

**Symposium: Models of Parenting Efficacy from Infancy Through Adolescence**

**UNDER MY INFLUENCE? PARENT AND FAMILY FACTORS  
ASSOCIATED WITH PARENTING EFFICACY IN THE ELEMENTARY  
YEARS**

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Parents often send their young children off to school for the first time with much fear and trepidation. They wonder if their child will be able to handle the pressures of school and be successful in their endeavors. They worry that their child will be influenced by other peers who get into trouble and who entice their child to participate in these less prosocial behaviors along with them. These fears arise again during the child's adolescence when the physical, psychological, and social changes of this developmental period place the child at risk for involvement in numerous negative behaviors.

Bandura (1982) defines perceived self-efficacy as one's judgments about their ability to perform competently and effectively at a particular task. Using this definition, then, parenting self-efficacy can be operationalized in terms of how capable parents feel they are in influencing their children's behavior. There is some evidence that parents who feel competent that they can influence their children's development are more successful in helping their children become more competent themselves (Gross, Fogg, & Tucker, 1995) and in preventing them from becoming involved in high-risk behaviors (Elder, Eccles, Ardelt, & Lord, in press).

Despite the evidence that perceived parental efficacy is important in influencing children's' competence and reducing their risk-taking behavior, little work has been done to examine the correlates of parenting efficacy. Recent research has found that factors such as economic hardship do not have a direct effect on parents' perceived efficacy (Elder, Eccles, Ardelt, & Lord, in press). Rather, such factors as parents' psychological state and their family goals and beliefs mediate the relation between parent and child demographics and parenting efficacy. Other factors such as family structure (number of children in the family and marital status of parents) have also been found to

have an affect on parental attitudes, beliefs, and behaviors (Conger, et al., 1984; Elder et al., 1988; and McLoyd, 1991).

Characteristics of the child may also contribute to parents' beliefs about their ability to influence their child. Research suggests that parents of older children feel less efficacious than do parents of younger children (Freedman-Doan, Arbretton, Harold, & Eccles, 1993). Additionally, the onset of puberty may trigger parents' fears about their ability to influence their child's behavior (Buchanan, et al., 1990). The child's sex may also impact on parents' sense of efficacy. Because boys are more at risk for involvement in dangerous behaviors, parents of boys may feel less efficacious to prevent this behavior than do parents of girls. Finally, parents of children who are judged to be poor students by their teachers may feel less efficacious in their ability to help their child get good grades and stay out of trouble as their past efforts have apparently been unsuccessful.

Parenting efficacy may also be determined by more proximal variables such as the parents' psychological well-being and their own intellectual confidence. Recent research has found that depression is related to parents' efficacy (Elder, Eccles, Ardelet, & Lord, in press; Gross, Conrad, Fogg, & Wothke, 1995). Parents' family goals such as the competitiveness parents promote among family members, the amount of help and support they give one another, and the amount of intellectual stimulation they provide their children may also contribute to parents' beliefs in their ability to influence their children. Additionally, parents hold many beliefs about the differential impact of one's biological makeup and one's environment in determining what a child is like. Parents who believe that children's behaviors are mostly determined by their genetic makeup may feel less efficacious than those who

believe that what parents teach and the role of environment are instrumental in determining what a child is like (Eccles et al., 1989).

If parents feel efficacious as their child approaches adolescence, will this belief act as a protective factor against the onslaught of risky behaviors that tempt the emerging adolescent? Knight (1985) suggests that even if parents believe that adolescence in general is a difficult time, they may also believe they can have a positive impact on their particular child. In support of this hypothesis, Buchanan, Eccles, Flanagan, Midgley, Feldlaufer, and Harold (1990) found that although parents believe adolescence is a difficult time of life, parents also believe that adults can influence children's development during adolescence. From these results, they suggested that parents' positive views that adults can influence adolescents may override the more negative beliefs adults hold about adolescence generally. In the current study, we examine parents' specific beliefs about their parenting efficacy and their relation to their expectations about what their child will be like as an adolescent.

The purpose of this study is twofold. First, this study presents a model of parenting efficacy that tests the relation of parent characteristics (sex of parent, marital status, number of hours worked, education level, family income) and child characteristics (sex of child, grade level, pubertal status, and achievement level) to perceived parental ability to influence their child's behavior. Parents' psychological status and personality (perceived well-being, intellectual confidence, extroversion), their family goals and beliefs (family mastery, family cohesiveness, and family competitiveness), their beliefs about the biological and environmental determinants of behavior (family environment, what parents teach, outside influences, and what the child is born with/biological influences), and their desired level of education for their

child are examined as mediators in the model (see Figure 1 for an outline of this model).

Second, this study examines how parenting efficacy impacts on mothers' and fathers' expectations for what their sons and daughters will be like as adolescents, controlling for the pubertal status and achievement level of the child. We examine these relationships separately for mothers and fathers and boys and girls. We will also examine if mothers and fathers differ in their beliefs about their ability to influence their sons' and daughters' behaviors.

## Methods

### Participants

Eccles and her colleagues (Eccles, Wigfield, Blumenfeld, & Harold, R., 1984; Eccles, Blumenfeld, Harold, & Wigfield, 1990) are conducting a large-scale longitudinal study in 12 schools, in four primarily white, middle class school districts in suburban communities. The study began with groups of children in kindergarten, first, and third grades and continues to follow these children into middle and high school. The students, approximately two-thirds of their parents, and all of their teachers participated by completing questionnaires and interviews.

The study examines many issues including children's achievement self-perceptions in various domains and the roles that parents and teachers play in socializing these beliefs. The issue of the impact of parenting efficacy also is being explored. The data presented for this study were collected from a sample of the children, their parents, and their teachers during two waves of data collection (1989 and 1990), beginning when the children were in second, third, and fifth grades. We surveyed 432 mothers and 269 fathers. Scales were

constructed from this sample. The average income for this sample was between \$50,000 and \$70,000. On the average, mothers worked 18.41 hours per week (s.d.=17.57) and fathers worked 46.39 hours (s.d.=10.29). The mean education level for mothers and fathers was just under a four year undergraduate degree. The average number of children in the families was 1.73 (s.d.=1.32)

Measures (see Appendix for individual items)

Using 7-point Likert scales, the parents completed a self-administered questionnaire that assessed their personalities, their well-being, and their intellectual capabilities. Questionnaire items also tapped parents' perceptions of their families' competitiveness, cohesiveness, and commitment to intellectual pursuits. Further, parents answered items that assessed their beliefs about how important various biological and environmental factors are in influencing what children are like. Parents also completed questions that assessed how much they felt they could influence their child's behavior and interests currently and their expectations for what their relationship with their child would be like when their child becomes an adolescent in terms of family affective relationships, attachment, and the child's emotional state.

