
School as a Context of Social-Emotional Development:
Selected Findings from the Maryland Adolescent Growth in Context Study
Draft Version

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“The statement so frequently made that education means “drawing out” is excellent, if we mean simply to contrast it with the process of pouring in. But, after all...[t]he child is already intensely active, and the question of education is the question of taking hold of his activities, of giving them direction. Through direction, through organized use, they tend toward valuable results, instead of scattering or being left to merely impulsive expression.”

John Dewey (1900)
The School and Society

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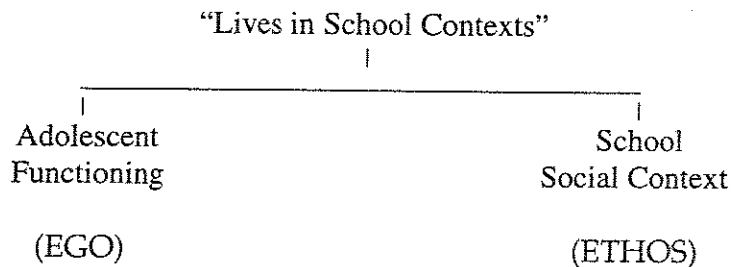
Introduction

This purpose of this talk is to summarize some of the work we have been doing in relation to adolescents' school functioning, emotional functioning, and their experiences in the social context of middle school. I plan to cover several paired topics in my talk, pairs of topics that require some sort of reconciliation or (hierarchic) synthesis.

Two Aspects of Development

At the most general level, two aspects of the developmental process have occupied us in our studies of schooling and adolescence. We have been concerned with studying both (a) individual-level, psychological processes associated with school outcomes (depicted on the left side of Diagram 1 as "Adolescent Functioning"); and (b) the relation of aspects of the school social context to these individual processes (depicted on the right side of Diagram 1).

Diagram 1



In short, we have been interested in what Erik Erikson once termed the "mutual complementation of ego and ethos" in the developmental process during adolescence - the dynamic interplay of the inner spaces of youth and the shared life spaces within which their personal life histories unfold (Erikson, 1959; Lewin, 1936; Sameroff, 1983). Today I will focus my remarks on the interplay of adolescents' ego functioning and the social ethos of their middle grades school.

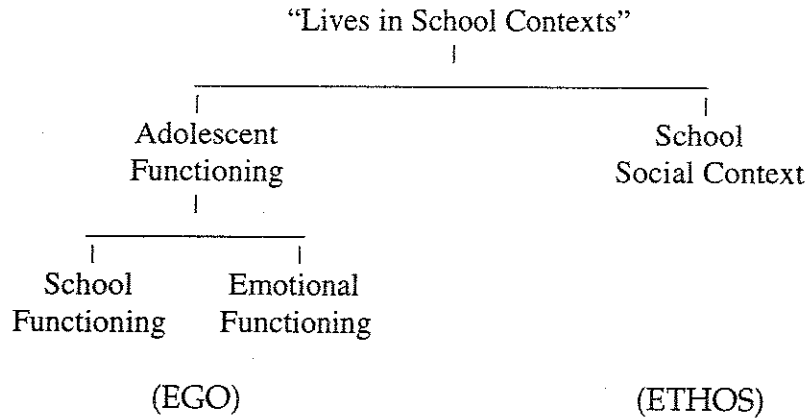
Two Research Questions

Two specific research questions have occupied our attention in this area. These questions are represented in Diagram 2. First, in relation to individual-level processes, we have been interested in how adolescents' school functioning and emotional functioning are related during the middle school years. This is represented on the left side of Diagram 2. In particular, we looked at how adolescents' academic motivational beliefs and feelings of emotional distress relate to their in-school behavior and academic performance. I will present some of our results on this topic in a moment.

The second area we have looked at concerns how adolescents' experiences in middle school are related to the quality of their academic and emotional functioning. Our focus here has been on how specific instructional, interpersonal, and organizational processes in middle school are associated with adolescents' academic beliefs, emotions, and school

behaviors. Selected empirical findings bearing on these relations will be presented in the second part of my talk.

Diagram 2



Two Analytic Methods

Before turning to the substantive findings, I want to mention that we have been employing two types of statistical analyses to investigate these topics. These are briefly described in Diagram 3. First, we have used variable-centered, correlational techniques to explore general relations among indicators of adolescent functioning and the social ethos of school. Second, we have employed person-centered, cluster-analytic techniques to explore different patterns of school and emotional functioning among adolescents, as well as the relation of such patterns to middle school experience (Magnusson & Bergmann, 1988). Today I will present selected findings derived from both types of analyses, those of a more “statistically nomothetic” nature (correlational analyses), and those of a more “statistically idiographic” nature (cluster analyses) (Allport, 1937; Runyan, 1982).

Diagram 3

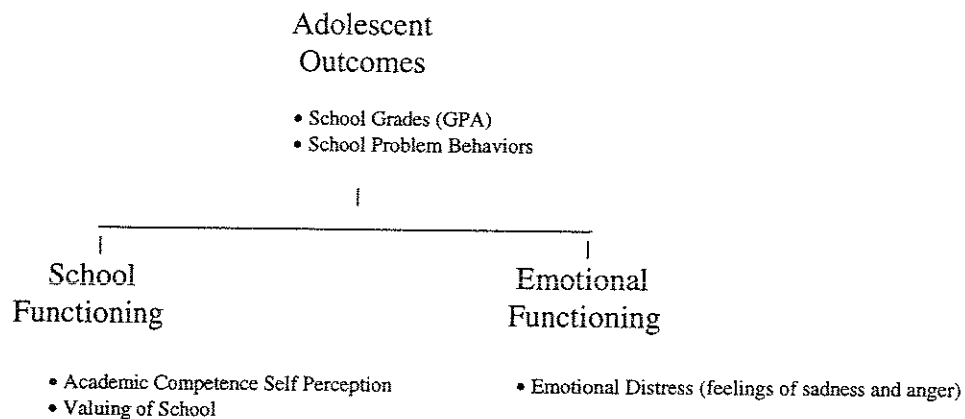
- “Statistically Nomothetic Analyses” (general relations)
 - Variable-centered, correlational analyses

