1041) = 6.44, p = .09, indicating that adolescents who lived in two-caregiver households were slightly more likely to be characterized by Positive Adjustment whereas those in single caregiver households were slightly overrepresented in the Multiple Risks group. Two final differences emerged based on Student Newman–Keuls mean comparisons: Youth in the Poor Academic Value group came from families characterized by the highest levels of income and educational attainment compared to the other groups, whereas youth in the Poor Emotional Functioning group had parents characterized by the lowest relative level of occupational status.

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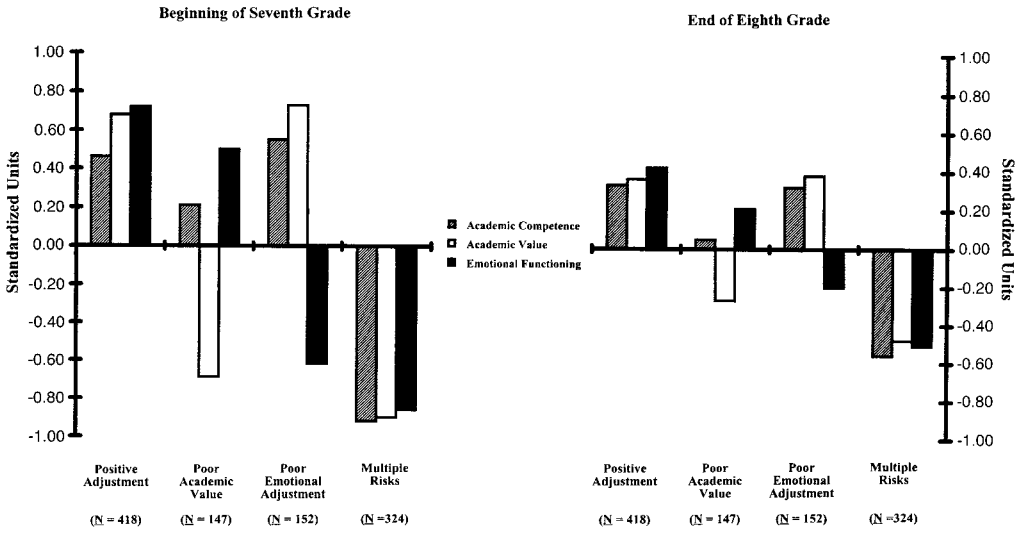


Figure 2. Adjustment status profiles.

Table 3. *Summary of results: Multiple comparisons of clustering measures by group at seventh and eighth grade*

	Significant Group Differences	
Clustering Measure	Seventh Grade	Eighth Grade
Academic competence	PA, PEA > PAV > MR	PA, PEA > PAV > MR
Academic values	PA, PEA > PAV > MR	PA, PEA > PAV > MR
Emotional functioning	PA > PAV > PEA > MR	PA > PAV > PEA > MR

Note: Abbreviations for Adjustment Statuses (Groups): PA, Positive Adjustment; PEA, Poor Emotional Adjustment; PAV, Poor Academic Value; MR, Multiple Risk Group. Results are based on Newman–Keuls Tests with $p = .05$ significance level.

fered from one another on self-esteem: Adolescents characterized by Positive Adjustment had the highest self-esteem, followed by those in the Poor Academic Value, Poor Emotional Adjustment, and the Multiple Risk groups, respectively. Parents' perceptions of their children's academic and emotional adjustment also differentiated the groups: Parents of adolescents manifesting Multiple Risks were the most concerned about their child's school functioning and reported the most symptomatology in their children. In contrast, parents of adolescents showing Positive Adjustment reported having the fewest school concerns and also reported the fewest symptoms of distress in their child. Parents of adolescents characterized by Poor Academic Value or Poor Emotional Adjustment reported intermediate levels of worries about school and symptoms in their children and did not differ from each other on these measures. Finally, adolescents characterized by the Multiple Risk status showed significantly poorer school achievement and higher rates of academic failure during seventh grade compared to adolescents in the other three groups.

Predictive validity over time. The right hand side of Table 3 summarizes the group differences on the academic competence, school values, and emotional functioning measures at the end of eighth grade (Time 2). These results are also depicted in Figure 2. The same pattern of group differences as was evidenced during seventh grade on the competence, values, and emotional adjustment measures was

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Table 4. *Validation of cluster solution: Mean comparisons of seventh grade academic and emotional functioning indicators by adjustment status*

Measures	Adjustment Status: Positive Adjustment	Poor Academic Value	Poor Emotional Adjustment	Multiple Risks	Significance
Youth self-report					
Self-esteem	0.49[a]	0.17[b]	–0.31[c]	–0.56[d]	F (3, 1035) = 91.77**
Parent reports					
Concerns about academic adjustment	–0.26[c]	–0.24[b,c]	–0.03[b]	0.31[a]	F (3, 1031) = 24.43**
Youth's emotional functioning	0.27[a]	0.06[b]	–0.02[b]	–0.35[c]	F (3, 1031) = 24.39**
School failure (% yes)	13[b]	20[b]	20[b]	39[a]	χ^2 (3, 907) = 60.93**
School behavioral measure					
Year-end grade point average	0.21[a]	0.21[a]	0.10[a]	–0.39[b]	F (3, 994) = 26.15**

Note: All measures except "School Failure" are standardized. Student Newman–Keuls mean comparisons were used to test between group differences on the continuous measures. If groups share a superscript for a particular variable then they are not different from one another at the $p \leq .05$ level.
*$p \leq .05$. **$p \leq .01$.

Table 5. *Perceptions of eighth grade middle school psychological environment by adjustment status*

Measures	Adjustment Status: Positive Adjustment	Poor Academic Value	Poor Emotional Adjustment	Multiple Risks	Significance
Youth self-report					
Teacher's academic regard	4.09[a]	3.85[b]	3.96[a,b]	3.50[c]	F (3, 1031) = 24.81**
School ability goal structure	2.36[c]	2.63[b,a]	2.53[b,c]	2.80[a]	F (3, 1025) = 17.37**
School task goal structure	3.82[a]	3.53[b]	3.81[a]	3.54[b]	F (3, 1024) = 12.44**
Curricular meaningfulness	3.26[a]	2.96[b]	3.29[a]	2.95[b]	F (3, 1026) = 16.30**
Student empowerment	3.40[a]	3.23[b]	3.44[a]	3.20[b]	F (3, 1027) = 6.86**
Differential treatment by race	1.41[c]	1.44[b,c]	1.62[b]	1.79[a]	F (3, 1024) = 15.64**
Differential treatment by gender	1.45[b]	1.55[b]	1.74[a]	1.81[a]	F (3, 1023) = 16.88**
Teacher emotional support	2.96[a]	2.44[b]	2.98[a]	2.58[b]	F (3, 901) = 10.71**

Note: Student Newman–Keuls mean comparisons were used to test between group differences. If groups share a superscript for a particular variable then they are not different from one another at the $p \leq .05$ level.
*$p \leq .05$. **$p \leq .01$.

found, although these differences were smaller in magnitude at the end of eighth grade.

