The Relation of Connection, Regulation, and Support for Autonomy to Adolescents' Functioning

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How is adolescent functioning related to experiences of connection, regulation, and support for autonomy at home, in school, and with peers? Using data from the Maryland Adolescent Growth in Context (MAGIC) study (an ongoing longitudinal study of 1,387 African American and European American adolescents and their families), it was found that: (a) family demographic characteristics helped predict only academic performance; (b) although positive experiences on one indicator predicted positive experiences on the other two, each of the three types of experience explained a unique amount of variance in adolescent functioning (e.g., regulation related most strongly to externalizing behaviors; in contrast, support for autonomy related to all aspects of functioning); (c) although adolescents with positive interactions in one context were likely to have positive interactions in the other contexts, characteristics of each context explained unique amounts of variance in functioning (e.g., experiences with siblings emerged as uniquely important predictors of mental health).

In the introductory overview for this collection of articles, Barber outlined and justified the importance of three dimensions of family contexts for healthy development: connection, regulation, and autonomy. In this article, the hypothesis that these same characteristics also are critical in other developmental contexts was explored.

Why should these characteristics be important across differing contexts? Many scholars have argued that there are fundamental human needs and that healthy psychological development is maximized in contexts in which these needs are met. For example, White (1959) argued that all higher order mammals have a need to master their environment. In humans, it has been argued that this need is manifest in the importance of competence, feelings of personal efficacy, and feelings of autonomous control over one's life (e.g., Bandura, 1994; Deci & Ryan, 1985; Erikson, 1963). Connell (1990) and Deci and Ryan (1985) have argued for three fundamental needs: competence, autonomy, and relatedness (see also Skinner, 1995). The three dimensions of family context map directly onto these needs. Families that provide both regulation and opportunities for psychological autonomy provide a structure in which a growing child can acquire actual competencies, a sense of personal efficacy for acquiring new competencies, and a sense of control and personal autonomy. Families that promote healthy connectedness ensure the development of relatedness, as well as providing an emotional climate in which children will feel comfortable exploring their world to acquire necessary competencies.

However, children live in multiple contexts, and there is no reason to think that those same characteristics are not equally important in contexts outside the family. For example, even though researchers in the field of educational psychology do not label their constructs with terms like connection, autonomy, and regulation, there is ample evidence that children evidence better intellectual growth and social development in schools and classrooms that are predictable and well-regulated, that provide the opportunity for autonomous behavior and decision making, and that provide sufficient emotional support to create a strong sense of connectedness (Connell & Wellborn, 1991; Deci & Ryan, 1985; Eccles, Midgley, et al., 1993; Eccles, Wigfield & Schiefele, in press).

Unfortunately, few studies have looked simultaneously in different contexts at the association of those characteristics to various indicators of healthy development. Consequently, how important each of those characteristics is for different indicators of healthy development, either within various nonparental contexts or across contexts, is not known. Because various developmental contexts, such as school, the peer group, the family, and sibling relationships, usually are studied by researchers interested in different aspects of development, there is little systematic, comparative information about these contexts and their relative contributions to successful development. For example, schools usually have been studied as a context for the acquisition of intellectual competencies. Peers have been studied as a context for social development. Rarely has anyone tried to look at more than one of those

contexts simultaneously to see if they are related differentially to various aspects of development.

However, the need to look at multiple contexts simultaneously is becoming clear. Children grow up in multiple contexts: They live in families with parents and siblings; they attend schools; they have friends and must function in a variety of peer groups; and their lives are played out in specific neighborhoods, communities, and cultures. Some of the most interesting questions that social developmentalists need to address now relate to the conjoint influences of those multiple contexts. Although there are a few notable examples of that type of work (e.g., the work on shifting peer and family influences during the transition into and through adolescence [Brown, 1990] and the recent work on family and school connections [Eccles et al., in press]), developmental psychology is just at the beginning of this theoretical and empirical journey.

Barber has provided a useful theoretical framework in which to explore the developmental issues associated with those conjoint influences during adolescence. More specifically, many scholars interested in adolescent development have stressed the changing importance of family, peers, and school. For example, the tension between peer and family influences during adolescence has received considerable recent attention (e.g., Brown, 1990; Fuligni & Eccles, 1993). Although much of that work has framed the question in terms of the negative influence of peers, Fuligni and Eccles (1993) focused on how variations in characteristics linked to support for autonomy, regulation, and connection within those two contexts might explain changes in adolescents' relative attachment to, and preference for, their peer group as compared to their family. Similarly, Eccles, Midgley, et al. (1993) have discussed how changes in the fit between adolescents' needs and the opportunities provided in various contexts to meet those needs could help explain adolescents' changing attachment to various contexts over time. For example, they have argued that adolescents will reduce their psychological investments in those contexts, such as schools, that do not provide them with increasing opportunities for autonomous decision making (see also Steinberg, 1990).

The theoretical models proposed by Connell (1990) and by Deci and Ryan (1985) provide a useful framework for thinking about these same issues. As noted previously, they have hypothesized that individuals have a need for competence, autonomy, and relatedness. They also hypothesized that the extent to which those needs are met in any specific context, such as the family or the school, will determine the individual's engagement in, or disaffection from, that context. Integrating that perspective with the Eccles, Midgley, et al. (1993) notion of stage/environment fit leads to the hypothesis that age-related changes in the individual's engagement with various contexts (such as the

declining interest in school discussed by Eccles, Midgley, et al., 1993) might reflect age-related changes in the extent to which these various contexts provide the kinds of experiences needed to fulfill adolescents' changing needs for competence, autonomy, and relatedness.