 - “Statistically Idiographic Analyses” (patterns of individual functioning)
 - Person-centered, cluster analyses
-

Adolescents' School and Emotional Functioning

Turning to our first question, I want to present some of the results of our inquiry into how adolescents' school functioning is associated with their emotional functioning. Diagram 4 outlines the specific constructs we used to examine these associations.

Diagram 4



We were interested in understanding how adolescents' academic motivational beliefs (self-perceptions of academic ability, valuing of school) and feelings of emotional distress were associated with the grades they received in school. In addition, we were interested in how these academic beliefs and emotions were related to adolescents' self-reported engagement in in-school problem behaviors such as cheating on school work, skipping class, fighting, or bringing drugs or alcohol to school.

Measures. The academic competence scale taps adolescents' self-perceptions of ability in different school subject matters (e.g., How good are you at math?) and their ability to competently master the academic requirements of school (e.g., How well can you live up to what your teachers expect of you?). The valuing of school scale taps adolescents' perceptions of school as interesting, important, and instrumental in the fulfillment of other life goals (e.g., getting a good job later). The emotional distress indicator assessed adolescents' self-reported feelings of anger, sadness, or hopelessness during the prior two to four weeks. Academic performance was measured by end-of year, teacher-rated grade point average (GPA) in the core academic subjects (e.g., English, Math, Science, Social Studies). School problem behaviors were assessed for each school year via adolescents' self-reports. Individual school problem behaviors were weighted according to their severity and then the full set of items were summed together.

Diagram 5 presents the results of regression analyses predicting academic grades and school problem behavior involvement during seventh and eighth grade.ⁱ These analyses include between 814 to 945 early adolescents for whom we had the most complete data at each grade.ⁱⁱ

I should note here that the standardized regression coefficients that are presented in Diagram 5 (and Tables 1 and 2) are adjusted for particular demographic characteristics of the adolescents and their families, including pre-tax family income, highest educational level of head of household, occupational status of the head of household, and adolescents' race and gender. Coefficients for the demographic characteristics are presented elsewhere and are not discussed here (see Roeser & Eccles, 1998; Roeser, Eccles, & Sameroff, in press).

Seventh Grade Results. In the prediction of seventh grade GPA, adolescents' self-perceptions of academic competence emerged as a significant positive predictor whereas emotional distress had a marginal ($p = .055$) negative predictive relation to later GPA. Recall that demographic characteristics are held constant in these analyses. We also found that emotional distress predicted increased school problem behavior, whereas self-perceptions of academic competence and valuing of school predicted decreased school problem behavior after accounting for adolescents' demographic characteristics.

Table 1: Prediction of School Behavior in Seventh Grade:
Standardized Regression Coefficients

	Academic GPA (N = 945)	School Problem Behavior (N = 903)
Emotional Distress	-.05 ^Ω	.13**
Academic Competence	.35**	-.10**
Academic Value	.01	-.09*
<i>Adjusted R-Square</i>	.38**	.12**

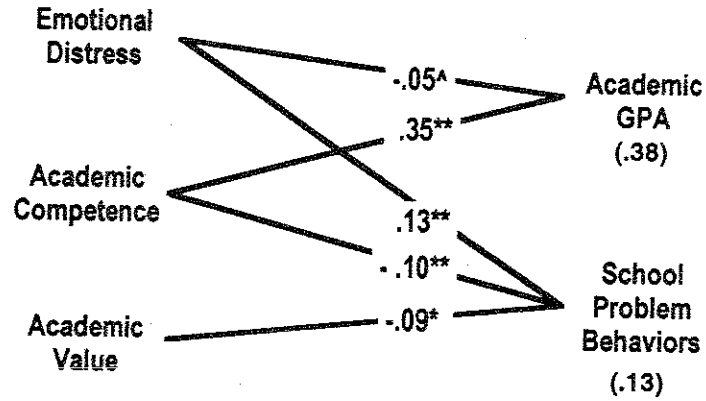
Note: Head of household educational and occupational status, pre-tax family income, adolescent race, and adolescent gender partialled from these coefficients.

^Ω $p = .055$; * $p \leq .05$; ** $p \leq .01$

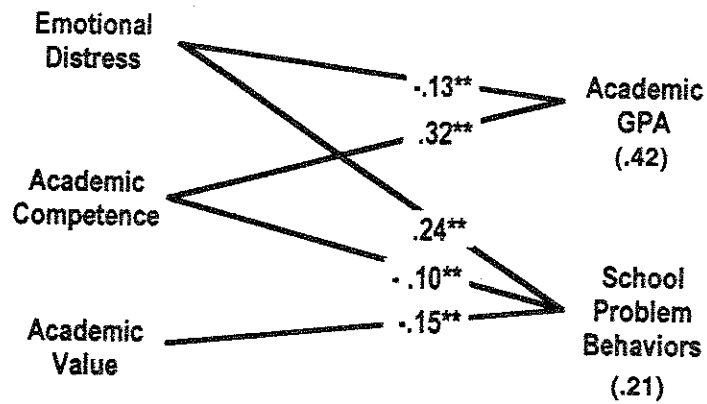
Eighth Grade Results. As you can see at the bottom of Diagram 5, an identical pattern of relations was found during eighth grade, though the statistical associations were slightly larger in magnitude. Note that the eighth grade measures were collected pretty much concurrently at the end of the school year.ⁱⁱⁱ

Figure 5. Prediction of Grades and School Behavior.