Relation of middle school perceptions to patterns of adjustment

Table 5 presents the group differences in perceptions of the middle school learning environment. In general, results supported our predictions. Youth characterized by Positive Adjustment or Poor Emotional Adjustment (i.e., those showing relatively more positive school motivation) perceived their middle school environment as more focused on task mastery, effort, and improvement (school task goal structure), found their curriculum more meaningful, perceived more opportunities for student involvement and participation in the school (student empowerment), and found teachers more available for problems (teacher emotional support) than youth characterized by Poor Academic Value or Multiple Risks.

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In short, youth showing the most positive academic functioning also reported higher levels of developmentally appropriate school practices than their less academically engaged peers.

Two other predicted patterns were noteworthy. First, adolescents characterized by Poor Emotional Adjustment reported the most frequent instances of negative treatment due to their gender at school and the second most frequent experiences of negative treatment due to their race. These experiences, along with these adolescents' greater symptoms of emotional distress, were the only factors that differentiated them from adolescents in the Positive Adjustment group. Second, as mentioned above, adolescents characterized by Multiple Risks saw their school environment less favorably than adolescents in each of the other groups. These adolescents were particularly unique in that they perceived the highest levels of competition and differential treatment by ability in their school (school ability goal structure), the lowest levels of teacher regard, and the most frequent instances of negative treatment in school due to their race.

Discussion of Study 2

Theoretically, four groups are possible when crossing high and low levels of academic and emotional adjustment (Durlak, 1985). In Study 2 these four groups of adolescents clearly emerged including those whose academic and emotional adjustment were in the same direction (i.e., both positive or both negative), and those whose academic and emotional adjustment were relatively more independent (i.e., those showing difficulties in only one domain or the other). Concurrent and predictive validity for these four patterns or "adjustment statuses" came from youth self-reported esteem, parent reports of their child's academic and emotional functioning, teacher-rated grades, and the relation of these patterns to continuing differences in school motivation and emotional adjustment as reported by youth 2 years later. Adolescents characterized by different adjustment statuses also differed in predictable ways in terms of their perceptions of middle school at Time 2. Results for each group are briefly summarized below.

Positive adjustment status

The majority of adolescents respond well to the multiple challenges associated with early adolescence and move through this period with few difficulties (Carnegie Council on Adolescent Development, 1989). Consistent with this fact, 40% of our adolescents fell in the cluster with high academic competence, high values associated with school, positive achievement, and few symptoms of psychological distress during both seventh and eighth grade. These adolescents saw their school as placing more of an emphasis on task goals for learning and less of an emphasis on competition, and as providing more meaningful instruction than did their peers in the other clusters. They also felt their teachers had more positive regard for them as students, were more supportive, and treated them in a more respectful manner than adolescents in the other three groups. Although causality cannot be inferred from these data, these results support the notion that a developmentally appropriate school environment is one important organized context that can assist youth in staying "on track" toward developmental success during adolescence (Eccles et al., 1993).

Poor academic value status

Researchers have noted normative declines in school-related competence beliefs, values, and conduct during the early adolescent period (Eccles, Midgley, & Adler, 1984; Eccles et al., 1993; Simmons & Blyth, 1987). Results of Study 2 suggest that low valuing of school during early adolescence does not characterize all adolescents, and when it does it may or may not be associated with broader patterns of emotional distress or academic problems. We found a small group of adolescents (14%) who felt especially negative about the importance and utility of school but who also were average on our other indicators: These adolescents reported average levels of confidence in their scholastic ability, average academic

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achievement, and relatively infrequent symptoms of psychological distress. As predicted, they also perceived a more competitive academic environment, less supportive teachers, less meaningful curricula, poorer teacher regard, and less opportunities for autonomy compared to their positively adjusted peers. Again, although no causal claims can be made with our data, these results complement a substantial body of other research on the detrimental impact of these school practices on early adolescents' achievement motivation (see Eccles & Midgley, 1989; Good & Weinstein, 1986; Midgley, 1993).

Despite their relatively low valuing of school, these youths were also characterized by continued academic achievement, a relatively low incidence of academic failure, and relatively higher SES families (see Footnote 3). The alienation these youths felt from school appeared to be uniquely linked to their perceptions of the inappropriateness of (or poor developmental fit with) their school context. Consequently, given their other protective characteristics, these youths do not seem at risk for the onset of more serious patterns of distress and problem behavior later in adolescence (see Dryfoos, 1990).

Poor emotional adjustment status

The third group of adolescents, constituting 15% of the sample, felt academically competent, valued school, and achieved at a slightly above-average level but reported relatively frequent feelings of psychological distress and low self-esteem. It is important to note that we only assessed the frequency of a few symptoms of disturbance rather than a diagnosis of mental illness. Thus, it could be that these adolescents showed only moderate signs of psychological distress and their distress had not yet impacted on their school functioning.

School experiences may also partially explain this particular pattern of adjustment. These adolescents reported a relatively positive school situation: They perceived their middle school as emphasizing self-improvement and task mastery, as providing meaningful coursework and chances for autonomy, and as having at least some supportive teachers. Such experiences may have helped these adolescents to stay motivated for school despite other emotional difficulties.

Paradoxically, some of their school experiences may also have contributed to their feelings of distress. Although there are many causes of psychological difficulties during adolescence (Kazdin, 1993), our results lead us to believe that certain critical, negative experiences in middle school can contribute to some adolescents' feelings of distress. Critical experiences can include sexual harassment, differential treatment in the form of low expectations for success, and experiences of discrimination by school professionals and peers. These experiences are more common among females and African Americans and have been suggested as one cause of both ethnic group and sex differences in academic and emotional functioning (AAUW, 1992; Lee et al., 1996; Pine & Hilliard, 1990; Roeser, Wong, & Eccles, 1997; Wong & Eccles, 1996). In fact, it was differences in the frequency with which the Poor Emotional Adjustment adolescents said they experienced race and gender-based discrimination by school professionals that differentiated them from adolescents characterized by Positive Adjustment or Poor Academic Value. Furthermore, females, especially White females, and African American males were over-represented in the Poor Emotional Adjustment group (see Footnote 3). Even if such experiences are infrequent, they can have a strong impact on how adolescents' think and feel about themselves. Consequently, they could account for the relatively higher feelings of distress evidenced by this group despite their continuing commitment to and engagement with school. In fact, their commitment to school may have made them more vulnerable to such experiences.