Testing that hypothesis requires good measures of the extent to which various contexts provide connection, regulation, and autonomy and the extent to which those contextual characteristics change in developmentally appropriate ways over the relevant years in the individual's life course. In this article, data from the first wave of a longitudinal study designed to meet that empirical need are presented. The analyses of these data provide an initial step in addressing these issues: First, they provide basic information on the synchronous independent relation of connection, regulation, and autonomy across the multiple context of adolescent development to four primary indicators of adolescent functioning: school achievement (grade point average [GPA]), school alienation, depressive affect, and involvement in problem behavior. Second, they assess whether different contexts are more or less central to differing aspects of social development. For example, schools, by their very nature, may be more central to intellectual development than they are to socioemotional development, particularly during the secondary school years. In contrast, characteristics of the family context may be more central to socioemotional development than to academic competence. If that is true, then the characteristics of each context may be associated differentially with various aspects of successful adolescent development. This hypothesis is tested by comparing the patterns of associations of connection, regulation, and autonomy to academic competence and engagement, mental health, and involvement in problem behaviors in the following four contexts: parent/ child, sibling relationships, peer groups, and schools. In the future, longitudinal analyses will be used to assess whether changing contextual characteristics are related to changes in adolescents' preferences for, and attachment to, one context (e.g., peers) over other contexts (e.g., families or schools).

METHOD

Participants

As part of an ongoing longitudinal study of adolescents, their families, and their schools (the Maryland Adolescent Growth in Context—MAGIC), the data reported herein were collected from 1,387[1] families in fall and winter of 1991 and 1992. At that time, each family had a seventh grader attending a public seventh- and eighth-grade junior high school (mean age = 12.78, SD

= 1.42). Forty-nine percent of the target youth were females. Sixty-seven percent of the adolescents identified themselves as Black or African American; 33% as White or European-American (a ratio that reflects the distribution of these two ethnic groups in the school district as a whole). Eighty-six percent of the primary caregivers were mothers; 7% were fathers. Ninety-two percent of the primary caregivers were female. The sample included families living in the urban, suburban, and rural neighborhoods of one large county on the eastern seaboard of the United States.

Families were recruited into the sample through their schools. After receiving a brief description of the study, families who were interested in learning more about the study were asked to return a form giving the study staff permission to contact them. A total of 1,961 families agreed to be contacted. The final sample reflected the 76% who agreed to participate after being contacted. Most of the remaining 24% declined due to time constraints, scheduling conflicts, or lack of interest.

Procedure

In each family, the seventh grader and his or her primary caregiver were interviewed in their home by one of 62 trained staff members (60% African American, 39% European American; 87% female). Data were collected from both the target child and the primary caregiver, using both a face-to-face interview (about 1 hour) and a self-administered questionnaire (about 30 minutes). These questionnaires included a broad range of items about family dynamics, family and peer relationships, resources, and stressors, as well as a broad array of indicators of adolescent development. The primary caregiver and the target child each was paid $20.

Measures of Demographic Control Variables

Family socioeconomic status. Family socioeconomic status (SES) was estimated using a system similar to that proposed by Nam and Powers (1983). This approach involves taking the mean of three continuously measured standardized variables: total income, occupational status, and educational attainment. Income was measured by asking the parent, "From all sources of income you mentioned, tell me your total family income before taxes in 1990" (1 = *less than $5,000*; 16 = *more than $75,000*). The mean income was 10.03 (10 = *between 45,000-$49,999*), with a standard deviation of 4.23; African American families had slightly lower mean incomes (about $5,000 less) than the European American families. In dual-earner households, the highest

occupational status and educational attainment was used. Mean educational attainment for primary caregivers was 13.85 years, with a standard deviation of 2.45. The mean educational attainment for the secondary caregivers (primarily fathers) was 14.11 years, with a standard deviation of 2.82. Occupational status was coded using Nam and Powers (1983) occupational status scoring system (interrater reliability was 90% or better), ranging from 0 through 99, with higher values indicating higher prestige. Mean occupational status was 64.67 for the primary caregivers, with a standard deviation of 22.23. The mean occupational status for the secondary caregivers was 67.61 with a standard deviation of 21.97.

Marital status. As marital status has been linked to child outcomes in many past studies (see Barber & Eccles, 1992; Hetherington, Cox, & Cox, 1982; McLanahan & Sandefur, 1994), it was controlled for in all multivariate analyses using a set of contrast codes to reflect five different family types: biologically intact families, stepfamilies, live-in families, separated/divorced families, and never-married families.

Measures of Predictor Variables

Table 1 presents sample items and relevant descriptive information for each predictor variable. Unless indicated otherwise, explanatory and confirmatory factor analyses, guided by theoretical consideration, were used to create the measures. For the family context, both parent/child indicators and sibling relationship indicators were created. For the parent/child indicators, three indicators of regulation were created: a measure of within-family regulation comparable to most other researchers' conceptualization of family regulation and two measures of out-of-family regulation behaviors more closely linked to the conceptualization of family management being developed by the MacArthur Research Network on Successful Adolescent Development (see Eccles, Furstenberg, McCarthy, Lord, & Geitze, 1993; Elder, Eccles, Ardelt, & Lord, 1995; Furstenberg, 1993). For the parent/child context, one measure for connection and another for support for psychological autonomy also were created, both of which were based on the Barber conceptualization of these constructs (see Barber, 1997 [this issue]).[2]

The closest possible analogous indicators for each of the other three contexts then were created. For the sibling relationship, the connection indicator reflected perceived psychological closeness to the older sibling; the regulation indicator reflected the caretaking and helping role of the older sibling; and the autonomy indicator reflected the extent to which the older