Seventh Grade



Eighth Grade



Standardized regression coefficients are presented. Adjusted r-squares presented in parentheses under each outcome measure. Demographic characteristics of the adolescent are controlled in these analyses.

That adolescents' self perceptions of academic competence predicted higher subsequent achievement corroborates other educational research that shows reciprocal relations among academic competence beliefs and performance (Bandura, 1993; Eccles, 1983). The negative relation of emotional distress and academic grades is consistent with other mental health research as well (Blechman, McEnroe, Carella, & Audette, 1986; Nolen-Hoeksema, Girgus, & Seligman, 1986; Tesiny, Lefkowitz, & Gordon, 1980).

That adolescents' valuing of school predicted less involvement in school-related problem behavior is consistent with research on "school bonding" and involvement in problem behavior more generally during adolescence (Eccles, Lord, & Roeser, 1996; Finn, 1989; Hawkins, Doueck, and Lishner, 1988). Adolescents who find school interesting, important, and instrumental for attaining other life goals are less likely to act out both in and out of school.

Finally, perhaps not surprisingly, we documented that negative emotions such as sadness and anger can precipitate poor classroom participation, skipping school, and other behavioral problems that some adolescents manifest in school settings.

Table 2: Prediction of School Behavior in Eighth Grade:
Standardized Regression Coefficients

	Academic GPA (N = 843)	School Problem Behavior (N = 814)
Emotional Distress	-.13**	.24**
Academic Competence	.32**	-.10**
Academic Value	.01	-.15**
<i>Adjusted R-Square</i>	.42**	.21**

Note: Head of household educational and occupational status, pre-tax family income, adolescent race, and adolescent gender partialled from these coefficients.

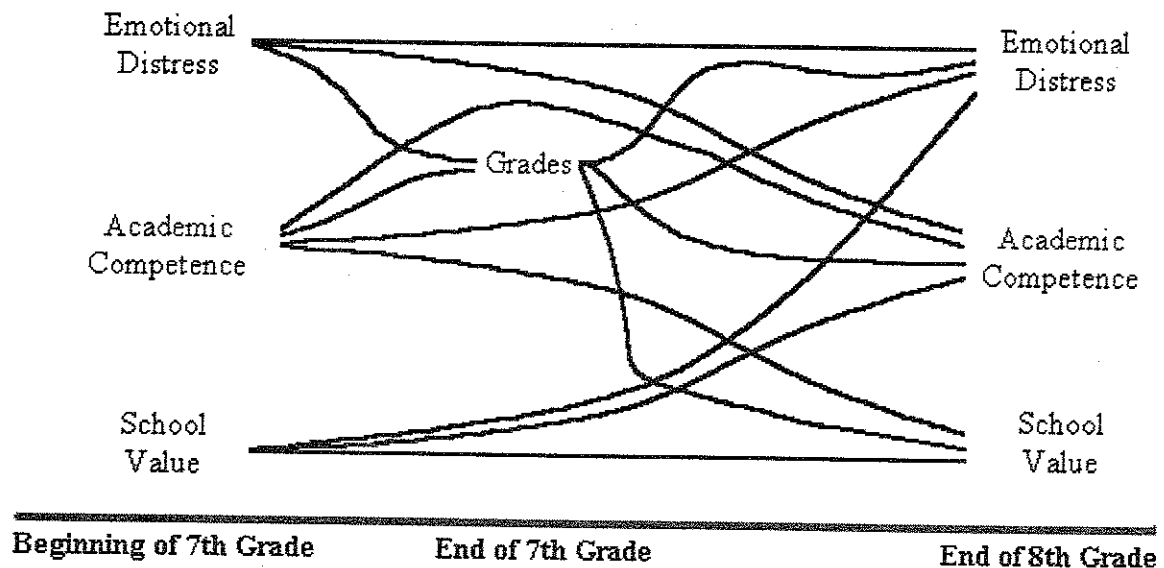
* $p \leq .05$; ** $p \leq .01$

Longitudinal Relations. We next looked at these relations over time. We were interested in the direction of effects among indicators of school and emotional functioning. Could school engagement and performance protect against later emotional distress in early adolescence? Alternatively, is emotional distress a risk factor for subsequent motivational and achievement difficulties in school? To examine these questions, we regressed adolescents' eighth grade reports of academic competence, valuing of school, and emotional distress on the same measures collected during seventh

grade. We also included end of seventh grade GPA in these equations to examine cross-time relations among the psychological and behavioral indicators. Demographic factors were also controlled in these analyses. Results are presented schematically in Diagram 6. The regression coefficients are presented in Table 3.

Results indicated a pattern of reciprocal relations among adolescents' feelings of emotional distress, academic competence perceptions, and school grades over time. Adolescents who reported relatively more frequent feelings of sadness and anger also show diminished subsequent achievement and self-perceptions of academic competence. These findings highlight the impact of mental health on school functioning (e.g., Kovacs, 1989; 1992). We also found that feelings of academic competence, valuing of school, and higher grades were associated with diminished emotional distress over time. These findings highlight the impact of school functioning on mental health (Eccles, Lord, & Roeser, 1996; Erikson, 1959; Roeser & Eccles, in press).