Multiple risk status

Although it is true that a majority of early adolescents stay engaged with school and remain psychologically healthy, we also found support for the notion that depressive symptoms, poor school achievement, and poor motivation to learn are among the new morbidi-

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ties affecting substantial numbers of young people (Dryfoos, 1994). Thirty percent of the adolescents in this sample showed these signs, a figure comparable to other estimates of the number of youth who are seriously at-risk for curtailed educational and economic attainments in this society (Carnegie Council on Adolescent Development, 1989). Our results share similarities with other studies on the clustering of problem behaviors during middle and late adolescence, problem clusters that often eventuate in school withdrawal, drug use and abuse, delinquency, or teenage pregnancy (Dryfoos, 1990; Jessor & Jessor, 1977). Similar to the findings of these other studies, we found that youth characterized by multiple risks were more likely to have experienced school failure and poor grades, to devalue school, and to have frequent symptoms of distress. Given that this pattern was fairly stable over time, we predict that these adolescents are at high risk for what Dryfoos (1990) calls the "major negative consequences" that occur in later adolescence such as school withdrawal, substance use and abuse, antisocial activity, and pregnancy.

Our contribution to understanding youth characterized by multiple risks lies in our examination of school contextual factors associated with this pattern of adjustment. We know that low achieving students are most vulnerable to the developmentally inappropriate contextual changes associated with the transition into secondary school (Eccles et al., 1993). Although we cannot ascertain causality here, it seems likely that perceptions among these adolescents of a strong school-level emphasis on competition and relative ability, a lack of emotionally supportive teachers, few opportunities for autonomy in class, meaningless curricula, and poor treatment by teachers all contributed to their poor academic and emotional functioning. Although it is true that these adolescents have a negative psychological set that colors their perceptions of the school environment (Roeser, 1996), it is also well documented that high risk youth actually are more likely to be controlled by teachers, expected to do poorly, and given tedious academic work compared to their better adjusted peers (Kagan, 1990; Oakes, Gamoran, & Page, 1992; Weinstein, 1989). Furthermore, other authors have noted that the endemic competition in American schools is particularly detrimental for youth who already feel incompetent and disenfranchised (Covington, 1992; Eccles & Midgley, 1989; Elias, 1989). If we accept the value of youth perceptions of their school environment, then we might conclude that youth who manifest multiple risk factors also can be said to inhabit school environments characterized by multiple risk factors.

General Discussion

In this study we examined the association of academic and emotional functioning in early adolescence and the impact of adolescents' experiences in middle school on their academic and emotional functioning over time. Both variable- and person-centered analyses were used to examine these issues. The findings that emerged from these different analytic approaches complemented one another.

Academic and emotional functioning in early adolescence

Few normative studies within educational or developmental psychology have looked at the relation between early adolescents' academic and emotional functioning. Yet understanding how and when academic and emotional functioning covary can broaden our understanding of the links between cognition, motivation, emotion, and behavior (Brackney & Karabenick, 1995; Kovacs, 1989) and inform prevention, intervention, and health-promotion efforts in the schools (Durlak, 1985) during early adolescence.

Variable-centered results. Results from our variable-centered analyses indicated that just as adolescents' academic motivation is important to their emotional well-being (Eccles et al., 1996; Roeser, 1996) so too is their emotional well-being central to their readiness to learn (Dryfoos, 1994). The study of achievement motivation, then, seems to represent one area of inquiry into adolescent development that can serve to integrate the concerns of education- and mental health-oriented research-

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ers. For example, adolescents' confidence in their ability to learn in part reflects a history of feedback from teachers (and grades). Such feedback affects adolescents' self-perceptions of competence which in affect their feelings of self-worth and emotional well-being (Harter, 1985). Additionally, adolescents' valuing of school confers a sense of purpose and positive direction to their development wherein they identify with the norms and goals of this dominant developmental context (Eccles, 1983). By providing a sense of directionality to development, academic values can protect against feelings of sadness, alienation, or hopelessness and can promote positive achievement and activity choices (Eccles, 1983; Finn, 1989; Rae–Grant et al., 1989). Studies that seek to understand academically resilient individuals (i.e., those individuals who do well in school despite serious developmental adversities) or the protective role that school functioning can play in social-emotional development should include measures of academic competence and value beliefs. It is through these motivational processes that school functioning in part contributes to the quality of adolescents' emotional functioning and vice versa.

From the perspective of educational practice, our findings suggest that the enhancement of children's motivation to learn in terms of perceived competence, intrinsic valuing of learning, and an appreciation for the importance and utility of school subject matters can also serve the function of enhancing their emotional well-being. From the perspective of mental health practice, poor self-perceptions of competence and maladaptive attributional processes (e.g., learned helpless patterns) in the academic domain are likely to be part of the general constellation of maladaptive cognitions associated with emotional distress in adolescents (Roeser & Quihuis, 1998). As such, a concern with strengthening academic motivational beliefs in emotionally troubled youth may be one focus of treatment efforts. Relatedly, our findings lend some support to recent efforts aimed at providing mental health services to high-needs children through the schools to insure their readiness to learn (Dryfoos, 1994).

Person-centered results. Variable-centered results tell only one part of the story concerning the association of school functioning with emotional functioning in early adolescence. Results of the person-centered analyses clarify and extend previous research and raise some interesting new issues. For instance, several researchers have documented mean level declines in academic motivation and achievement during early adolescence, especially after the transition to secondary school (Eccles et al., 1989; Simmons & Blyth, 1987; Wigfield et al., 1991). Consistent with this pattern, 14% of our adolescents devalued school and another 31% both devalued school and expressed low academic competence at the beginning of seventh grade after the transition into middle school. However, 55% showed high feelings of competence, valued school, and achieved at a high level during school year. The juxtaposition of these findings highlights the need for studying *individual patterns* of change in school motivation and achievement across development. Combining variable- and person-centered methodologies is well suited to this task (Cicchetti & Rogosch, 1996; Magnusson & Bergmann, 1988).