TABLE 1:   Sample Items and Descriptive Statistics for Predictor Constructs

	N	Mean	SD	α
Family: parent/child context:				
Family connection Mean of seven standardized youth items: How close do you feel to your parent? 1 = *not very close* through *5 = extremely close*; How much do you respect your parent? 1 = *not at all* through *5 = a lot*; How often do your parents notice when you do things well? 1 = *almost never* through *5 = almost always*.	1,470	.00	.65	.77
Within-family regulation Mean of 15 youth items: If your parents are not at home, do you leave them a note or call them to let them know where you are going? How often do your parents know who you are with when you are not at home? 1 = *almost never* through 5 = *almost always*.	1,466	3.97	.60	.78
Out-of-family regulation Mean of seven parent items: How often have you signed child up for classes or programs to help him/her get better at the skill? How often have you made sure child practiced the skill at home? 1 = *never* through 5 = *very often*.	1,419	3.85	.78	.76
Religion as family regulation Single youth item: Thinking about last year, how often did you spend time on religious activities? 1 = *less than once a month* through 6 = *usually every day*.	1,461	2.20	1.59	N.A.
Family facilitation of autonomy Mean of six youth items: How often does your parent tell you what to do and how to act? How often does your parent try to protect you too much?; How often does your parent have too many rules for you? 1 = *almost always* through 5 = *almost never*.	1,473	3.41	.89	.75
Family: sibling relationship context				
Older sibling connection Mean of four youth items: How close do you feel to older sibling? How much do you like your older sibling? How much would you like to be the kind of person older sibling is? 1 = *not at all* through 5 = *extremely/a lot*.	462	2.78	.69	.80

(continued)

TABLE 1:   Continued

	N	Mean	SD	α
Family: sibling relationship context				
Older sibling regulation Mean of four standardized youth items: How often do you and your older sibling do things together? How often does your older sibling help you with your schoolwork? How often does your older sibling take care of you? 1 = almost never through 6 = almost every day.	463	.00	.77	.79
Older sibling facilitation of autonomy Mean of three youth items: During the last month, how often did your older sibling criticize you or your ideas? During the last month, how often did your older sibling shout or yell at you because s/he was mad at you? 1 = almost every day through 6 = almost never.	450	3.80	1.32	.84
School context				
School connection Mean of three youth items: You look forward to going to school every day; In general, you like school a lot. 1 = strongly disagree through 5 = strongly agree.	1,471	3.52	.80	.74
School regulation Mean of eight youth items: At the school I go to now, all the kids are expected to do well in their work; at the school I go to now, the academic program is very good; at the school I go to now, there is good discipline. 1 = strongly disagree through 5 = strongly agree.	1,463	3.52	.60	.74
School's facilitation of autonomy Mean of seven youth items: How many of the teachers you know are willing to listen to suggestions made by students? 1 = none through 5 = all of them; How often are students encouraged to do projects of their own choosing? How often are students involved in making decisions that affect them? 1 = never through 5 = very often.	1,342	3.17	.78	.78
Peer-group context				
Peer connection Single youth item: How many of the friends you spend most of your time with make you feel good about yourself? 1 = none of them through 5 = all of them.	1,470	3.89	1.08	N.A.

TABLE 1:   Continued

	N	Mean	SD	α
Peer-group context				
Peer regulation: peers' behaviors	1,443	1.96	.44	.75
Mean of 12 youth items: How many of the friends you spend most of your time with do well in school? 1 = *none of them* through 5 = *all of them*; How many of the friends you spend most of your time with are in youth or street gangs? How many of the friends you spend most of your time with skip school without an excuse? 1 = *all of them* through 5 = *none of them*.				
Peer regulation: peer pressure/peer values	1,458	1.65	.49	.73
Mean of nine youth items: What would your friends think if you drank beer, wine, or liquor? 1 = *very uncool* through 5 = *very cool*; How many of the friends you spend time with put pressure on you to drink? How many of the friends you spend time with put pressure on you to have sex? 1 = *none of them* through 5 = *all of them*.				

sibling criticized respondents and their ideas and shouted or yelled at them. For the school context, the connection construct reflected the adolescents' emotional attachment to their school; the regulation construct reflected the adolescents' perception that their school was well run and caring and had high academic standards; and the autonomy construct reflected the adolescents' perception that teachers in their school respected them and listened to them. For the peer context, the connection construct reflected the adolescents' emotional connection to their friends. Two indicators of peer regulation were created: one reflecting peers as models of positive behavior patterns and the other reflecting the perceived pressure that peers exert to engage in problem behaviors (the latter variable reversed coded with a high score reflecting low pressure). There were no items that tapped support for psychological autonomy in the peer group directly; however, the second of the two peer-regulation behaviors was somewhat similar to the concept of support for autonomy.

Adolescent Outcomes

Four indicators of adolescent development—academic alienation, GPA, depressive affect, and problem behavior—were used. See Table 2 for sample items and descriptive statistics.[3]

TABLE 2:   Sample Items and Descriptive Statistics for Adolescent Outcomes

	N	*Mean*	SD	α
Academic alienation	1,373	2.07	.81	> .72
Four-category variable based on				
adolescents' scores on a composite				for all
scale created from measures of:				component
enjoyment of school, engagement				scales
in school, subjective importance				
of academics, and school-based				
behavior problems.				
GPA	1,397	3.62	.90	N.A.
Overall seventh-grade GPA, constructed				
from adolescents' quarterly grades				
in English, history, math, and science.				
Depressive affect	1,470	1.86	.71	.82
Mean of six items: During the last month,				
how often have you felt hopeless? During				
the last month, how often have you felt				
lonely? During the last month, how often				
have you felt very sad? 1 = *almost never*				
through 5 = *almost always*.				
Behavior problems	1,300	3.51	2.32	.76
Count of 11 youth items: In the last year,				
how often have you taken something from a				
store without paying for it? In the last year,				
how often have you damaged public or private				
property just for fun? In the last year, how				
often have you brought alcohol or drugs to				
school? 0 = *never* through 1 = *once or more*.				