Additionally, mothers and fathers rated several items related to pubertal change on a scale from 1 (not begun) to 3 (a lot). This pubertal scale was adapted from the Petersen, Crockett, Richards and Boxer (1988) scale. It has been found to have adequate internal reliability. Miller, Tucker, Pasch, and Eccles (1988), using a similar adaptation of the Petersen et al. scale, found that mothers' ratings of their children's pubertal development were very accurate. For 11-13 year olds, mothers' ratings of their daughters correlated with doctors' ratings at .89, while mothers' ratings of their sons correlated with doctors' ratings at .68.

Children's level of achievement was obtained by taking a composite mean of teachers' ratings of children's ability in math and reading. The reliability for this measure is .84.

### Scale construction

The scales for the parent psychological measures (parent well-being, intellectual confidence, achievement orientation, and extroversion), the family goals and beliefs (family competitiveness, family cohesiveness, and family mastery), the biological/environmental determinants of behavior (what born with/biological, outside influences, what parents teach, and family environment), and parents' adolescent expectancies (separate from the family, become more emotional, get into more trouble, be influenced by others, and be more responsible) were all developed guided by the use of principle components factor analyses. Scales were constructed by computing a composite mean of the items suggested by the factor analyses. All scales were reliable (alphas > .65). Items and scales are presented in the appendix.

## Results

### Bivariate relations

The zero-order correlations for the predictors of parenting efficacy are presented in Table 1. Family demographics are not significantly related to mothers' or fathers' reported efficacy. None of the child demographics are related to fathers' efficacy, but for mothers, the older their children are, the less influence they feel they have over their child's behavior. Additionally, mothers of girls feel more efficacious in influencing their daughters' behaviors than do mothers of boys. Several personality factors such as parent well being, intellectual confidence, and extroversion are related to mothers', but not fathers' perceptions of their ability to influence their children.

Further, mothers and fathers who identify their families as mastery oriented and cohesive reported more influence over their child's behavior than do less mastery oriented and cohesive families. Interestingly, mothers' beliefs in environmental as well as biological influences are related to their beliefs in their parenting efficacy. For fathers, their efficacy is related to their belief that family environment, what parents teach, and outside influences are instrumental in determining what a child is like. Finally, for mothers their parenting efficacy is positively related to the amount of education they reported they desired their child obtain. This is not true for fathers.

#### Multivariate relations

In the multivariate analyses, only some of the relations continue to be significant (see Figure 2). For mothers, the child's sex and grade continue to be related to mothers' parenting efficacy such that mothers of girls feel more efficacious than do mothers of boys. Mothers report feeling less efficacious as their children get older. None of the significant relations between the mothers' psychological measures and her parenting efficacy remain significant in the multivariate model. Similarly, none of the significant family goals and beliefs variables are related to efficacy. Further, of the biological and environmental determinants of behavior, only mothers' beliefs that outside influences such as the child's friends continue to be related to mothers' beliefs about her ability to influence her child's behavior. For fathers, only family cohesiveness and what parents teach continue to be related to fathers' parenting efficacy in the multivariate analysis.

#### Relation of parenting efficacy to parents' adolescent expectancies

The second part of these analyses examines the impact of parent efficacy on parents' expectations of what their child will be like during adolescence controlling for the child demographic characteristics. Looking at



the data from when the children were in third, fourth, and sixth grades, we decided to begin to examine how parents' perceptions of their ability to influence their child's behavior impacted on their expectations for what their child would be like as an adolescent. Because grade level and pubertal status were highly correlated for this wave of data ( $r=.58$ ), it was decided that only pubertal status would be used in these analyses because it was hypothesized that the onset of their child's pubertal development would trigger parents' expectancies about their child's adolescence.

In addition, the multivariate model suggests that mothers of girls feel more efficacious than do mothers of boys. An analysis of variance was computed to test the mean level differences between mothers and fathers of boys and girls in parents beliefs about their ability to influence their children. The analysis found that, in general, mothers report feeling more efficacious than do fathers [mean(mothers)=5.41; mean (fathers)=5.23;  $F=8.71$ ; d.f.=1,743;  $p<.003$ ]. Further, parents of girls feel more efficacious than do parents of boys [mean(girls)=5.43; mean (boys)=5.25;  $F=8.46$ , d.f.=1,743;  $p<.004$ ]. Consequently, we decided to examine the impact of parenting efficacy on adolescent expectations separately for mothers and fathers and boys and girls.

Figures 3-7 illustrate the significant relations of parents' efficacy and their expectations of what their child will be like as an adolescent, controlling for the child's pubertal status and achievement level. We will examine each of the adolescent outcomes separately looking across the five models.

First, for mothers of boys and girls and fathers of girls, the more efficacious they feel as parents, the less they expect their child will become more separate from the family. Fathers of boys do not believe their efficacy will have any impact on their son's desire to become more separate from the family.

Parenting efficacy is negatively related to the belief that the adolescent will become more emotional for fathers of boys and girls and mothers of boys. Mothers of girls, however, do not believe that their ability to influence their daughters will affect whether or not their daughters will become more emotional during adolescence.

Mothers and fathers of boys and girls believe the more influence they have over their child, the less trouble they will get into during adolescence. Nevertheless, mothers and fathers of girls who are more pubertally developed believe their daughters will get into more trouble as adolescents than do parents of less physically mature girls. This relation is mediated by parenting efficacy. That is, parents of physically developed girls believe they are less efficacious than do parents of girls who have not yet begun to develop. This reduced efficacy, in turn, is related to parents' beliefs that their daughters will get into more trouble in the future. In contrast, fathers of boys who are pubertally developed believe their sons will get into less trouble during adolescence than do fathers of boys who have not yet begun to mature.

Parents' beliefs that their child will be influenced by others during adolescence is not related to parenting efficacy. Fathers of more pubertally developed boys believe their sons will be more influenced by others than do fathers of less mature boys.

Finally, mothers and fathers of boys and girls believe that the more influence they have over their child, the more responsible and mature they will be during adolescence. However, the pubertal status of the child greatly varies this situation for fathers. Fathers of girls who are physically developed believe their daughters will become less responsible as an adolescent than do fathers of less developed girls. This relation is mediated by their belief in their ability to influence their daughters. That is, as their daughters become

more physically developed, fathers feel they have less influence over them and, in turn, believe their daughters will become less responsible and spend less time with them. Interestingly, fathers of boys who are more physically developed believe their sons will become more responsible and spend more time with them during adolescence than do fathers of less physically developed boys.

### Conclusions and Discussion

The goals of this paper were 1) to examine the correlates of parenting efficacy with the hypothesis that the more proximal determinants of parenting such as parent psychological functioning, family goals and beliefs, and parents' beliefs in the biological versus environmental determinants of behavior will mediate the relation between parenting efficacy and the family and child demographics; 2) to examine differences between mothers' and fathers' beliefs in their ability to influence their sons' and daughters' behavior, and 3) to test whether parenting efficacy impacts on mothers' and fathers' expectations about what their sons and daughters will be like as an adolescent controlling for the pubertal status of the child.