Diagram 6. Significant Relations Represented as Lines



Note: Head of household educational and occupational status, pre-tax family income, adolescent race, and adolescent gender partialled from significant predictive relations (significant relations represented as lines).

Beyond Variable Relations: Patterns of School and Emotional Functioning

Given these general relations, we next turned our attention toward identifying adolescents who showed different patterns of school and emotional functioning (see Roeser, Eccles, & Sameroff, in press). For example, we wondered if we could identify a group of adolescents who were sad or angry but who nonetheless remained engaged in school or a group of adolescents who reported infrequent feelings of distress but who also felt disengaged psychologically from school. Person-centered, cluster analytic techniques were employed toward this end. Adolescents' seventh grade self-reports of academic competence, academic value, and emotional distress were used as the clustering measures.

The four cluster solution that emerged and was retained for analysis is presented in Diagram 7. Note that emotional distress has been reversed and depicted as “Mental Health” in this diagram.

Table 3: Prediction of Seventh Grade GPA and Eighth Grade Academic Beliefs and Distress: Standardized Regression Coefficients

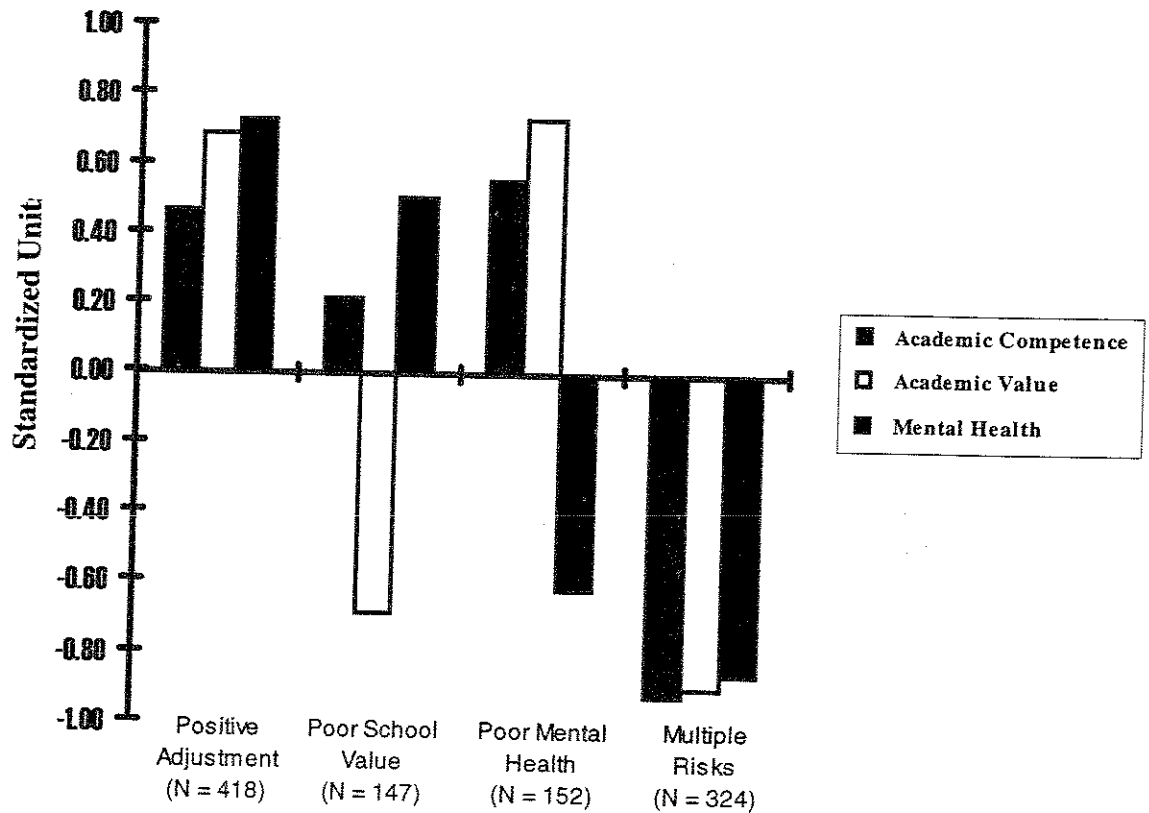
	<u>Outcomes</u>			
	7 th Grade	8 th Grade	8 th Grade	8 th Grade
	GPA (N = 945)	Emotional Distress (N = 945)	Academic Competence (N = 945)	Academic Value (N = 945)
<u>SEVENTH GRADE PREDICTORS</u>				
Emotional Distress	-.05 ^Ω	.34**	-.07*	.00
Academic Competence	.35**	-.10**	.37**	.12**
Academic Value	.01	-.09**	.12**	.36**
Seventh Grade GPA	---	-.19**	.14**	.09*
<i>Adjusted R-Square</i>	.38**	.26**	.30**	.25**

Note: Head of household educational and occupational status, pre-tax family income, adolescent race, and adolescent gender partialled from these coefficients.

^Ω p = .055; * p ≤ .05; ** p ≤ .01

Describing the Clusters. The first pattern of school and emotional functioning that emerged was labeled “Positively Adjusted Youth.” These adolescents showed positive academic motivation and positive mental health (indicated by low emotional distress) and comprised 40% of the sample. The second group of adolescents showed relatively lower valuing of school, but relatively positive perceptions of academic competence and mental health. The third group was just the opposite. Labeled “Poor Mental Health,” these adolescents showed positive school motivation but experienced relatively poorer mental health than the first two groups. Finally, a “Multiple Risks” group emerged that included 31% of the adolescents in our sample. As a group, these adolescents reported feeling the least academically competent, saw the least value in school, and reported the highest levels of emotional distress compared to all the other adolescents.