We also know that psychological difficulties increase during adolescence, especially among White females (Kazdin, 1993). What is still unclear is whether or not the adolescents who experience increased psychological difficulties in early adolescence are also the ones who begin to disengage from school (Knitzer et al., 1991). Results of the person-centered analyses in Study 2 suggest that some adolescents (e.g., females) are more likely to stay engaged with school despite emotional difficulties. Understanding the processes which allow for continued academic functioning in the face of emotional difficulties represents a fruitful direction in resilience research.

Relatedly, whereas poor academic values and low commitment to school have been associated with multiple negative outcomes later in adolescence (Dryfoos, 1990), results of Study 2 suggest that this is not likely to be true for all adolescents. For some adolescents (i.e., the Poor Academic Value group), low

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valuing of school may relate only to poor quality of engagement; in contrast for others, it may be a marker of significant broad-based difficulties (Dryfoos, 1990).

One final example demonstrates the utility of combining variable- and person-centered methods to study school and psychological adjustment. In Study 1, psychological distress was associated with poorer subsequent achievement. Such a finding lends support to school-based affective education programs designed to address *all* children's psychological well-being and achievement. However, results of Study 2 suggest that it was primarily the Multiple Risk group, a specific subset of adolescents, who accounted for this association. Such a finding lends support to a different set of recommendations focused on the need for targeted intervention programs (Durlak, 1985) and specific school-based mental health services that can assist high-risk adolescents in becoming better prepared for learning (Dryfoos, 1994).

School as a central context of early adolescent development

Given the focus on context in this special issue, we wanted to demonstrate that middle school represents a central context of development during adolescence, a context that has a significant impact on outcomes other than academic motivation and achievement (Eccles et al., 1996; Rutter, 1983). The role of school has been largely neglected in the study of development during adolescence, especially with regard to social-emotional development (Eccles et al., 1996; Maughan, 1988; Rutter, 1983). As our results indicate, adolescents' experiences in school are an important part of the complex array of social forces that influence their motivation to learn and their emotional well-being.

A motivational perspective on schooling. Historically, research on schooling has been hampered by a lack of theories and research that adequately explicate educational processes, the child's experience of school, and the impact of schooling on both academic and nonacademic outcomes (Good & Weinstein, 1986; Rutter, 1983). Progress on these issues is being made, however. Our approach (i.e., examining the developmental significance of schooling) is derived from research and theory on the interface of academic environments and the developmental needs of early adolescents (Connell & Wellborn, 1991; Deci & Ryan, 1985; Eccles & Midgley, 1989, Eccles et al., 1993, 1996; Maehr & Anderman, 1993; Midgley, 1993). Such an approach hypothesizes that organizational, instructional, and interpersonal processes in school that promote adolescents' developmental needs associated with competence, autonomy, and quality relationships should enhance their motivation, achievement, and well-being. In contrast, aspects of school life that inhibit the fulfillment of these needs should produce academic, emotional, and behavioral alienation.

One value of this approach lies in the fact that a common set of contextual features hypothesized to underlie both academic and emotional functioning can be examined across a variety of settings (i.e., home, school, peers) and developmental periods (Connell, 1990; Eccles et al., 1993, 1996; Eccles, Early, Fraser, Belansky, & McCarthy, 1997). Another value of this approach is that it encourages one to look at changes in school environments through a developmental lens. As children move from elementary to middle school, the environment often becomes less supportive of their developmental needs and thus can precipitate declines in motivation and achievement (Eccles et al., 1993; Simmons & Blyth, 1987). We found a similar process occurring in this population of adolescents as they moved through middle school: Those adolescents reporting positive academic motivation and emotional well-being also perceived their schools as more developmentally appropriate in terms of particular norms, practices, and teacher–student interactions, whereas those manifesting poorer functioning reported a less developmentally appropriate school environment.

Developmentally appropriate middle schools. Our findings suggest several ways in which middle school environments can support adolescents' developmental needs and thereby

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enhance their motivation and emotional well-being. Results from both studies indicate that middle schools can best support adolescents' need for competence through positive teacher regard for students and instructional practices that encourage adolescents to view self-improvement, effort, and task mastery as the hallmarks of competence and academic success. Our findings also indicated that a perceived school emphasis on competition, ability relative to others, and differential rewards for high achievers was negatively related adolescents' academic motivation and emotional well-being over time. Such an emphasis can arise from commonly used practices in schools including public honor rolls, different academic classes for high and low achievers, public feedback on performance, and rewards for superior performance (Maehr & Midgley, 1996). A school ability goal emphasis is ill suited to the stage of early adolescence when all adolescents are self-consciousness and sensitive to comparisons with peers (Eccles & Midgley, 1989) and may be particularly detrimental to adolescents struggling academically and emotionally. In Study 2 we found that adolescents characterized by the poorest academic and emotional adjustment reported the greatest emphasis on ability goals in their school. It is precisely these adolescents who are the least likely to receive rewards and praise in a system that emphasizes competition and relative ability. Thus, these adolescents in particular may have their journey towards school withdrawal hastened by such practices (Covington, 1992; Eccles et al., 1996).

Schools can also enhance the quality of adolescents' academic and emotional functioning by supporting their needs for autonomy. Our results indicate that this can be done in part by providing adolescents with opportunities to make choices about seating, topics, and work partners; to share their viewpoints in class discussions; and to learn curricula that speaks to their life experiences and to issues encountered in contemporary society. Nurturing the conditions in which teachers feel empowered to empower students and in which teachers have enough freedom to design curricula that meets the educational and emotional needs of their students is another important challenge associated with the creation of developmentally appropriate schools for adolescents (Carnegie Council on Adolescent Development, 1989; 1995).

The final set of results concerned the quality of teacher–student interactions in school. Findings from both studies indicated that teachers can support or undermine adolescents' need for quality relationships with teachers. For instance, adolescents who viewed their teachers as providing both academic and emotional support were less likely to experience alienation from school or emotional distress. The creation of smaller communities of learning within school buildings where a few teachers are matched with a group of students for the whole day is one way that schools can enhance the development of supportive teacher–student relationships in large school settings. Such structures allow teachers and students to get to know one another and create opportunities for teachers to offer the kind of support many adolescents need and want (Carnegie Council on Adolescent Development, 1989).