Although several parent psychological variables, family goals and beliefs variables, and biological versus environmental determinants are related to parenting efficacy at the zero-order level, these relations do not emerge in the multivariate analyses. There are several explanations for why the bivariate relations are no longer significant in the multivariate model. First, the model controls for many aspects of the parents' personality and beliefs. Although there are no significant multicollinearity problems (see correlation table), there may be enough overlapping variance among the variables that in the statistically conservative multivariate model few

relations emerge. This may be especially true for the biological/ environmental determinants where zero-order relations among the variables ranged from .25-.51.

Additionally, all of the predictors in the model were obtained in the earlier year of the study when the children were in second, third, and fifth grades; the outcome, ability to influence child's behavior, was obtained the following year when the children were in third, fourth, and sixth grades. It may be that the time lag interferes with the predictability of the variables of interest.

Finally, it is interesting to note that none of the family demographic variables relate to parenting efficacy. This is somewhat surprising in light of the results found by Lord and Eccles (1995, paper for this symposium) where context does seem to matter in predicting parenting efficacy. Nevertheless, it should be noted that the range of variance in this sample is quite limited. Families are predominantly middle to upper middle class. The mean number of children in the families is 1.73. And, in general, parents feel that it is relatively easy to live on their present income. In sum, the sample represented in this study has little sociological diversity. It may be that parenting efficacy reflects one's sociological condition and only marginally relates to one's psychological state.

In examining differences between mothers' and fathers' of boys and girls in their beliefs about their ability to influence their child's behavior, we found that mothers feel more efficacious than do fathers. This difference may be due to the fact that mothers are often more involved in their children's day to day activities than are fathers, including checking their school work, involving them in extracurricular activities, and monitoring their social relationships. As such, mothers may have more experience in providing the

opportunities that prevent their child from participating in risky behaviors and that promote more prosocial behaviors. Consequently, mothers feel more efficacious. Additionally, we found that parents of girls report feeling more efficacious than do parents of boys. No interaction effects for parent and child sex were found.

Finally, parenting efficacy is clearly linked to parent's expectations about what their child will be like as an adolescent. Efficacy is related to an increased expectation that one's child will be more mature and responsible in the future and to an increased concern that one's child will become separate from the family, become more emotional, and get into more trouble in the future. The fact that zero-order correlation results reveal that influence is significantly related to both positive and negative aspects of the future expectations suggests that it may be an important factor in understanding parent-adolescent relationships. This finding is supported by Bandura's (1986, 1991) work on self-efficacy, which found convergent evidence in the research literature attesting to the explanatory and predictive generality of self-efficacy theory. Self-efficacy has been found to have a strong impact on one's thoughts, affect, motivation, and action. Thus, parental self-efficacy is not only important in that it is related to positive parental expectations about what their child will be like as an adolescent, it is also important in that high levels of efficacy (both in the present and in the future) may affect how parents actually respond to their child's emerging adolescence.

## References

- Bandura, A. (1982). Self-efficacy mechanisms in human agency. *American Psychologist*, 37, 122-147.
- Buchanan, C.M., Eccles, J.S., Flanagan, C., Midgley, C., Feldlauger, H., & Harold, R. (1990). Parents' and teachers' beliefs about adolescents: Effects of sex and experience. *Journal of Youth and Adolescence*, 19, 363-394.
- Conger, R.D., McCarty, J.A., Yang, R.K., Lahey, B.B., & Kropp, J. P. (1984). Perceptions of child, child-rearing values, and emotional distress as mediating links between environmental stressors and observed maternal behavior. *Child Development*, 55, 2234-2247.
- Eccles, J. S., Blumenfeld, P. C., Harold, R. D., & Wigfield, A. L. (1990). *Ontogeny of self and task concepts and activity choice*. (Grant No. 2 R01 HD17553-06). Bethesda, Maryland: National Institute of Child Health and Human Development.
- Eccles, J., Jacobs, J., Harold-Goldsmith, R., Jayaratne, T., & Yee, D. (1989). *The relations between parents' category-based and target-based beliefs: Gender roles and biological influences*. Paper presented at the Biennial Meeting of the Society for Research on Child Development, Kansas City, KA.
- Eccles, J., Wigfield, A., Blumenfeld, P., & Harold, R. (1984). *Psychological predictors of competence development* (Grant No. 2 R01 HD17553-01). Bethesda, MD: National Institute of Child Health and Human Development.
- Elder, G., Eccles, J., Ardel, M., & Lord, S. (in press). Inner City Parents Under Economic Pressure: Perspectives on the Strategies of Parenting. *Journal of Marriage and the Family*.

- Freedman-Doan, C.R., Arbretton, A., Harold, R., Eccles, J. (1993). Looking forward to adolescence: Mothers' and fathers' expectations for affective and behavioral change. *Journal of Early Adolescence, 13*, 472-502.
- Gross, D., Fogg, L., & Tucker, S. (1995). *The efficacy of parent training for promoting positive parent-toddler relationships*. Submitted for publication.
- Lord, S. & Eccles, J. (1995). *Does context matter?: Contextual and psychological factors associated with parenting efficacy in early adolescence*. Paper presented at the Biennial Meeting of the Society for Research on Child Development, Indianapolis, IN.
- McLoyd, V. (1989). The impact of economic hardship on black families and children: Psychological distress, parenting, and socioemotional development. *Child Development, 61*, 311-346.
- Miller, C. L., Eccles, J. S., Flanagan, C., Midgley, C., Feldlaufer, H., & Harold, R. D. (1990). Parents' and teachers' beliefs about adolescents: Effects of sex and experience. *Journal of Youth and Adolescence, 19*, 363-394.
- Miller, C. L., Tucker, M. L., Pasch, L., & Eccles, J. S. (1988). *Measuring pubertal development: A comparison of different scales and different sources*. Paper presented at the biennial meeting of the Society for Research in Adolescence, Alexandria, VA.
- Petersen, A. C. , Crockett, L., Richards, M., & Boxer, A. (1988). Self-report measure of pubertal status: Reliability, validity, and initial norms. *Journal of Youth and Adolescence, 17*, 117-133.

**Figure 1. Parenting Efficacy Model**

**Family demographics**

- Marital status
- # of children in the family
- Parent's level of education
- # of hours working
- Family income
- Perception of income

**Child demographics**

- Pubertal status
- Child's sex
- Child's grade level
- Level of achievement

**Parent psychological measures**

- Parent well-being
- Intellectual confidence
- Achievement orientation
- Extraversion

**Desired level of education**

**Family goals and beliefs**

- Family competitiveness
- Family cohesiveness
- Family mastery

**Ability to influence child's behavior**

**Biological/ environmental determinants**

- What born with/biological
- Outside influences
- What parents teach
- Family environment



## Appendix: Constructs and Reliabilities

### Parent psychological measures

#### Parent well-being

MO:  $\alpha=.90$       FA:  $\alpha=.90$

Feel that others might not like me  
Have trouble getting to sleep or staying asleep  
Bothered by having an upset stomach  
Find yourself anxious and worrying about something  
Feel that you can't tell what people are likely to do at times when it matters  
Feel bored with everything  
Feel powerless to get what you want out of life  
I wish I could be as happy as other seem to be  
I wish I could have more respect for myself