NOTE: GPA=grade point average.

RESULTS

Correlational analyses. The zero-order correlation matrix of all central predictor variables and developmental indicators is presented in Table 3 separately for girls and boys. As one can see, there was moderate positive correlation between the three socialization constructs within most contexts and the comparable constructs across contexts. Apparently, boys and girls who had positive social experiences in one context were likely to be having positive social experiences in their other social contexts. However, these associations were not so high as to be redundant; in fact, the percentage of shared variance across contexts was rarely greater than 9%, and typically was closer to 2% to 4%, indicating substantial room for both compensating and conflicting patterns of social experience across these four contexts. In addi-

tion, the congruence of the quality of experience across contexts was lowest between the individual's sibling relationship and peer network, particularly for girls.

Multivariate analyses. Multiple regression was used to assess the relation of connection, regulation, and support for psychological autonomy to the various indicators of adolescent development. Given an interest in gender, all regressions were run separately for boys and for girls, and these independent analyses were conceptualized largely as replications.[4] For each indicator, the analyses first were run within each context; these results appear in the top half of each table. The across-context analyses then were run to determine the independent predictive power of the three socialization-climate variables across the four contexts. These results appear in the bottom half of each table and are summarized later. These across-context analyses also were run separately for the entire sample and then for those participants with older siblings. Because only a portion of the sample had older siblings living at home, the sample size for the second set of analyses was substantially smaller than the full sample. The coefficients for the family, school, and peer contexts in the across-context section of each table were taken from the analyses involving the entire sample. The coefficients for the sibling context come from the analyses involving only those adolescents with older siblings. Because there were no substantial or consistent differences in the coefficients for family, school, and peer context constructs across these two populations, to simplify the summary of the findings, the coefficients for the sibling sample were not presented. However, the R^2 terms for both sets of across-contexts multiple regression equations are presented. To further simplify the presentation of the findings, summaries focus on the across-context analyses reflecting a primary interest in the independent relation of the characteristics of these four contexts with the various indicators of adolescent development.

Demographics. Family SES, adolescents' ethnic group, and parents' marital status were included as exogenous control variables in all analyses. Only the family SES construct emerged as a significant predictor and then only for GPA.

GPA. The results for GPA are summarized on Table 4. First, contrary to the results for the other three outcomes, family demographic variables had a substantial relation with this outcome—a much larger relation, by a wide margin, than any of the context climate predictors. Second, although school connection had a positive relation to GPA in the within-context analyses, this relation was significant only for girls in the across-context analyses. Third,

TABLE 3: Zero-Order Correlations Among All Variables

	1	2	3	4	5	6	7
1 Family connection	—	.48***	.13***	.27***	.22***	.20***	.21***
2 Family regulation	.45***	—	.10**	.24***	.22***	.09*	.09*
3 Family autonomy	.22***	.07	—	.08*	.10**	−.00	.13***
4 School connection	.29***	.27***	.06	—	.42***	.18***	.11**
5 School regulation	.29***	.26***	.16***	.36***	—	.24***	.10**
6 School autonomy	.24***	.18***	.13***	.18***	.29***	—	.11**
7 Peer connection	.21***	.15***	.02	.12**	.20***	.11**	—
8 Peer regulation: peers' behavior	−.28***	−.31***	−.17***	−.29***	−.37***	−.20***	−.41***
9 Peer regulation: peer values	−.17***	−.20***	−.19***	−.19***	−.21***	−.11***	−.32***
10 Sibling connection	.38***	.16*	.10	.28***	.23***	.11	.18**
11 Sibling regulation	.31***	.18**	.02	.27***	.26***	.19**	.12
12 Sibling autonomy	.11	−.00	.21**	.15*	.13	.04	.07
13 Academic alienation	−.33***	−.34	−.16***	−.70***	−.33***	−.23***	−.12***
14 GPA	.08*	.11**	.29***	.07	.10**	.05	.02
15 Depression	−.29***	−.13***	−.34***	−.16***	−.19***	−.11**	−.12***
16 Behavior problems	−.28***	−.31***	−.31***	−.19***	−.20***	−.16***	−.14***

support for autonomy within the family context was a significant predictor in the expected direction both for boys and for girls in both within- and across-context analyses. Fourth, experiences in the peer context were unrelated to GPA, but experiences in the sibling relationship were important predictors for males. Surprisingly, close connections with an older sibling were related to lower GPA among the boys. In contrast, positive behavioral regulation by an older sibling was related, as expected, to higher GPA. Finally, the amount of variance explained by the combination of all predictors was significantly greater than the amount of variance explained by any of the single predictors alone or in combination with family demographics. Thus, although a substantial amount of variance in GPA was accounted for by family SES, positive supportive experiences in these social contexts, particularly in the family, added 2% to 5% to the amount of variance explained.