Diagram 7. Emergent Patterns of School and Emotional Functioning at 7th Grade



School Functioning					F-Values
Seventh Grade GPA	0.21 ^a	0.21 ^a	0.10 ^a	-0.39 ^b	$F(3, 994) = 26.15^{**}$
Percent Failing a Class	13% ^a	20% ^a	20% ^a	39% ^b	$\chi^2(3, 907) = 60.93^{**}$
School Problem Behaviors	-0.19 ^a	-0.09 ^a	0.03 ^a	0.29 ^b	$F(3, 950) = 13.61^{**}$
Emotional Functioning					
Youth Report Self Esteem	0.49 ^a	0.17 ^b	-0.31 ^c	-0.56 ^d	$F(3, 1035) = 91.77^{**}$
Parent Reported Distress	-0.27 ^a	-0.06 ^b	0.02 ^b	0.35 ^c	$F(3, 1031) = 24.39^{**}$

Differences Among Clusters. Next, as a way of “validating” the clusters (Aldenderfer & Blashfield, 1984), we compared the groups on a series of indicators not used to create the clusters. These indicators included academic grades, percentage of students failing or doing very poorly in a class in the last year, school problem behaviors, and two other indicators of emotional functioning: youth-reported self-esteem and parents’ ratings of the child’s mental health. As one can see in Diagram 7, only the Multiple Risks group, those adolescents showing school disengagement and poor mental health, showed diminished school behavioral functioning in terms of grades, failing or doing poorly in a class, and acting out in school. The other three groups were not significantly different on these indicators and showed positive school achievement and behavior.

Turning to the emotional functioning indicators, however, more differentiation among the groups emerged. All of the groups, for instance, differed in terms of self-esteem. Adolescents in the positively adjusted group reported the highest levels of esteem, followed sequentially by the other three groups. In addition, parents of adolescents characterized by low academic value or poor mental health also reported poorer mental health in their children compared to the parents of positively adjusted adolescents. Adolescents characterized by multiple risks were rated by their parents as having the poorest mental health of any of the adolescents.

A second set of analyses compared these groups on adolescents' eighth grade reports of academic competence, academic value, and emotional distress. Results showed stable group differences on all of these variables across this two year period. Thus, patterns of adjustment identified during the beginning of seventh grade still seemed to be meaningful in terms of differentiating adolescents two years later.

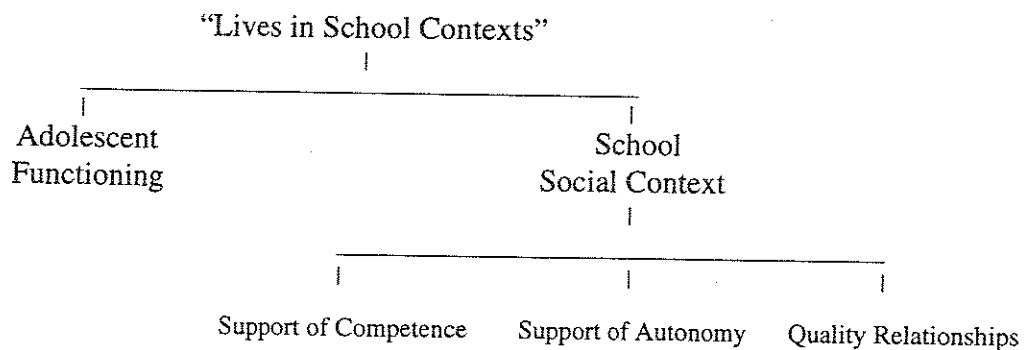
Summary

In summary, the results of our variable-centered analyses suggest the adolescents' academic beliefs and emotional distress are related in important ways to their behavioral functioning in school. Results of the person-centered analyses suggest that these relations are different among different groups of adolescents. Sometimes school engagement goes with positive mental health, sometimes not. Sometimes school disengagement goes with poor grades and emotional distress, and sometimes not. We next turn to our results concerning how the school social context, as perceived by adolescents themselves, related to these individual-level psychological and behavioral outcomes.

School as a Context of Social-Emotional Development

Diagram 8 shows the general conceptual framework we have applied to our study of how the school social ethos relates to adolescents' school and emotional functioning

Diagram 8



We, like others, have conceptualized the middle school context in terms of three specific sets of environmental affordances - affordances associated with adolescents' developmental needs for competence, autonomy, and quality relationships with others (Connell & Wellborn, 1991; Deci & Ryan, 1985; Eccles et al., 1993). We have found it

useful to conceptualize adolescents' experience of schooling in terms of three phenomenological questions arising out of these needs for competence, autonomy, and relatedness. We assume that in school contexts adolescents attend to questions such as: (1) How do students become successful in this school and I am successful here? (associated with the need for competence) (2) What kinds of opportunities for choice and self-expression are there for me in this school? (associated with the need for autonomy); and (3) Do I feel cared for and respected as a person in this school? (associated with the need for social relatedness).

School features that assist adolescents in feeling academically successful, empowered, and cared for should enhance their emotional well-being, motivation to learn, and achievement. School features that make students feel unsuccessful, controlled, or uncared for are hypothesized to lead to diminished emotional well-being, motivation, and achievement (Connell & Wellborn, 1991; Deci, Vallerand, Pelletier, & Ryan, 1991; Eccles & Midgley, 1989). Like others, we use adolescents' perceptions to assess the school social context. This reflects our interest in active, meaning making students whose beliefs and perceptions mediate the influence of the school environment on their academic, emotional, and behavioral functioning (Ryan & Grolnick, 1986).