The powerful influence of teachers can also adversely affect adolescents' adjustment when teacher–student interactions are perceived as inequitable, inappropriate, or unfair. Adolescents' who perceived that their teachers or guidance counselors treated them more harshly or underestimated their abilities due to their race or gender also reported the highest levels of distress and an increase in distress over time. In Study 2 we found that even if adolescents were motivated and achieving well in school, perceptions of such experiences were accompanied by higher levels of distress. Recently, the issues of sexual harassment and inequitable treatment of females in our nation's schools were raised to the level of public discourse and scientific scrutiny (AAUW, 1992; Lee et al., 1996). It may be time for a similar process to occur in relation to racial discrimination in schools given the obvious negative impact of such experiences on adolescents (Fine, 1991; Pine & Hilliard, 1990; Wong & Eccles, 1996). More research on the kinds of inequitable incidents that occur in schools for adolescents of color as well

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as the organizational, instructional, and interpersonal factors that precipitate or silently promote such incidences is clearly needed.

Differential experiences, critical events, and transactions in school

Three additional issues deserve comment. First, it is time to refine our analyses of "school" to study how various adolescents are exposed to different experiences within the same school setting. "School effects" likely operate at the interface between individuals and their particular configuration of classes, peers, teachers, daily experiences, etc. The number of such configurations within one school are many. Explorations into how different adolescents experience school necessitate a focus on personal factors such as socioeconomic background, ethnic heritage, and intellectual ability, as well as structural characteristics such as adolescents' academic track (and associated teachers) and peer group. Fine tuning our approach to school-based research by focusing on multiple levels of organization (tasks, groups, classroom interactions, tracks, schools as organization, etc.), multiple informants (students, teachers, peers, principals), and specific person–environment transactions will likely increase our understanding of school effects broadly construed.

A second issue raised by our findings concerns transactional processes in schools (Sameroff & Chandler, 1975). We know little about how adolescents shape teachers' behavior and beliefs, though the direction of influence between teachers and students is undoubtedly bidirectional (e.g., Skinner & Belmont, 1993). Understanding how adolescents characterized by different academic and emotional adjustment statuses are influenced by and influence their school environment is another area worthy of more research. Such research could help to elucidate transactional processes that operate in school settings, processes that likely serve to reinforce either positive or negative patterns of adjustment in adolescents.

One final issue concerns how critical, infrequent events that occur in schools can influence adolescent development. In these studies, adolescents' reports of even an infrequent experience of discrimination in school were significantly related to poorer academic and emotional outcomes, especially among females and African American males. Similar findings have emerged in studies of sexual harassment in schools where infrequent incidents of harassment were found to have a strong impact on adolescents' emotional well-being (e.g., Lee et al., 1996). Understanding how critical but infrequent school-based events impact development over time and when such events come to represent significant developmental turning points related to academic pursuits is critical to our understanding of schooling and development. It is important to note that such events could be of a negative nature (i.e., discrimination, harassment) or could be extremely positive (i.e., a teacher helping economically disadvantaged students apply for college; see Hubner, 1996).

Limitations and conclusion

Several limitations are important to note regarding these two studies. First, we used student perceptions of the school environment. Inferring "school effects" from such perceptions is not a straightforward process. It is important to reemphasize that by using perceptions of the school, we focused on the psychological significance of school to adolescents (Andersen, 1982). As such, these findings need to be corroborated with other sources of information on the school context such as observations, teacher reports, and principal reports, before we can discuss school effects per se (Rutter, 1983). Second, we used survey and interview measures in assessing adolescent adjustment that did not address the clinical significance of academic or emotional problems. Thus, our conclusions about different patterns of adjustment are more descriptive than definitive of specific adjustment strengths or vulnerabilities and need to be viewed in such a light. Third, it could be argued that prior characteristics colored adolescents' perceptions of their middle schools and thus accounted for the associa-

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tions found in both studies. Although this limitation cannot be fully ruled out, we attempted to address it by controlling for adolescents' demographics and prior adjustment in all analyses and also by including multiple informants of adjustment in Study 2. Finally, we only examined one context, school, in relation to the outcomes in this study. It is clear that other factors in the home, peer group, and neighborhood contribute to such outcomes. Understanding the conjoint effects of multiple contexts on aspects of academic and emotional functioning is a major part of our ongoing work (e.g., Eccles et al., 1997; Eccles & Sameroff, 1998).

In conclusion, we aimed to show the utility of a motivational perspective on schooling and adolescent development that examined both educational and mental health outcomes simultaneously. Our results suggest that school experience is an important contributor to the quality of adolescent's academic *and* emotional life. In addition, we elucidated some of the specific processes by which schools impact adolescents' academic and emotional development. Insights of this sort are urgently needed. As the Carnegie Council on Adolescent Development (1989) suggested:

> Many middle grade schools today fall far short of meeting the critical educational, health, and social needs of millions of young adolescents. Many youth now leave the middle grades unprepared for what lies ahead of them. A fundamental transformation of the education of young adolescents is urgently required. (p. 36)

Moving schools toward organizational and instructional practices that emphasize improvement, effort, and task mastery as the goals of learning; high teacher expectations; provisions for student autonomy; meaningful curricula; and emotional support of students are but a few of the things that middle school professionals can do to begin to address the pressing educational and social-emotional needs of many of today's adolescents. As we begin to understand more about the complex social environments that affect adolescent development, schools will continue to be seen as an important, if not central, arena for health promotion, primary prevention, and intervention services for adolescents. Understanding how to improve middle schools has the potential to impact the quality of adolescents' academic and emotional lives and will require the expertise of researchers and practitioners from a wide array of disciplines.

References

AAUW (1992). *How Schools Shortchange Girls*. New York: Marlowe & Company.

Achenbach, T. M., Howell, C. T., Quay, H. C., & Conners, C. K. (1991). National survey of problems and competencies among four to sixteen year olds. *Monographs for the Society of Research in Child Development, 56*(3, Serial No. 225).

Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis*. Newbury Park, CA: Sage.

Ames, C. (1992). Achievement goals and the classroom motivational climate. In D. H. Schunk & J. L. Meece (Eds.), *Student perceptions in the classroom* (pp. 327–348). Hillsdale, NJ: Erlbaum.

Andersen, C. S. (1982). The search for school climate: A review of the research. *Review of Educational Research, 52*, 368–420.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*, 117–148.

Blechman, E. A., McEnroe, M. J., Carella, E. T., & Audette, D. P. (1986). Childhood competence and depression. *Journal of Abnormal Psychology, 95*, 223–227.

Blumenfeld, P. C. (1992). Classroom learning and motivation: Clarifying and expanding goal theory. *Journal of Educational Psychology, 84*, 272–281.