Academic alienation. The results for academic alienation are summarized on Table 5. First, given the overlap between the items used to indicate academic alienation and the items used as the measure of school connection, school connection was not included in these analyses. Second, it is important to note that the demographic control variables had no significant relation to this indicator. Third, although peer behavioral regulation was related in the

8	9	10	11	12	13	14	15	16
−.25***	−.15***	.44***	.47***	.06	−.32***	.10**	−.16***	−.13***
−.26***	−.16***	.33***	.39***	.10	−.31***	.10**	−.18***	−.25***
−.14***	−.13***	.15***	.00	.11	−.17***	.25***	−.30***	−.20***
−.22***	−.15***	.15*	.18**	.07	−.71***	.06	−.14***	−.13***
−.21***	−.17***	.18**	.19**	.16*	−.36***	.10**	−.18***	−.10**
−.20***	−.16***	.19**	.26**	.05	−.19***	.04	−.03	−.10*
−.42***	−.34***	.21***	.24***	−.02	−.13***	.08*	−.08*	−.04
—	.54***	−.20**	−.25***	−.15*	.26***	−.08*	.11**	.25***
.55***	—	−.22***	−.24***	−.09	.20***	−.03	.09**	.19***
−.17**	−.13	—	.65***	.19**	−.27***	−.03	−.24***	−.02
−.17**	−.09	.63***	—	.10	−.24***	.07	−.09	.01
−.08	−.20**	.40***	.18**	—	−.09	−.07	−.27***	−.15*
.36***	.25***	−.30***	−.20**	−.19**	—	−.26***	.20***	.26***
−.10**	−.11**	.14*	.00	.17*	−.20***	—	−.17***	−.24***
.22***	.13***	−.11***	−.03	−.32***	.19***	−.10**	—	.19***
.31***	.30***	−.05	.02	−.14	.30***	−.31***	.23***	—

NOTE: GPA=grade point average.
Values for boys are above the diagonal; values for girls are below the diagonal.
*p <.05.**p <.01.***p <.001.

expected direction when it was analyzed within-context, peer behavioral regulation was not related to boys' academic alienation in the across-context analyses, and the size of this relation among girls was reduced substantially in the across-context analyses. Fourth, both regulation and autonomy support in the school context were related in the expected direction in both the within- and across-context analyses. Fifth, all three indicators of experience within the family context were significant independent predictors in the expected direction. Sixth, positive connection with an older sibling was related to less academic alienation, particularly for girls. Finally, the linear combination of all predictors accounted for a substantially greater percentage of the variance than did the individual contextual predictors alone.

Depressive affect. The results for depressive affect are summarized on Table 6. First, family demographic characteristics were unrelated to this indicator. Second, support for autonomy in both the family and the sibling relationship predicted lower levels of depressive affect. In addition, positive connections with parents predicted lower depressive affect for girls. In contrast, positive connection with an older sibling predicted lower depressive affect for boys. In addition, although positive behavioral control by the peer

TABLE 4:   Standardized Regression Coefficients for Predicting GPA

Contexts Analyzed Separately

Context	Connection	Regulation		Autonomy	R^2	F	(df)
Boys' GPA					.18[a]		
Family	.07	.04		.14***	.22	16.05***	(11, 612)
School	.11**	.04		.08*	.21	16.85***	(9, 584)
Peer	.04	Pressure: −.03		N.A.	.19	15.87***	(9, 614)
		Behavior: .09*					
Sibling	−.12	.22**		−.03	.21	05.83***	(9, 200)
Girls' GPA					.18[a]		
Family	−.02	.09*		.21***	.23	16.64***	(11, 596)
School	.14***	.01		.03	.20	16.43***	(9, 588)
Peer	−.07	Pressure: .03		N.A.	.19	15.90***	(9, 599)
		Behavior: .11*					
Sibling	.06	−.00		.15*	.21	05.25***	(9, 179)

All Contexts Analyzed Together; Step 1 Includes All Eight Family,
School, and Peer Predictors; Step 2 Adds the Three Sibling Predictors

Context	Connection	Regulation		Autonomy	Step 1 R^2	Step 2 R^2
Boys' GPA						
Family	.05	.04		.13***		
School	.08	.02		.07		
Peer	.02	Pressure: −.05		N.A.	.23***	
		Behavior: .03				
Sibling	−.18*	.19*		−.06		.26***
Girls' GPA						
Family	−.02	.07		.20***		
School	.11**	−.01		.01		
Peer	−.05	Pressure: −.00		N.A.	.24***	
		Behavior: .04				
Sibling	.05	−.03		.12		.26***

NOTE: GPA = grade point average.
a. Denotes the R^2 for socioeconomic status, ethnicity, and marital status as control variables.
*$p < .05$. **$p < .01$. ***$p < .001$.

network was related to lower depressive affect in the within-context analyses, these effects were reduced in the across-context analyses, remaining significant only for girls. Finally, the linear combination of all predictors accounted for a substantially greater percentage of the variance than did the individual contextual predictors alone.