Table 4. Summary of School Risk and Promotive Factors

School Factors Associated with Negative Outcomes	School Factors Associated with Positive Outcomes
<u>Need for Competence</u>	
Am I successful in this setting?	
Emphasis on Relative Ability	Emphasis on Mastery and Improvement Positive Teacher Regard
<u>Need for Autonomy</u>	
Am I empowered in this setting?	
	Provisions for Student Autonomy Meaningful Curriculum
<u>Need for Social Relatedness</u>	
Am I cared for as a person in this setting?	
Differential Treatment by Race Differential Treatment by Gender	Teacher Emotional Support

In a series of recent papers (Roeser & Eccles, 1998; Roeser, Eccles, & Sameroff, in press), we developed survey measures of these perceived features of the school environment. We then examined how these perceived school features were associated with adolescents' school and emotional functioning over time during the middle school years. A summary of our variable-centered, regression results linking these perceived school features with outcomes is presented in Table 4 (for a more detailed summary of these regression analyses, see Appendix A).

As summarized in Table 4, we found adolescents who perceived (1) their school as emphasizing competition and relative ability as the hallmarks for success and competence; and (2) their teachers and staff as treating students differently based on their race or gender also reported increased emotional distress and diminished academic motivation over time. Students who perceived their school as higher on these features also showed poorer grades at the end of eighth grade. Recall that adolescents' demographic characteristics are controlled in these analyses. Thus, when competence is defined as relative ability, and when students feel that they are treated less well because of their race or gender, the quality of their school and emotional functioning is diminished.

On a more positive note, students who perceived (1) their schools as emphasizing task mastery and self-improvement as the hallmarks of success, (2) their teachers as having positive regard for their academic ability, (3) the curriculum in the core subject areas as meaningful and relevant; and (4) their teachers as being available to assist with emotional problems - these students also showed increased motivation to learn over time. A perceived emphasis on mastery and self-improvement was also associated with higher grades at the end of eighth grade and diminished emotional distress over time. Thus, when competence is defined as task mastery and improvement, when opportunities for autonomy are granted, and when students feel they are expected to do well and cared for by their teachers and counselors, the quality of their school functioning is enhanced.

Summary

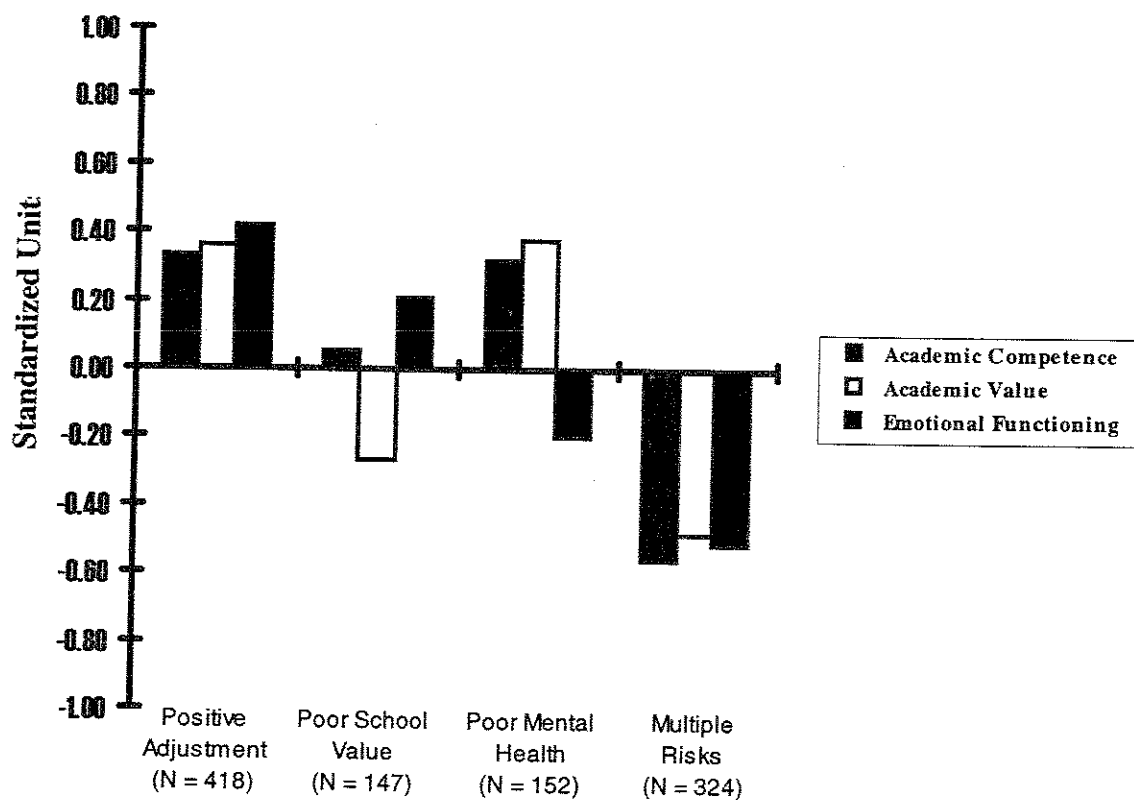
In sum, variable - centered results provided us with a catalogue of school features that were associated with adolescents' school and emotional functioning. By and large, these results were consistent with our hypotheses (see Roeser & Eccles, 1998; Roeser et al., in press; Roeser, Midgley, & Urda, 1996) and findings from other studies of school ecology and adolescent development (see Deci et al., 1991; Eccles & Midgley, 1989; Good & Weinstein, 1986; Maehr & Midgley, 1991; Rutter, 1983). Schools perceived as (1) supporting the development of student competence in a non-comparative, non-competitive way, (2) supporting autonomy and the mastery of meaningful work, and (3) supporting students' needs for caring, respectful relationships with teachers were associated with positive academic, emotional, and behavioral outcomes.