#### Intellectual Confidence

MO:  $\alpha=.70$       FA:  $\alpha=.65$

I am creative  
I am artistic  
Good reader  
Good writer  
I am smart

#### Achievement Orientation

MO:  $\alpha=.76$       FA:  $\alpha=.75$

Able to do well under pressure  
Good at math  
Like challenges  
Like to work on difficult intellectual problems (like math or word puzzles)  
Good at computers  
Don't give up on a problem when it gets tough or hard to solve

#### Extroversion

MO:  $\alpha=.80$       FA:  $\alpha=.81$

Outgoing/friendly  
Leader at work  
Leader in social activities  
Athletic  
Competitive  
Assertive  
Like to try out new things  
Impulsive  
Like to take risks  
Like to be involved in a lot of social activities with friends

## Family goals and beliefs

### Rating of family as competitive

MO:  $\alpha=.55$       FA:  $\alpha=.58$

I think a child should be encouraged to do things better than others  
I feel that it is good for a child to play competitive games  
Family members enjoy beating each other at sports or games.  
Family members are compared with others as to how well they are  
doing at work or school.  
Family members criticize each other openly

### Rating of family as cohesive

MO:  $\alpha=.71$       FA:  $\alpha=.72$

Family members help and support one another.  
Our family enjoys talking and doing things together.  
Household responsibilities and family schedules are well organized.  
We live in an orderly place.

### Rating of family as mastery oriented

MO:  $\alpha=.70$       FA:  $\alpha=.71$

Intellectual curiosity is very important in our family  
Learning about new and different things is very important in our  
family  
In our family, there is a commitment to the productive use of time  
In our family, leisure activities and hobbies are often ones that require  
learning and/or practice  
A child's success at school depends mostly on how much his/her  
parents teacher him/her at home  
When we face problems or difficulties in our family, we respond by  
knowing we have the power to solve major problems

## Biological/environmental determinants of behavior

How important is each of the following in determining a child's personality, interests and abilities when they grow up? (1=Not at all important; 7=Very important):

### What born with/biological influences

MO:  $\alpha=.81$       FA:  $\alpha=.80$

Whether the child was born first or later  
The child's temperament such as how active, social, irritable, calm they  
were as a baby  
The child's sex  
What genes they inherit from their parents  
Other biological influences like hormonal changes  
The child's intelligence

### Outside influences

MO:  $\alpha=.75$       FA:  $\alpha=.73$

Family income  
What other brothers and sisters do  
What teachers teach the children  
The type of school the child goes to  
What their peers do  
The neighborhood the child lives in

### What parents teach

MO:  $\alpha=.82$       FA:  $\alpha=.83$

What parents teach their children at home  
Mom's personality and interests  
Dad's personality and interests  
Religious or moral training

### Family environment

MO:  $\alpha=.82$       FA:  $\alpha=.78$

Major illness or other unusual experiences the child might have  
Events in the family like divorce or remarriage  
How happy the parents' marriage is  
Death of a parent

**Pubertal status:**    1=Not at all    2=just started    3=A lot  
(Fully developed=21 points; Not at all developed=7 points)

Growth spurt  
Hair becoming more oily  
Appearance of pimples  
Appearance of underarm hair  
Appearance of pubic hair  
Increase in muscle strength (boys)  
Genital development (boys)  
Breast development (girls)  
Menstrual period (girls, 1=no 3=yes)

### **Future parent-adolescent relationship**

Rate how likely you think it is that this child will change in the following ways in the next two years (1: very unlikely; 7: very, very likely):

### Separate from family

MO:  $\alpha=.71$       FA:  $\alpha=.67$

S/he will socialize more with members of the opposite sex.  
S/he will be less concerned with what I think.  
S/he will resist my influence more.  
S/he will become less interested in doing things with the family.

### **Become more emotional**

MO:  $\alpha=.79$       FA:  $\alpha=.75$

- S/he will be more difficult to get along with.
- S/he will be easier to get along with.
- S/he will have more emotional problems.
- S/he will become more moody.

### **Get into more trouble**

MO:  $\alpha=.80$       FA:  $\alpha=.82$

- S/he will be more likely to get in trouble in school.
- S/he will become more rebellious.
- S/he will be less interested in school.
- S/he will be more likely to get into trouble with his/her friends.
- His/her peers have a negative influence on him/her.

### **Be influenced by others**

MO:  $\alpha=.71$       FA:  $\alpha=.71$

- S/he will be more concerned about his/her appearance
- S/he will be more concerned about what his/her friends think.

### **Be more responsible**

MO:  $\alpha=.71$       FA:  $\alpha=.73$

- S/he will take school work more seriously.
- S/he will be closer to me because we can share more adult interests.
- S/he will seek my advice more.
- S/he will become more self-confident and self-assured.
- S/he will be more fun to be around.

### **Parenting efficacy**

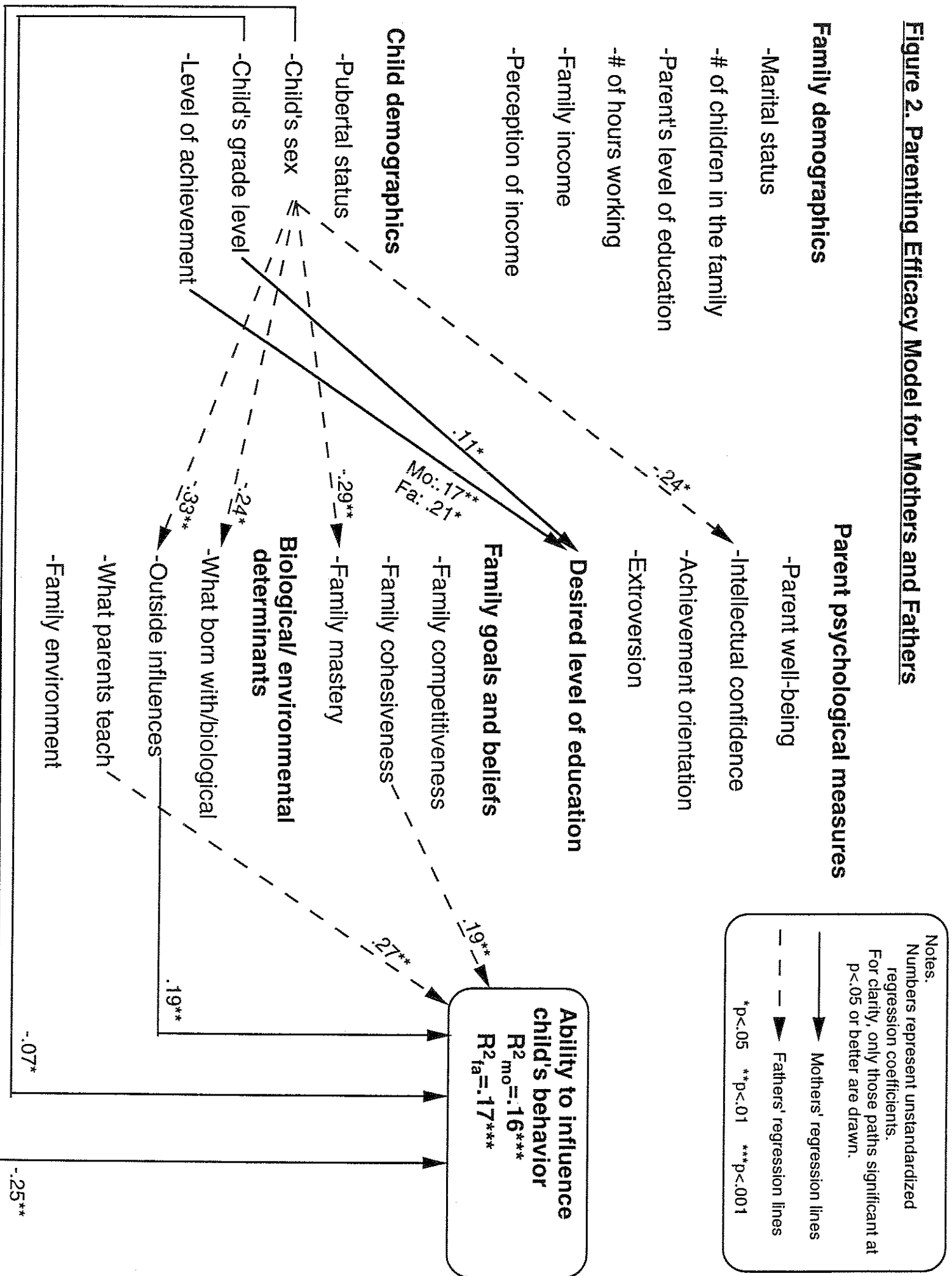
MO:  $\alpha=.84$       FA:  $\alpha=.85$