Behavior problems. The results for behavior problems are summarized on Table 7. First, family demographic characteristics were unrelated to this

TABLE 5:   Standardized Regression Coefficients for Academic Alienation

Contexts Analyzed Separately

Context	Connection	Regulation	Autonomy	R^2	F	(df)
Boys' academic alienation				.04[a]		
Family	−.22***	−.17***	−.15***	.19	12.35***	(11, 587)
School	N.A.	−.32***	−.12**	.17	14.34***	(8, 561)
Peer	−.04	Pressure: −.05 Behavior: −.20***	N.A.	.10	07.06***	(9, 589)
Sibling	−.20*	−.10	.03	.12	02.78**	(9, 191)
Girls' academic alienation				.01[a]		
Family	−.18***	−.27***	−.13**	.18	12.31***	(11, 599)
School	N.A.	−.29***	−.15***	.14	11.84***	(8, 589)
Peer	.03	Pressure: −.09* Behavior: −.31***	N.A.	.14	10.77***	(9, 611)
Sibling	−.30**	−.01	−.08	.12	02.66**	(9, 179)

All Contexts Analyzed Together: Step 1 Includes All Eight Family,
School, and Peer Predictors; Step 2 Adds the Three Sibling Predictors

Context	Connection	Regulation	Autonomy	Step 1 R^2	Step 2 R^2
Boys' academic alienation					
Family	−.16***	−.13**	−.11**		
School	N.A.	−.23***	−.08*		
Peer	−.01	Pressure: −.02 Behavior: −.07	N.A.	.26***	
Sibling	−.11	.03	.02		.27***
Girls' academic alienation					
Family	−.11**	−.19***	−.08*		
School	N.A.	−.16***	−.09*		
Peer	.04	Pressure: −.07 Behavior: −.15**	N.A.	.26***	
Sibling	−.26**	.10	−.06		.31***

a. Denotes the R^2 for socioeconomic status, ethnicity, marital status as control variables.
*$p < .05$. **$p < .01$. ***$p < .001$.

indicator. Second, both positive regulation and support for autonomy in the family (parent/child context) were predictive of lower involvement in problem behavior. Third, as expected, lack of positive behavioral regulation by the peer network was predictive of higher rates of involvement in problem

TABLE 6:   Standardized Regression Coefficients for Predicting Depressive Affect

Contexts Analyzed Separately

Context	Connection	Regulation	Autonomy	R^2	F	(df)
Boys				.03[a]		
Family	−.08	−.10*	−.25***	.13	8.61***	(11, 630)
School	−.11**	−.12**	−.01	.07	4.70***	(9, 584)
Peer	−.03	Pressure: −.03 Behavior: −.10*	N.A.	.05	3.52***	(9, 640)
Sibling	−.28***	.10	−.22***	.15	3.99***	(9, 205)
Girls				.01[a]		
Family	−.22***	−.02	−.31***	.17	11.49***	(11, 599)
School	−.11**	−.12**	−.08	.06	3.96***	(9, 588)
Peer	−.03	Pressure: −.01 Behavior: −.19***	N.A.	.05	3.64***	(9, 623)
Sibling	.01	−.01	−.33***	.11	2.48**	(9, 179)

All Contexts Analyzed Together: Step 1 includes All Eight Family,
School, and Peer Predictors; Step 2 adds the Three Sibling Predictors

Context	Connection	Regulation	Autonomy	Step 1 R^2	Step 2 R^2
Boys					
Family	−.06	−.07	−.23***		
School	−.06	−.08	.00		
Peer	−.01	Pressure: −.00 Behavior: −.03	N.A.	.14***	
Sibling	−.22*	.13	−.19**		.20***
Girls					
Family	−.18***	.01	−.30***		
School	−.05	−.04	−.01		
Peer	−.04	Pressure: .04 Behavior: −.08	N.A.	.19***	
Sibling	.11	.05	−.29***		.26***

a. Denotes the R^2 for socioeconomic status, ethnicity, marital status as control variables.
*p < .05. **p < .01. ***p < .001.

behavior. Fourth, although climate factors in the school context were related in the expected direction in the within-context analyses, these relations were not significant in the across-context analyses. Finally, the linear combination of all predictors accounted for a substantially greater percentage of the variance than did the individual contextual predictors alone.

TABLE 7:   Standardized Regression Coefficients for Predicting Problem Behavior

Contexts Analyzed Separately

Context	Connection	Regulation	Autonomy	R^2	F	(df)
Boys				.01[a]		
Family	−.01	−.23***	−.17***	.10	5.62***	(11, 546)
School	−.13**	−.02	−.11**	.05	2.87**	(9, 527)
Peer	.09*	Pressure: −.08	N.A.	.08	5.52***	(9, 548)
		Behavior: −.25***				
Sibling	−.05	.05	−.16*	.04	.82	(9, 177)
Girls				.04[a]		
Family	−.14**	−.24***	−.22***	.21	14.34***	(11, 579)
School	−.17***	−.11**	−.10*	.12	8.26***	(9, 571)
Peer	.02	Pressure: −.17***	N.A.	.16	12.53***	(9, 581)
		Behavior: −.23***				
Sibling	.03	−.03	−.14	.06	1.13	(9, 171)

All Contexts Analyzed Together: Step 1 Includes All Eight Family,
School, and Peer Predictors; Step 2 Adds the Three Sibling Predictors

Context	Connection	Regulation	Autonomy	Step 1 R^2	Step 2 R^2
Boys					
Family	.02	−.18***	−.14**		
School	−.07	.03	−.08		
Peer	.10*	Pressure: −.06	N.A.	.14***	
		Behavior: −.17***			
Sibling	.02	.17	−.12		.18***
Girls					
Family	−.09*	−.17***	−.19***		
School	−.07	−.01	−.03		
Peer	.01	Pressure: −.13**	N.A.	.26***	
		Behavior: −.12*			
Sibling	.13	.05	−.09		.28***

a. Denotes the R^2 for socioeconomic status, ethnicity, marital status as control variables.
*p < .05. **p < .01. ***p < .001.