Patterns of Adjustment and Middle School Perceptions

The final set of findings I want to present today concern how perceived school experiences during eighth grade differed among the four groups of adolescents who showed different patterns of academic and emotional functioning. Recall that patterns of adjustment that emerged during seventh grade remained constant over the two years of the study.

Figure 8 presents the clusters at 8th grade as well as statistical differences among these clusters on the school perception variables collected during eighth grade. Three findings are worth highlighting here.

Diagram 8. Patterns of Adjustment at 8th Grade and Perceptions of School



School Perceptions	F-Values				
Positive Teacher Regard	4.09 ^a	3.85 ^b	3.96 ^{ab}	3.50 ^c	F(3, 1031) = 24.81**
Emphasis on Relative Ability	2.36 ^c	2.63 ^{ba}	2.53 ^{bc}	2.80 ^a	F(3, 1025) = 17.37**
Emphasis on Mastery / Improve	3.82 ^a	3.53 ^b	3.81 ^a	3.54 ^b	F(3, 1024) = 12.44**
Meaningful Curricula	3.26 ^a	2.96 ^b	3.29 ^a	2.95 ^b	F(3, 1026) = 16.30**
Class Autonomy Provisions	3.40 ^a	3.23 ^b	3.44 ^a	3.20 ^b	F(3, 1027) = 6.86**
Teacher Emotional Support	2.96 ^a	2.44 ^b	2.98 ^a	2.58 ^b	F(3, 901) = 10.71**
Differential Treatment by Race	1.41 ^c	1.44 ^{bc}	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**

Student Newman-Keuls comparisons were used to test group differences. Different superscripts for a particular variable across clusters indicates a significant mean difference at the $p \leq .05$ level.

First, perhaps not surprisingly, adolescents characterized by “multiple risks” (e.g., poor motivation to learn, high relative emotional distress, poor grades) also reported the most consistently negative, developmentally inappropriate school environment of any of the adolescents. For instance, these youth reported the most competition and differential treatment by race, gender, and ability in their schools. In addition, compared to adolescents in the other groups, these youth felt teachers had the lowest expectations for them academically (low teacher regard), saw their academic work as the least meaningful, reported the fewest opportunities for autonomy in the classroom, and felt the least amount of emotional support from teachers. In essence, these alienated youth reported the most alienating school social ethos of any of the adolescents in our sample. It may be the case that the negative psychological state of these youth colored their perceptions of school. We believe, however, these results have substantive meaning. Other work indicates that low achieving youth (many of whom are placed in low ability classes) often in fact experience a school environment that is characterized by poor opportunities to learn, low expectations, unimaginative curricula, and teacher control (Fine, 1991; Kagan, 1990; Oakes, Gamoran, & Page, 1992). We also found that these youth reported the most differential treatment by ability in their middle school. It is precisely these student whom we would expect to be most sensitive to competition, relative comparisons, and low teacher expectations in school (Maehr & Midgley, 1991). Although alienated youth can influence their teachers who may respond with more controlling, less imaginative instructional practices (Oakes, Gamoran, & Page, 1992; Skinner & Belmont, 1993), it seems plausible to suggest the types of school experiences reported by these youth also potentiated their motivational, emotional, and behavioral difficulties.

It is interesting to note that two school features differentiated adolescents who showed relatively high levels of emotional distress but also continued school engagement (e.g., poor emotional functioning group). These adolescents reported some of the most frequent negative treatment by teachers or other school staff that was perceived to be predicated upon their race or gender. Interestingly enough, it was also African-American males and White females that were over-represented in this group. Do these two groups feel singled out in some way in schools? Could such (perceived) negative treatment contribute to the high levels of distress among this group of adolescents? Could such perceived negative treatment by teachers and school counselors be particularly emotionally debilitating to these students given their level of commitment to school? Again, we are only beginning to explore the impact of differential treatment by race and gender on adolescent functioning (e.g., Fine, 1991; Sadker & Sadker, 1992), but our results suggest that such experiences are emotionally impactful among all adolescents, and seem particularly important among youth who show this rather interesting pattern of school and emotional functioning.

Finally, adolescents characterized by Poor School Value reported meaningless curricula, few opportunities for autonomy, and low teacher emotional support. These factors have been linked to low valuing of school in other studies (Deci & Ryan, 1985; Goodenow, 1992; Hawkins et al., 1988) and may have served to undermine these adolescents attachment to school. It is interesting to note here that poor valuing of school does not always indicate broad-band adjustment difficulties in terms of mental health and grades.

These adolescents may just be bored with or uninspired in school rather than alienated more generally from school, self, and society.