Parents differ in how much they think they can do to influence their child's behavior and interests. How much do you think you can do now (1: very little; 7: a great deal):

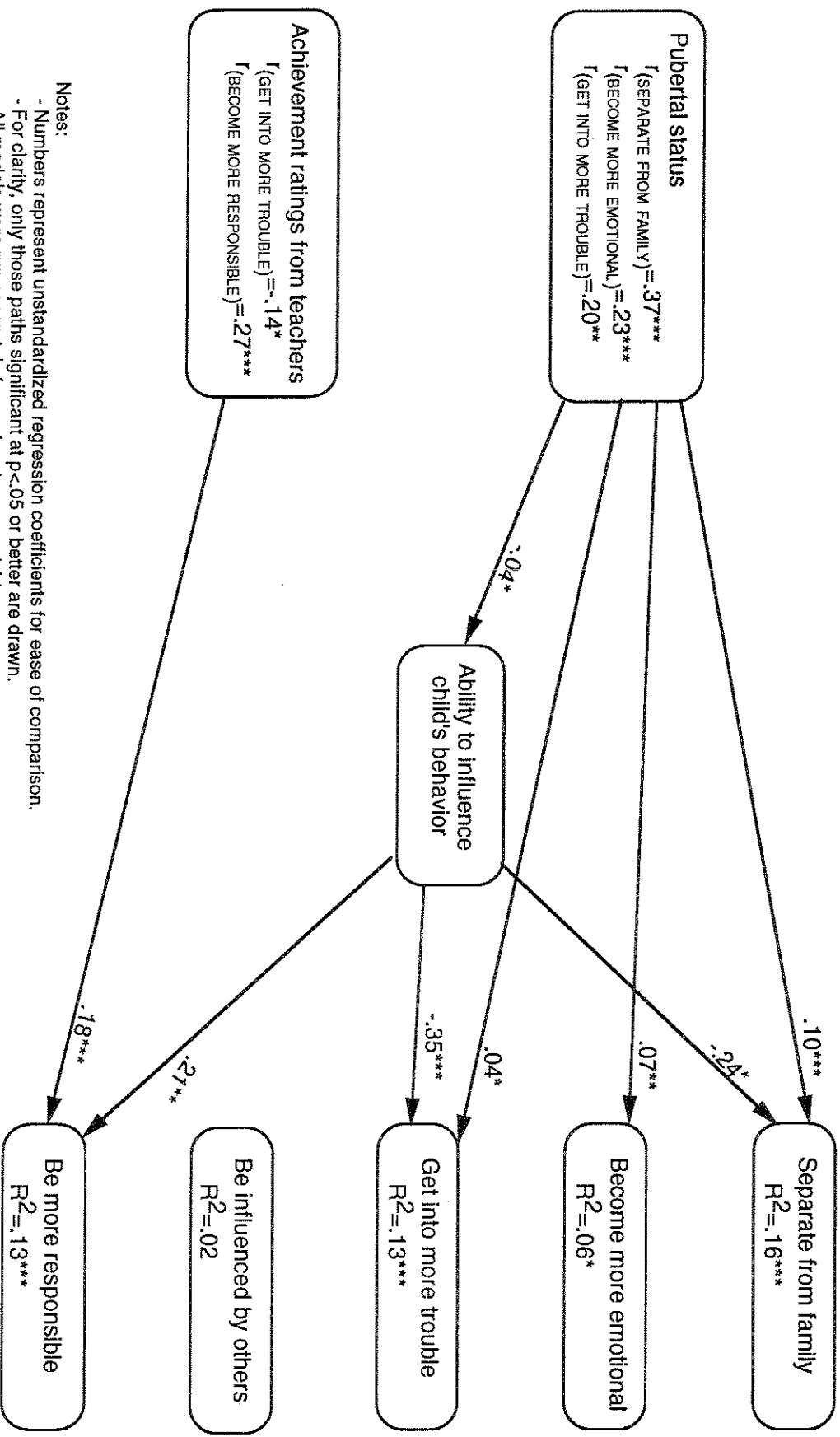
- to get child to stay out of trouble in school
- to help child get good grades in school
- to prevent child from getting in with the wrong crowd
- to get this child to associate with friends who are good for him/her
- to prevent child from doing things you do not want him/her to do outside of the home
- to increase this child's interest in school
- to get this child to resist the pressure from friends to do things you disapprove of

<b>Correlations for mother and father: How much influence over child's behavior parent has.</b>	<b>How much influence over child's behavior MOM has:</b>	<b>How much influence over child's behavior DAD has:</b>
1. # hours work	.05	-.06
2. children in family	.04	.06
3. education	.01	.05
4. gross income	.00	-.04
5. how easy to live on income	-.04	-.06
6. child's grade level	-.15**	-.07
7. child's sex	-.14**	-.09
8. child's pubertal status	-.04	-.07
9. teacher rating of achievement	.09	.05
10. parent well-being	-.10*	-.11
11. parent intellectual confidence	.18**	.01
12. parent beliefs about achievement	.04	.07
13. parent extroversion	.17**	.11
14. family mastery	.11*	.20**
15. family cohesiveness	.17**	.30**
16. family competitiveness	.02	.00
17. family environment	.21**	.26**
18. what parents teach	.17**	.34**
19. outside influences	.23**	.19**
20. what born with/ biological influences	.14**	.09
21. desired level of education	.12*	.02