DISCUSSION

The findings of the regression analyses are summarized in Table 8. Four major conclusions can be drawn from these findings: (a) Each of the socialization/interactional constructs was a significant predictor of successful development, even after family demographic characteristics were controlled. In addition, family demographic characteristics accounted for very little vari-

ance on indicators of successful development except academic performance. (b) Although adolescents with positive interactions on one dimension also had positive interactions on the other two socialization constructs (see Table 3), each of the three socialization constructs made an independent contribution to the prediction of adolescent development. Furthermore, as predicted by Barber, Olsen, and Shagle (1994), regulation, particularly in the family context, mainly was related to externalizing behaviors. In contrast, support for autonomy, particularly in the family, was related to a wide variety of outcomes. (c) Again, although adolescents with positive interactions in one context also were likely to have positive interactions in the other three contexts (see Table 3), characteristics of each of the four contexts made independent contributions to the prediction of adolescent outcomes, and the variations in the size of those associations across contexts were consistent with the relative salience of different outcome domains in each of these contexts. In addition, including indicators of the quality of all four contexts in the regression equations substantially increased the amount of variance explained. Apparently, positive experiences across these four contexts added linearly and independently to positive adolescent functioning. All four contexts were important for supporting positive school-related functioning; experiences both with parents and older siblings were particularly important for preventing depressive affect; and experiences both with parents and peers were most important for minimizing involvement in problem behavior. (d) Experiences with an older sibling were particularly important predictors of mental health.

Family demographics. Although this article did not focus on the relation of family demographic characteristics to adolescent development, measures of family socioeconomic class, ethnicity, and marital status were included as controls because they often are associated with adolescent outcomes, particularly school achievement (e.g., see Barber & Eccles, 1992; Lee & Bryk, 1989; McLanahan & Sandefur, 1994). Consistent with that body of work, this set of demographic characteristics, particularly family social class, was related to GPA more strongly than, and independent of, socialization experiences in the home—indicating that the impact of family social class on academic performance was not being mediated by family interactional processes. Instead, this pattern of results is consistent with other reports that the relation of family social class to academic achievement probably reflects the high correlation between social class and the quality of schooling and home instruction (Lee & Bryk, 1989).

In contrast, the relations of family demographic characteristics to the other adolescent outcomes were quite small. Instead, the interactional process constructs related most powerfully to these psychological and behavioral

TABLE 8:   Summary Matrix for Significant Findings From Multiple Context Regression Analyses

Context	Connection	Regulation	Autonomy
Males			
Family: parent/child	Academic alienation	Academic alienation *Problem behavior*	Academic alienation GPA *Depressive affect* Problem behavior
Family: sibling relationship	GPA (negative) *Depressive affect*	*GPA*	Depressive affect
Schools		*Academic alienation*	Academic alienation
Peer group	Problem behavior	*Problem behavior*	N.A.
Females			
Family: parent/child	Academic alienation Depressive affect	*Academic alienation* Problem behavior	Academic alienation *GPA* *Depressive affect* *Problem behavior*
Family: sibling relationship			*Depressive affect*
Schools	GPA	Academic alienation	Academic alienation
Peer group	*Academic alienation*	Academic alienation Problem behavior	N.A.

NOTE: Italicized listings reflect the most powerful predictors, with betas equal to or greater than .15. GPA = grade point average.

outcomes. These results indicate that, even though family interactional processes have relatively little impact on school-based indicators of academic achievement during early adolescence once family social class is controlled, these processes may have substantial impact on other dimensions of adolescent development—other dimensions that are likely, in turn, to predict subsequent positive developments such as remaining engaged in school, going on to college, staying out of the juvenile justice system, and coping with the various adverse events that are likely to occur during adolescence. These experiential processes appear to provide the adolescent with both a set of attitudes about himself or herself and access to positive opportunity systems that will support continued conventionally positive development.

Unique predictive power of connection, regulation, and autonomy. Barber et al. (1994; cf. Barber, 1996) predicted that regulation would be related primarily to externalizing and self-regulation type outcomes, including involvement in problem behaviors and mobilization of energies for learning and achievement. These results provide support for these predictions: Positive and consistent regulation by parents, peers, and teachers was related most strongly to low levels of problem behavior. Furthermore, positive regulation

in school, the family, and the peer group, was related to a higher GPA, which likely results from self-regulation to some extent.

In contrast, excessive psychological control (i.e., minimal support for psychological autonomy) was related broadly to poor adolescent functioning. Such findings are consistent with the models of motivation and development proposed by Connell, Deci, Ryan and their colleagues (e.g., Connell & Wellborn, 1991; Deci & Ryan, 1985) and with the Barber (1996) findings. Those scholars have argued that support for autonomy is key to healthy development at all ages. Other psychologists have argued that support for autonomy is particularly important in early adolescence because establishing independence is the quintessential developmental task of the adolescent period (e.g., Eccles, Midgley, et al., 1993). It also is likely, however, that parents provide greater support for autonomy to adolescents who are developing successfully. In those families, the authority renegotiations that accelerate during adolescence may proceed more smoothly than in families in which the parents are incompetent, the parent/child relationship already is problematic, or the adolescent is already on a problematic developmental trajectory.

As might be expected, perceived high levels of connectedness and emotional support were related positively to both psychological and behavioral indicators of successful development, particularly for girls. These results are consistent with theories hypothesizing that feeling connected and supported emotionally in both parent/child and school contexts has positive benefits across the board, particularly for girls (Connell & Wellborn, 1991; Goodnow, 1993).