Summary

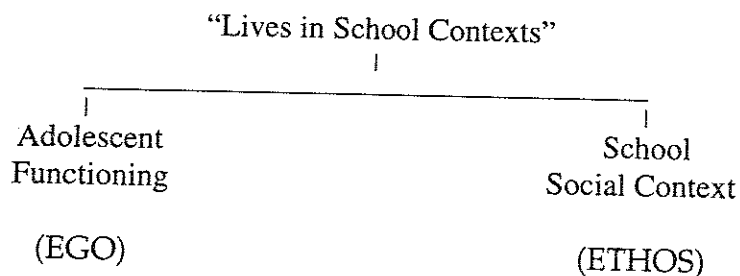
In summary, results of the person-centered analyses provide a more differentiated picture of how certain school processes are linked to certain motivational and emotional patterns of adjustment. The Multiple Risks youth perceived a school environment antithetical to their needs for competence, autonomy, and relatedness simultaneously. The Poor Mental Health youth reported poor support for relatedness needs, but perceived a supportive school environment in terms of the support of competence and the support of autonomy. The Poor School Value youth reported primarily low support for autonomy in the form of meaningless work and a lack of choice in the classroom. Such findings, ones that focus on how particular patterns of adjustment relate to particular instructional, interpersonal, and organizational aspects of the middle school environment can aid in the targeting of specific reform and health promotion efforts.

Conclusion: Adolescent Development and Schooling

In conclusion, I want to highlight several key points in the study of adolescent development and schooling that have arise from our own studies. First and foremost, as depicted in Diagram 9, we believe it is critical to focus on both aspects of ego functioning as well as the social ethos of schooling if we are to fully understanding trajectories associated with academic attainments and emotional / behavioral functioning during the adolescent years. We have paid more attention to the impact of families, peers, and neighborhoods in such trajectories, and schools must be included in the mosaic of social influences on academic and emotional development during adolescence.

Second, in our focus on individual-level functioning, we documented that both specific academic motivational beliefs as well as more general emotional functioning predicted adolescents' academic grades and engagement in school problem behaviors. These findings emphasize the need to expand the set of outcomes traditionally examined in relation to schooling, and also the need to examine both motivational and emotional processes as important precursors of school behavior and achievement (Good and Weinstein, 1986).

Diagram 9



Understanding the specific intra-psycho processes (e.g., attributional processes, memory processes, attentional processes, etc.) that link adolescents school functioning with their mental health is a challenge to both educational and mental health researchers - a challenge with important theoretical and practical implications (see Roeser, Eccles, & Strobel, in press).

Third, we found that different adolescents show different patterns of school motivation and mental health. Sometimes school motivation and mental health go together, and sometimes not. These findings highlight the importance of integrating empirical findings from variable-centered and person-centered analyses. For instance, our results suggest that emotional distress is only related to poor grades in a subset of troubled youth. By focusing on both general trends and specific patterns of adjustment, better decisions about general school reforms that affect all students and specific programs that target particular groups of at-risk youth can be made.

Finally, we found that aspects of the middle school environment, conceptualized as affordances associated with adolescents' needs for competence, autonomy, and relatedness uniquely predicted aspects of academic motivation, emotional functioning, and school behavior after accounting for the demographic characteristics of the child. Furthermore, we found that particular school features, as perceived by adolescents, were associated with particular patterns of school motivation and mental health. The experienced environment of middle school seems to have implications for how adolescents feel about learning in particular and themselves more generally. In the future, more attention to conceptualizations of school environments, as well as the impact of such environments on diverse aspects of adolescent development is needed. Such attention will ultimately enhance our understanding of how the schools in particular and the social environments more generally that adolescents inhabit shape the course of their life paths.

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Appendix A

Results for Specific School Context Indicators and Outcomes

Table 1a. Summary of Competence Affordances in School

How do students become successful in this school?
Am I successful in this school?

	Δ Emotional Distress	Δ Academic Competence	Δ Academic Value	GPA
Emphasis on Relative Ability	+	-	-	-
Emphasis on Mastery and Improvement	-	+	+	+
Teacher Positive Regard	-	+	+	+

Note: Plus (+) and minus (-) signs denote significant, multivariate relations between a particular school context perception and developmental outcome. These associations are significant after accounting for demographics such as: Head of household educational and occupational status, pre-tax family income, adolescent race, and adolescent gender. Prior measures of emotional distress, academic competence self-perception, and academic values are also controlled for in the equations predicting these outcomes.

Table 1b. Summary of Autonomy Affordances in School

Am I empowered in this setting?

	Δ Emotional Distress	Δ Academic Competence	Δ Academic Value	GPA
Meaningful Curricula	ns	+	+	ns
Classroom Autonomy Provisions	ns	ns	ns	ns

Note: Plus (+) and minus (-) signs denote significant, multivariate relations between a particular school context perception and developmental outcome. These associations are significant after accounting for demographics such as: Head of household educational and occupational status, pre-tax family income, adolescent race, and adolescent gender. Prior measures of emotional distress, academic competence self-perception, and academic values are also controlled for in the equations predicting these outcomes.

Table 4c. Summary of Relatedness Affordances in School

Am I cared for and respected in this setting?

	Δ Emotional Distress	Δ Academic Competence	Δ Academic Value	GPA
Teacher Emotional Support	ns	ns	+	ns
Negative Treatment by Race	+	ns	-	-
Negative Treatment by Sex	+	ns	-	ns

Note: Plus (+) and minus (-) signs denote significant, multivariate relations between a particular school context perception and developmental outcome. These associations are significant after accounting for demographics such as: Head of household educational and occupational status, pre-tax family income, adolescent race, and adolescent gender. Prior measures of emotional distress, academic competence self-perception, and academic values are also controlled for in the equations predicting these outcomes.

Endnotes

ⁱ Seventh grade GPA was collected about six months after the psychological and problem behavior indicators at seventh grade. The eighth grade constructs were all assessed at the same time near the end of eighth grade.

ⁱⁱ Sixty-six percent of the continuous sample is African-American, the other third is Caucasian. See Roeser & Eccles (1998) for sample details.

ⁱⁱⁱ These results are replicated when we substitute parents' ratings of their child's emotional distress for the adolescent self-report measures of emotional distress.