Brackney, B. E., & Karabenick, S. A. (1995). Psychopathology and academic performance: The role of motivation and learning strategies. *Journal of Counseling Psychology, 42*, 456–465.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723–742.

Carnegie Council on Adolescent Development. (1989). *Turning points: Preparing American youth for the 21st century*. New York: Carnegie Corporation.

Carnegie Council on Adolescent Development (1995). *Great transitions: Preparing adolescents for a new century*. New York: Carnegie Corporation.

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology, 8*, 597–600.

Cole, D. A. (1991). Preliminary support for a competency-based model of depression in children. *Journal of Abnormal Psychology, 100*, 181–190.

Connell, J. P. (1990). Context, self, and action: A motivational analysis of self-system processes across the life span. In D. Cicchetti & M. Beeghly (Eds.), *The self in transition: Infancy to childhood* (pp. 61–97). Chicago: University of Chicago Press.

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy and relatedness: A motivational analysis of

https://doi.org/10.1017/S0954579498001631 Published online by Cambridge University Press

self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self-processes in development: Minnesota Symposium on Child Psychology* (Vol. 23, pp. 43–77). Hillsdale, NJ: Erlbaum.

Cook, T. (1998). *The Prince George's County School Study*. Manuscript in preparation.

Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. New York: Cambridge University Press.

Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Academic Press.

Derogatis, L. R., Rickels, K., & Rock, A. F. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. *British Journal of Psychiatry, 128,* 280–289.

Dryfoos, J. G. (1990). *Adolescents at risk: Prevalence and prevention*. New York: Oxford University Press.

Dryfoos, J. G. (1994). *Full Service Schools: A revolution in health and social services for children, youth, and families*. San Francisco: Jossey–Bass.

Durlak, J. A. (1985). Primary prevention of school maladjustment. *Journal of Consulting and Clinical Psychology, 53,* 623–630.

Eccles, J. S. (1983). Expectancies, values and academic behaviors. In J. T. Spence (Ed.), *The development of achievement motivation* (pp. 283–331). Greenwich, CT: JAI Press.

Eccles, J. S., Early, D., Fraser, K., Belansky, E., & McCarthy, K. (1997). The relation of connection, regulation, and support for autonomy in the context of family, school, and peer group to successful adolescent development. *Journal of Adolescent Research, 12,* 263–286.

Eccles, J. S., Lord, S., & Roeser, R. W. (1996). Round holes, square pegs, rocky roads, and sore feet: A discussion of stage-environment fit theory applied to families and school. In D. Cicchetti & S. L. Toth (Eds.), *Rochester Symposium on Developmental Psychopathology: Vol. VII. Adolescence: opportunities and challenges* (pp. 47–92). Rochester, NY: University of Rochester Press.

Eccles, J. S., Lord, S. E., Roeser, R. W., Barber, B. L., & Jozefowicz, D. M. H. (1997). The association of school transitions in early adolescence with developmental trajectories through high school. In J. Schulenberg, J. Maggs, & K. Hurrelmann (Eds.), *Health risks and developmental transitions during adolescence* (pp. 283–320). New York: Cambridge University Press.

Eccles, J. S., & Midgley, C. (1989). Stage-environment fit: Developmentally appropriate classrooms for young adolescents. In C. Ames & R. Ames (Eds.), *Research on motivation in education: Goals and cognitions* (Vol. 3, pp. 13–44). New York: Academic Press.

Eccles, J. S., Midgley, C., & Adler, T. (1984). Grade-related changes in the school environment: Effects on achievement motivation. In J. Nicholls (Ed.), *Advances in motivation and achievement: The development of achievement motivation* (Vol. 3, pp. 283–331). Greenwich, CT: JAI Press.

Eccles, J. S., Midgley, C., Wigfield, A., Buchanan, C. M., Reuman, D., Flanagan, C., & MacIver, D. (1993). Development during adolescence: The impact of stage-environment fit on adolescents' experiences in schools and families. *American Psychologist, 48,* 90–101.

Eccles, J. S., & Sameroff, A.J. (1998). *Making sense: Assessing successful adolescent development in multiple contexts*. Manuscript in preparation.

Eccles, J. S., & Wigfield, A. (1985). Teacher expectations and student motivation. In J. B. Dusek (Ed.), *Teacher expectations* (pp. 185–226). Hillsdale, NJ: Erlbaum.

Eccles, J. S., & Wigfield, A. (1995). In the mind of the actor: The structure of adolescents' achievement task values and expectancy-related beliefs. *Personality and Social Psychology Bulletin, 21,* 215–225.

Eccles, J. S., Wigfield, A., Flanagan, C. A., Miller, C., Reuman, D. A., & Yee, D. (1989). Self-concepts, domain values, and self-esteem: Relations and changes at early adolescence. *Journal of Personality, 57,* 283–310.

Elias, M. J. (1989). Schools as a source of stress to children. An analysis of causal and ameliorative influences. *Journal of School Psychology, 27,* 393–407.

Entwistle, D. R., & Hayduk, L. A. (1988). Lasting effects of elementary school. *Sociology of Education, 61,* 147–159.

Erikson, E. H. (1968). *Identity, youth and crisis*. New York: W. W. Norton & Company.

Fine, M. (1991). *Framing dropouts: Notes on the politics of an urban public high school*. Albany, NY: State University of New York Press.

Finn, J. (1989). Withdrawing from school. *Review of Educational Research, 59,* 117–142.

Good, T. L., & Weinstein, R. S. (1986). Schools make a difference: Evidence, criticisms, and new directions. *American Psychologist, 41,* 1090–1097.

Harter, S. (1985). Competence as a dimension of self-evaluation: Toward a comprehensive model of self-worth. In R. L. Leahy (Ed.), *The development of the self* (pp. 55–121). New York: Academic Press.

Hubner, J. (1996, September 22). How the class of '86 beat the system. *San Jose Mercury News West,* pp. 14–26.

Jackson, J. S., Brown, T. N., Williams, D. R., Torres, M., Sellers, S. L., & Brown, K. (1994). Racism and the physical and mental health status of African-Americans: A thirteen year national panel study. *Ethnicity and Disease, 4,* 151–166.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48,* 117–126.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth.* San Diego, CA: Academic Press.

Jussim, L., Eccles, J., & Madon, S. (1996). Social perception, social stereotypes, and teacher expectations: Accuracy and the quest for the powerful self-fulfilling prophecy. *Advances in Experimental Social Psychology, 28,* 281–388.

Kagan, D. M. (1990). How schools alienate students at risk: A model for examining proximal classroom variables. *Educational Psychologist, 25,* 105–125.