Unique contextual associations. Even though there were positive associations among the three interactional process constructs across contexts, the interactional process constructs in each context made independent contributions to the full regression equations. In addition, the four contexts were related differentially to the various indicators of successful development, indicating that these adolescents were dealing with somewhat different developmental issues in each of these four contexts. For example, involvement in problem behaviors was linked primarily to the interactional constructs in the parent/child and the peer group contexts: Those adolescents who were more involved in problem behavior also had parents who exercised low behavioral regulation and provided little support for their psychological autonomy, and they were part of a peer group that was highly involved in problematic behaviors and placed little value on conventionally positive behaviors. This pattern of associations likely reflects a synergistic system in which two things are occurring: (a) The interactions between the parents and

their adolescents fit the coercive pattern described by Patterson and his colleagues (Patterson, Reid, & Dishion, 1992), leading to a disintegration of the family as a context for positive socialization; and (b) the adolescent, in part because of the disintegrating relationships at home, becomes involved in a risky peer group that devalues conventional routes to success and high self-esteem. In fact, a strong sense of connection with such a peer group is linked to greater involvement in problem behavior for boys, once the effects of connection to parents were controlled. Once this cycle is in place, it is quite difficult to remediate.

Contrary to what had been expected, given the results linking positive emotional well-being to good social support (Brown, 1990), interactions in the peer-group context, particularly those linked to connectedness, were not highly related to depressive affect. In contrast, however, and more consistent with the findings in the social support literature, there was a positive association of peer support to self-esteem ($r = .22$), indicating that peer-group support can bolster confidence and self-esteem during this transitional period even though it had little relation to the more negative feelings and self-doubts associated with depressive affect. Instead, depressive affect at this age was linked much more closely to interactions at home.

Most important, these findings highlight the importance of the sibling relationship context to healthy development. In fact, the quality of interactions with an older sibling explained the largest amount of variance in depressive affect. A positive relation with an older sibling (either in terms of high feelings of connectedness for boys or low frequency of hostile interactions for girls) appeared to be protective for psychological development during early adolescence. The fact that this association remained significant even after the quality of the relationship with parents was controlled is consistent with the notion that a positive relationship with a sibling can compensate for a problematic relationship with parents.

One very intriguing, counterintuitive finding emerged regarding the association of siblings with boys' GPA. Although, as might be expected, having an older brother who provides support for academic achievement predicted higher GPAs, feeling closely connected with an older sibling was related to a lower GPA, once family demographics were controlled. Perhaps, with all else controlled, the boys who were doing poorly in school were more likely to turn to their older siblings for emotional support. Alternatively, perhaps a strong association with an older sibling increased the likelihood of an early adolescent boy getting involved with an older peer group. Magnusson (1988) reported that involvement with older peers undermines the academic achievement of early maturing females. Perhaps a similar phenomenon explains this counterintuitive result.

Interestingly, for girls, experiences in all four contexts contributed to academic alienation. Alienation was lowest when a girl experienced connectedness at home, both with her parents and with her older sibling; when she had firm regulation and support for achievement from her parents, her school, and her peer group; and when she felt she was being provided with psychological autonomy both by her parents and by her teachers. Clearly, even though these experiences were correlated positively with each other, there was ample room for compensatory influences across contexts for girls' attachment to school. Similarly, experiences positive both at home and at school supported boys' attachment to school; experiences with siblings and peers, however, seemed somewhat less influential for the boys.

In conclusion, the findings supported the importance of assessing social experiences in more than one social context in order to understand adolescent functioning. Although there was a positive correlation between experiences across contexts, experiences within each of the four contexts included in this study made unique contributions to explaining the variations in adolescent functioning. These results raise two important questions: Why is there a positive correlation between experiences across contexts, and how and under what conditions do contexts operate synergistically and/or compensatorily in supporting positive adolescent development?

Several mechanisms might explain the positive correlation. First, individuals affect their own experiences through both selection and agency. Well-functioning individuals are more likely to select well-functioning peer groups and are more likely to elicit positive responses from their parents, siblings, and teachers. Second, well-functioning parents are likely to have well-functioning children and to facilitate positive sibling relationships within the home. These same parents are likely to manage their children's peer groups and school settings in such a way as to facilitate positive experiences in these contexts as well. Both of these mechanisms also reveal why contexts often operate syngeristically to either support or undermine positive development. Patterson and his colleagues have documented how a negative cycle at home ends up creating negative experiences at school and increases the likelihood of involvement in negative peer networks (Patterson et al., 1992). Similarly, a positively escalating trajectory is likely if parents provide the groundwork for healthy development during infancy and childhood.

These findings, however, also show considerable independence of experiences across these four contexts. Such independence can have a positive or negative consequence, depending on the nature of each context and on the factors that influence the relative salience of each context in particular adolescents' lives. In the future, the longitudinal data in this project will be used to examine this dynamic system across adolescence.

NOTES

1. The complete sample includes 1,482 families. However, the current analyses include only the 1,387 families whose target youths identified themselves as African American or European American. Youth of other ethnic groups were excluded from the analyses because no other ethnic group was sufficiently well represented for meaningful analyses.

2. In addition, two other parental socialization constructs were created to capture more active involvement in an adolescent's life: a measure of family church attendance and a measure of the extent to which the parents actively enrolled their adolescent in various positive out-of-school activities. Neither of these constructs yielded consistent results. Consequently, although they are included in all multivariate analyses involving the parent/child contextual constructs, their coefficients are not reported in the tables nor the text.

3. Discriminate and convergent validity of all scales were established through larger multivariate exploratory factor analyses using oblique rotation solutions. All scales reported here emerged as independent factors in these analyses. Details can be obtained from the authors.

4. The analyses were run separately by ethnic group. However, because no major differences emerged in the pattern or size of the coefficients, the analyses reported here are for the combined samples with ethnic group included as a control exogenous predictor.

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