Kazdin, A. E. (1993). Adolescent mental health: Prevention and treatment programs. *American Psychologist, 48,* 127–141.

Kessler, R. C., Foster, C. L., Saunders, W. B., & Stang, P. E. (1995). Social consequences of psychiatric disorders, I: Educational attainment. *American Journal of Psychiatry, 152,* 1026–1032.

Knizter, J., Steinberg, Z., & Fleisch, B. (1991). Schools, children's mental health, and the advocacy challenge. *Journal of Clinical Child Psychology, 20,* 102–111.

Kovacs, M. (1989). Affective disorders in children and adolescents. *American Psychologist, 44,* 209–215.

Kovacs, M. (1992). *Children's Depression Inventory*

https://doi.org/10.1017/S0954579498001631 Published online by Cambridge University Press

Manual. North Tonawanda, NY: Multi-Health Systems, Inc.

Lee, V. E., Croninger, R. G., Linn, E., & Chen, X. (1996). The culture of sexual harassment in secondary schools. *American Educational Research Journal, 33,* 383–417.

Lord, S. E., & Eccles, J. S. (1994, February). *James revisited: The relationship of domain self-concepts and values to Black and White adolescents' self-esteem*. Paper presented at the Biennial Meeting of the Society for Research on Adolescence, San Diego, CA.

Maehr, M. L. (1991). The "psychological environment" of the school: A focus for school leadership. In P. Thurstone & P. Zodhiates (Eds.), *Advances in educational administration* (Vol. 2, pp. 51–81). Greenwich, CT: JAI.

Maehr, M. L., & Anderman, E. M. (1993). Reinventing schools for early adolescents: Emphasizing task goals. *Elementary School Journal, 93,* 593–610.

Maehr, M. L., & Fyans, L. J., Jr. (1989). School culture, motivation, and achievement. In M. L. Maehr & C. Ames (Eds.), *Advances in motivation and achievement: Motivation-enhancing environments* (Vol. 6, pp. 215–247). Greenwich, CT: JAI.

Maehr, M. L., & Midgley, C. (1991). Enhancing student motivation: A school-wide approach. *Educational Psychologist, 26,* 399–427.

Maehr, M. L., & Midgley, C. (1996). *Transforming school cultures to enhance student motivation and learning*. Boulder, CO: Westview Press.

Magnusson, D., & Bergmann, L. R. (1988). Individual and variable-based approaches to longitudinal research on early risk factors. In M. Rutter (Ed.), *Studies of psychosocial risk: The power of longitudinal data* (pp. 45–61). New York: Cambridge University Press.

Masten, A. S., Coatsworth, J. D., Neemann, J., Gest, S. D., Tellegen, A., & Garmezy, N. (1995). The structure and coherence of competence from childhood to adolescence. *Child Development, 66,* 1635–1659.

Maughan, B. (1988). School experiences as risk/protective factors. In M. Rutter (Ed.), *Studies of psychosocial risk: The power of longitudinal data* (pp. 200–220). New York: Cambridge University Press.

Midgley, C. (1993). Motivation and middle level schools. In P. Pintrich & M. L. Maehr (Eds.), *Advances in motivation and achievement: Motivation in the adolescent years* (Vol. 8, pp. 217–294). Greenwich, CT: JAI.

Midgley, C., Maehr, M. L., Hicks, L., Roeser, R. W., Urdan, T. U., Anderman, E., & Kaplan, A. (1995). *Patterns of Adaptive Learning Survey* (*PALS*) *manual*. Ann Arbor: University of Michigan.

Moos, R. H. (1991). Connections between school, work, and family settings. In B. Fraser & H. J. Walberg (Eds.), *Educational environments: Evaluation, antecedents and consequences* (pp. 29–53). Oxford, UK: Pergamon Press.

Nam, C. B., & Powers, M. G. (1983). *The socioeconomic approach to status measurement: With a guide to occupational and socioeconomic status scores*. Houston, TX: Cap and Gown Press.

Newcomb, M. D., & Bentler, P. M. (1989). Substance use and abuse among children and teenagers. *American Psychologist, 44,* 242–248.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91,* 328–346.

Nolen–Hoeksema, S., Girgus, J. S., & Seligman, M. E. P. (1986). Learned helplessness in children: A longitudinal study of depression, achievement, and explanatory style. *Journal of Personality and Social Psychology, 51,* 435–442.

Oakes, J., Gamoran, A., & Page, R. N. (1992). Curriculum differentiation: Opportunities, outcomes, and meanings. In P. Jackson (Ed.), *Handbook of research on curriculum* (pp. 570–608). New York: MacMillan.

Pine, G. J., & Hilliard III, A. G. (1990). Rx for racism: Imperatives for America's schools. *Phi Delta Kappan, 71,* 593–600.

Rae–Grant, N., Thomas, H., Offord, D. R., & Boyle, M. H. (1989). Risk, protective factors, and the prevalence of behavioral and emotional disorders in children and adolescents. *Journal of American Academy of Child and Adolescent Psychiatry, 28,* 262–268.

Roeser, R. W. (1996). *Unfolding and enfolding youth: Studies in middle school experience, academic motivation, and psychological adjustment during early adolescence*. Unpublished dissertation, University of Michigan, Ann Arbor.

Roeser, R. W., & Eccles, J. S. (in press). Adolescents' perceptions of middle school: Relation to longitudinal changes in academic and psychological adjustment. *Journal of Research on Adolescence*.

Roeser, R. W., Midgley, C. M., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88,* 408–422.

Roeser, R. W., & Quihuis, G. (1998, April). *Assessing motivation patterns in the middle school classroom: Relation to academic helplessness, academic mastery, and mental health*. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.

Roeser, R. W., Wong, C., & Eccles, J. S. (1997, March). *Differential treatment by race and ability in middle school and change in African- and European-American youths' adjustment*. Paper presented at the Biennial Meeting of the Society for Research on Child Development, Washington, DC.

Rutter, M. (1983). School effects on pupil progress: Research findings and policy implications. *Child Development, 54,* 1–29.

Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations of relationships to teachers, parents and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence, 14,* 226–249.

Sameroff, A. J., & Chandler, M. J. (1975). Reproductive risk and the continuum of caretaking casualty. In F. D. Horowitz, M. Hetherington, S. Scarr–Salapatek, & G. Siegel (Eds.), *Review of Child Development Research* (Vol. 4, pp. 187–244). Chicago: University of Chicago.

Simmons, R. G., & Blyth, D. A. (1987). *Moving into adolescence: The impact of pubertal change and school context*. New York: de Gruyter.

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85,* 571–581.

Weinstein, R. (1989). Perceptions of classroom processes and student motivation: Children's views of self-fulfilling prophecies. In C. Ames & R. Ames (Eds.), *Research on motivation in education: Goals and cognitions* (Vol. 3, pp. 13–44). New York: Academic Press.

https://doi.org/10.1017/S0954579498001631 Published online by Cambridge University Press

Wigfield, A., Eccles, J. S., MacIver, D., Reuman, D. A., & Midgley, C. (1991). Transitions during early adolescence: Changes in children's domain-specific self-perceptions and general self-esteem across the transition to junior high school. *Developmental Psychology, 27,* 552–565.

Wong C., & Eccles, J. S. (1996, April). *The effects of perceived racial discrimination on African-American students' motivation and school achievement*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Appendix: Sample Items

Academic functioning

Youth Academic Competence (*Time 1 = 14 items*)

How good are you in school subjects other than math? (1 = *not at all good,* 7 = *very good*).

Compared to other kids your age, how well do you do in other school subjects? (1 = *much worse,* 7 = *much better*)

How well can you live up to what your teachers expect of you? (1 = *not at all well,* 5 = *very well*)

How well can you learn math?

How well can you work in groups?

How well can you finish homework assignments by deadlines?

Youth Academic Values (*Time 1 = 10 items, Time 2 = 11 items*)

Compared to other things, how important is math? (1 = *much less important,* 7 = *much more important*)

I go to school because I enjoy my classes. (1 = *not an important reason,* 7 = *very important reason*)

I go to school because I like what I am learning (1 = *not an important reason,* 7 = *very important reason*)

I have to do well in school if I want to be a success in life. (1 = *strongly disagree,* 5 = *strongly agree*)

Suppose you do get a good education, how likely is it you will end up with the kind of job you want? (1 = *not very likely,* 5 = *very likely*)

Getting a good education is the best way to get ahead in life for the kids in my neighborhood. (1 = *strongly disagree,* 5 = *strongly agree*)

Emotional functioning

Youth Emotional Functioning (*Time 1 = 10 items, Time 2 = 32 items*)

During the past month how often have you felt so angry you wanted to smash or break something?

During the past month how often have you felt so upset you wanted to hit or hurt someone?

During the past month how often have you felt very sad?

During the past month how often have you felt hopeless?

(1 = *almost never,* 5 = *almost always*)

Middle school perceptions

Support of competence

Youth Perceptions of School Ability Goal Structure (*Time 2 = 5 items*)

Teachers treat kids who get good grades better than other kids.

Students are encouraged to compete against each other for grades.

Teachers only care about the smart kids.

(1 = *not at all true,* 3 = *somewhat true,* 5 = *very true*)

Youth Perceptions of School Task Goal Structure (*Time 2 = 5 items*)

Teachers want students to really understand their work, not just memorize it.

Trying hard counts a lot.

Everyone is challenged to do their very best.

(1 = *not at all true,* 3 = *somewhat true,* 5 = *very true*)

Youth Perceptions of Positive Teacher Regard (*Time 2 = 1 item*)

Your teachers think you are a good student.

(1 = *not at all true,* 3 = *somewhat true,* 5 = *very true*)

Support of autonomy

Youth Perceptions of Student Empowerment (*Time 2 = 5 items*)

Are students allowed to choose their partners for group work?

Do students get to decide where they sit?

Are students' ideas and suggestions used during classroom discussion?

(1 = *almost never,* 3 = *sometimes,* 5 = *almost always*)

Youth Perceptions of Meaningful Curriculum (*Time 2 = 10 items*)

How often in social studies class do you learn about people and places that are important to you?

How often in science class do you discuss problems or issues that are meaningful to you?

How often in English to you read books about people of your cultural or racial group?

(1 = *almost never,* 3 = *sometimes,* 5 = *almost always*)

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Quality of relationships with teachers

Youth Perceptions of Teacher Emotional Support (*Time 2 = 1 item*)

When you have a personal or social problem in school, how often can you depend on your teachers to help you out? (1 = *almost never*, 3 = *sometimes*, 5 = *almost always*)

Youth Perceptions of Negative Treatment Due to Race (*Time 2 = 5 items*)

At school, how often do you feel that:

Teachers think you are less smart than you really are because of your race?

Teachers/counselors discourage you from taking certain classes because of your race?

You are disciplined more harshly than other kids because of your race?

(1 = *never*, 3 = *a couple of times a month*, 5 = *every day*)

Youth Perceptions of Negative Treatment Due to Gender (*Time 2 = 5 items*)

At school, how often do you feel that:

Teachers call on you less often than they call on kids of the opposite sex?

Teachers/counselors discourage you from taking certain classes because of your sex?

You are disciplined more harshly by teachers than kids of the opposite sex?

(1 = *never*, 3 = *a couple of times a month*, 5 = *every day*)

Cluster validation measures

Youth Self-Esteem Scale (*Time 1 = 6 items*)

How happy are you with the kind of person you are? (1 = *not at all happy*, 5 = *extremely happy*)

How often do you wish you were different than you are? (1 = *almost never*, 5 = *almost always*, reversed)

How often are you pretty sure about yourself? (1 = *almost never*, 5 = *almost always*)

Parent Reports of Youth's Emotional Functioning (*Time 1 = 16 items*)

My seventh grader has sudden changes in mood or feelings.

My seventh grader is rather high strung, tense, or nervous.

My seventh grader is unhappy, sad, or depressed.

My seventh grader has a very strong temper and loses it easily.

My seventh grader bullies or is cruel or mean to others.

My seventh grader has trouble getting along with other children.

My seventh grader has difficulty concentrating, cannot pay attention for long.

(1 = *almost never*, 5 = *almost always*, all items reversed).

Parental Concerns About Youth's Academic Functioning (*Time 1 = 6 items*)

How well is your 7th grader adjusting to junior high school? (1 = *not very well*, 7 = *very well*, reversed)

In comparison to other seventh graders, how much trouble does your 7th grader get into? (1 = *much less*, 7 = *much more trouble*)

What are the chances your 7th grader will do well in junior and senior high school? (1 = *very low*, 5 = *very high*)

Parent Reports of Youth's Academic Failure (*Time 1 = 1 item*)

Has your child failed or done very poorly in a class in the last two years? (0 = *no*, 1 = *yes*)

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