**Figure 2. Parenting Efficacy Model for Mothers and Fathers**



**Figure 3.**  
**A Prediction Model for Parent Efficacy - Mothers, girls (N=158)**

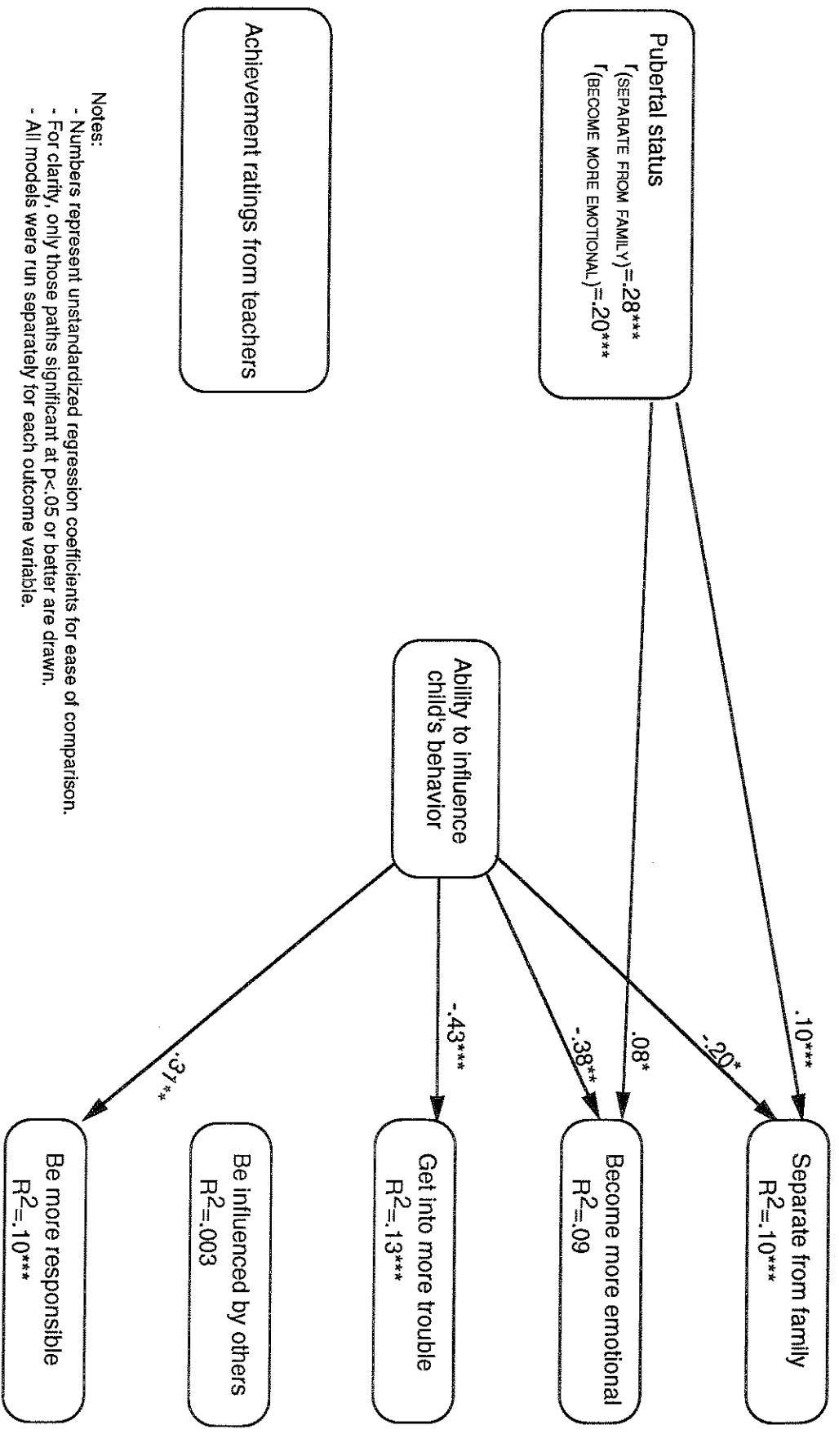


**Notes:**

- Numbers represent unstandardized regression coefficients for ease of comparison.
- For clarity, only those paths significant at  $p < .05$  or better are drawn.
- All models were run separately for each outcome variable.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

**Figure 4.**  
**A Prediction Model for Parent Efficacy - Mothers, boys (N=181)**



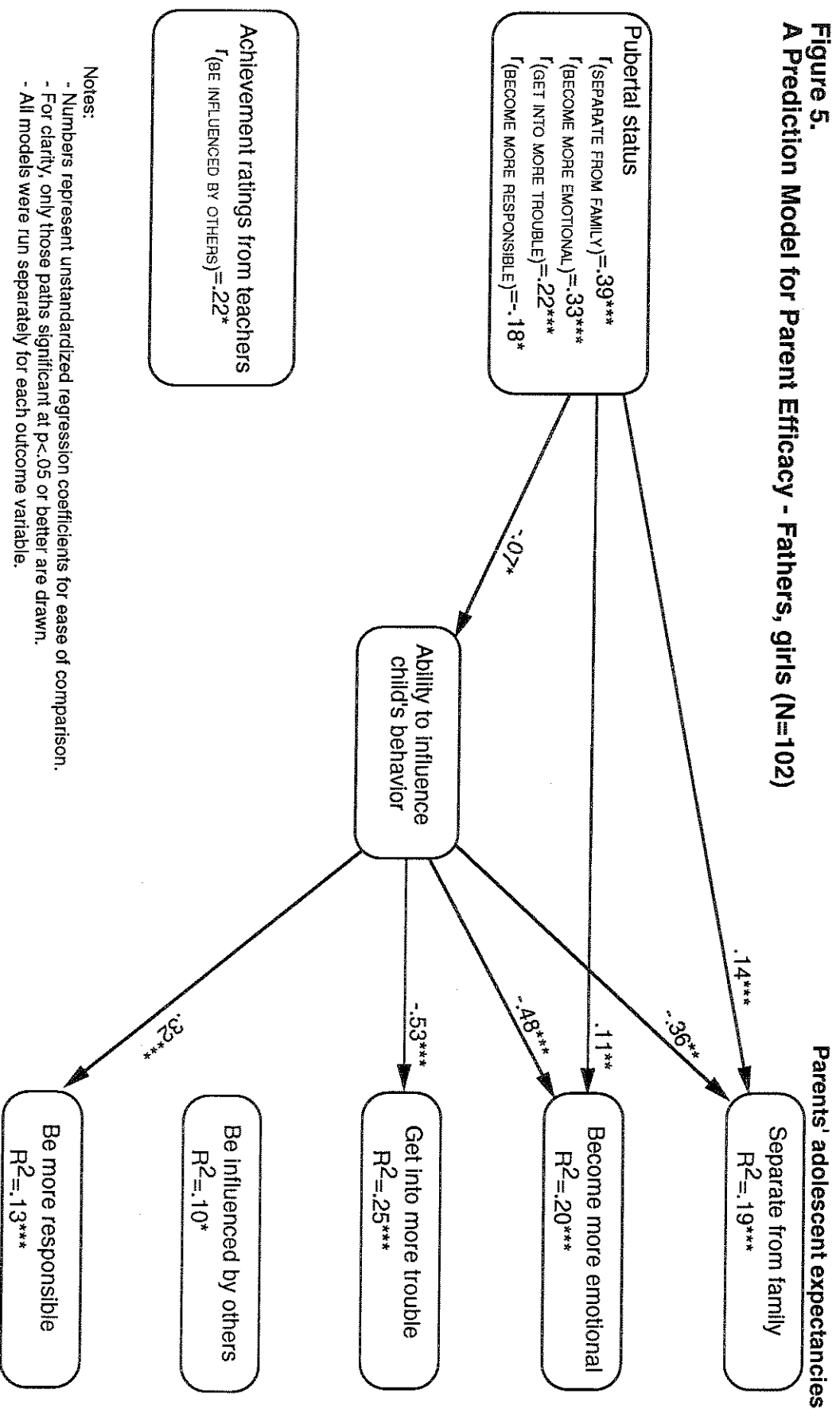
Notes:

- Numbers represent unstandardized regression coefficients for ease of comparison.
- For clarity, only those paths significant at  $p < .05$  or better are drawn.
- All models were run separately for each outcome variable.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$



**Figure 5.**  
**A Prediction Model for Parent Efficacy - Fathers, girls (N=102)**

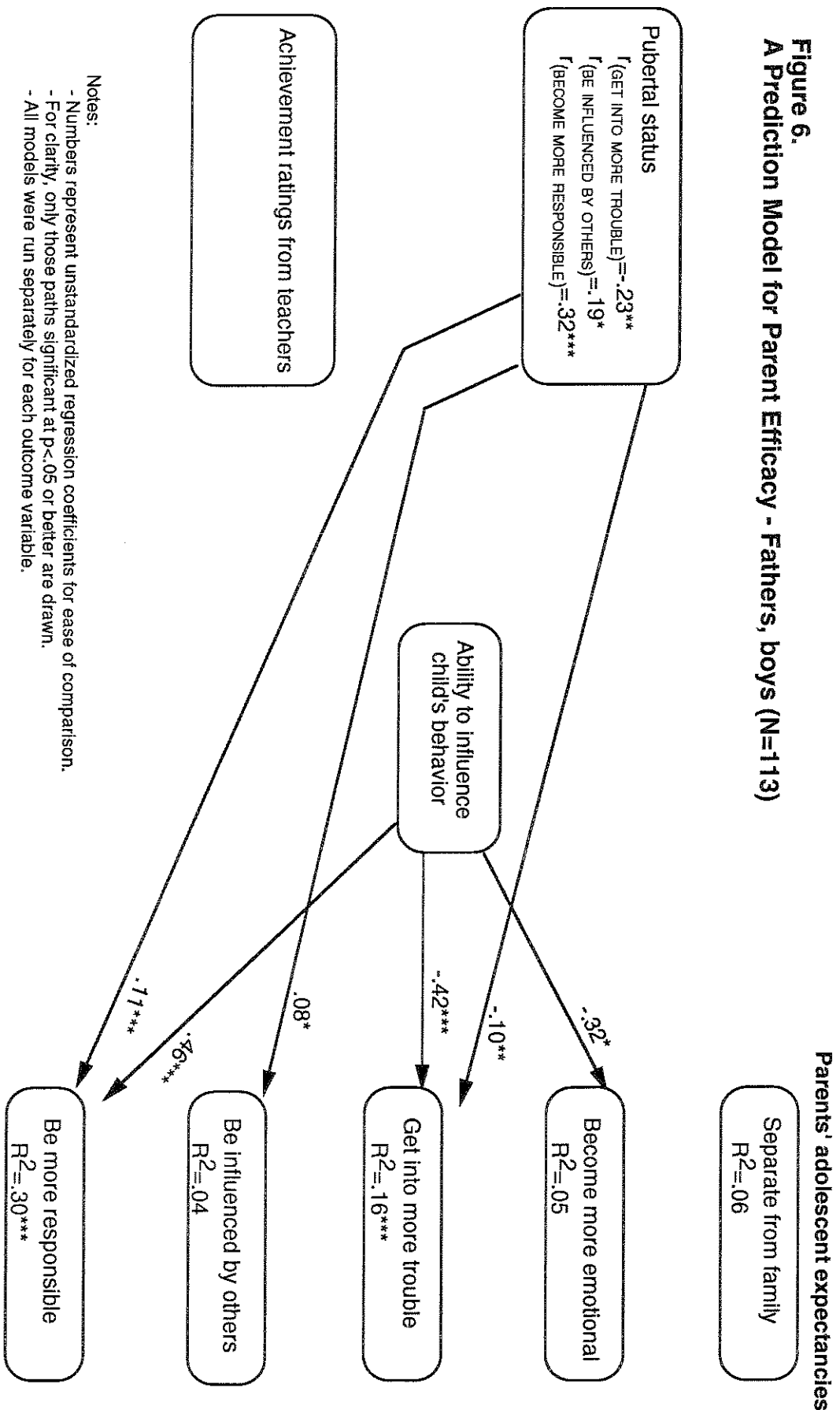


**Notes:**

- Numbers represent unstandardized regression coefficients for ease of comparison.
- For clarity, only those paths significant at  $p < .05$  or better are drawn.
- All models were run separately for each outcome variable.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

**Figure 6.**  
**A Prediction Model for Parent Efficacy - Fathers, boys (N=113)**



**Notes:**

- Numbers represent unstandardized regression coefficients for ease of comparison.
- For clarity, only those paths significant at  $p < .05$  or better are drawn.
- All models were run separately for each outcome variable.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

Perceptions of the school psychological environment and  
early adolescents' psychological and behavioral functioning in school:  
The mediating role of goals and belonging

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Perceptions of the school psychological environment and  
early adolescents' psychological and behavioral functioning in school:

The mediating role of goals and belonging

### **Abstract**

In a sample of 296 eighth grade middle school students, we examined the role of personal achievement goals and feelings of school belonging in mediating the relation between perceptions of the school psychological environment and school-related beliefs, affect, and achievement. Sequential regression analyses indicated that perceiving a task goal structure in middle school was positively related to academic self-efficacy, and this relation was mediated through personal task goals. Perceiving an ability goal structure was related to academic self-consciousness, and this relation was mediated through personal ability goals. Perceiving positive teacher-student relationships predicted positive school-related affect, and this relation was mediated through feelings of school belonging. Feelings of academic efficacy and school belonging in turn were positively related to final semester academic grades. Results are discussed in relation to current middle school reform efforts.

Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging

During the early adolescent years, middle schools play an important role in facilitating or inhibiting successful adolescent development (Carnegie, 1989). Schools potentially can provide early adolescents with opportunities to develop their intellectual capacities, to experience a sense of competence and belonging, and to interact with supportive, non-parental adults. Unfortunately, just when adolescents are particularly in need of these opportunities, the middle school learning environment often fails to provide them (Carnegie, 1989; Eccles & Midgley, 1989). For instance, at a time when adolescents are known to be sensitive about how they appear to others, middle schools emphasize relative ability and social comparison in learning situations (Midgley, Anderman, & Hicks, 1995); and at a time when adolescents are particularly in need of supportive relationships with adults outside the home, the quality of relationships with teachers is less than optimal (Midgley, Feldlaufer, & Eccles, 1989). Understanding how particular aspects of the middle school environment relate to both adaptive and maladaptive patterns of academic motivation and achievement has become an increasingly important topic in the field of educational psychology (Eccles, Wigfield, et al., 1993; Maehr & Anderman, 1993; Midgley, 1993; Urdan, Midgley, & Wood, 1994). At a time when middle schools are being scrutinized and recommendations for reform are being suggested, research in this area assumes a particularly useful role.

The current work is part of the growing number of studies that seek to understand the association between adolescents' school experiences and their academic motivation and behavior during a developmental period characterized by normative declines in several indicators of school adjustment (e.g., Eccles, Midgley, et al., 1993; Harter, Whitesell & Kowalski, 1994; Midgley et al., 1995). For instance, there is evidence that perceptions of academic competence, academic values, and course grades grow more negative (Eccles &

Midgley, 1989), and school-related worries and concerns increase during the early adolescent period (McGuire, Mitic, & Neumann, 1987). Although school adjustment and achievement are important for adolescents' continued engagement with school, general well-being, and future opportunities (e.g., Eccles, Lord & Roeser, in press), few studies have addressed how different aspects of the middle school environment relate to motivation and achievement during these years. In this study, we focus on how early adolescents' perceptions of the goals for learning that are emphasized in their school (task vs. ability goals), and their perceptions of teacher-student relationships relate to their beliefs about their academic efficacy, affect towards school, and academic achievement during eighth grade. Attention is focused not only on understanding how these two aspects of the perceived school environment differentially relate to these academic outcomes, but also to the processes that link perceptions of the school environment with such outcomes.

Within educational psychology, social-cognitive views of motivation that emphasize how students' derive meaning from their experiences in achievement settings have gained increasing prominence (Ames, 1992a; Deci & Ryan, 1985; Eccles, 1983; Maehr & Midgley, 1991; Wiener, 1980). In one line of research, achievement goal theorists have focused on aspects of the learning environment that relate to the goals students adopt in a given academic setting as they strive for competency (e.g., Ames, 1992b; Maehr, 1991; Maehr & Midgley, 1991). Another line of work has highlighted the relations between aspects of the learning environment and students' need for a sense of relatedness and community in school (e.g., Battistich, Solomon, Kim, Watson, & Schaps, 1995; Connell, 1990; Eccles & Midgley, 1989; Goodenow, 1993a). In our view, these two bodies of work have much in common, in that we believe early adolescents actively attempt to make meaning of their middle school experiences in terms of their needs for competence and relatedness (Deci & Ryan, 1985). In particular, we theorize that students attend to school norms concerning how successful learning is defined and also to the way that principals, teachers, and other professionals in the school interact with and relate to students. These

perceptions of the school environment in turn are thought to shape students' own school-related beliefs, affect, and behavior.

In this study, we draw upon constructs from these two strands of research on students' experience in school and their beliefs and behavior. First, we build on research that takes an achievement goal perspective to understanding the quality of students' achievement strivings (Ames, 1992b; Dweck & Leggett, 1988; Maehr & Midgley, 1991; Nicholls, 1984). Second, we utilize constructs from research that has focused on the associations among teacher-student relationships, feelings of belonging in school, and adolescents' academic motivation and behavior (e.g., Connell, 1990; Goodenow, 1993a; 1993b; Moos, 1979). A primary purpose of this study is to bridge these two bodies of work by examining the processes by which both the goal and relationship dimensions of the perceived school context relate to adolescents' psychological functioning and achievement during middle school.

Figure 1 presents the model and constructs examined in this study. First, we theorize that students' perceptions of the goals emphasized in their middle school environment relate to the personal achievement goals they adopt in achievement settings. Similarly, we theorize that students' perceptions of the quality of teacher-student relationships in their school relate to feelings of belonging in school. Students' personal achievement goals and feelings of school belonging in turn are examined in relation to psychological outcomes associated with school such as feelings of academic efficacy and affective reactions in school. In the last step of the model, the association of students' feelings of academic efficacy and affective reactions to school with their final semester academic achievement is examined. In looking at each set of these relations, we employ statistical controls for characteristics with which students' enter eighth grade, including their achievement history, prior achievement goals, race, socio-economic status, and gender (Andersen, 1982).

Although the causal direction of the relations among these constructs is not yet well established, the hypothesized direction from the perceived school context measures to achievement goals and feelings of belonging follows from previous empirical research in classrooms and schools (Goodenow, 1993a; Nolen & Haladyna, 1988; Midgley et al., 1995; Roeser, Aberbach, & Anderman, 1993). The hypothesized direction from achievement goals and feelings of belonging to psychological and behavioral outcomes is similar to other ecological models of achievement motivation (Anderman & Maehr, 1994; Eccles, 1983; Connell, Spencer & Aber, 1994; Maehr, 1991). Similar to these other models, we acknowledge that reciprocal causation among several of these constructs may occur over time (e.g., goals and self-efficacy, self-efficacy and achievement). In this study, we examine the flow among the constructs depicted in Figure 1 at one point in time based upon theoretical considerations, prior research, and the use of relevant statistical controls, all of which are discussed below.

### **The School Psychological Environment**

To understand the relation between middle school experiences and students' psychological and behavioral functioning in school, we focus on what we call "the school psychological environment" or what others have referred to as the "school ethos" (e.g., Good & Weinstein, 1986; Rutter, 1983), the "school culture" (Maehr, 1991; Tye, 1974), or the "school climate" (Andersen, 1982). We use the term "psychological environment" to emphasize that it is the meaning of the environment to the individual that is being considered here. In this case, it is students' perceptions of the school environment and their reaction to those perceptions that are of importance (Maehr, 1991).

Two dimensions of the school psychological environment, the "goal dimension" and the "relationship dimension" are considered in this study. First, there is increasing evidence that the achievement goal structures that students perceive both in the classroom and in the school as a whole are related to their self-perceptions, use of effective learning



strategies, effort, and persistence (e.g., Ames, 1992a; Ames & Archer, 1988; Maehr & Fyans, 1989; Midgley et al., 1995). Second, research on the interpersonal aspects of the middle school environment has demonstrated that positive teacher-student relationships in school are related to early adolescents' academic motivation and achievement (e.g., Goodenow, 1993a; Midgley et al., 1989).

### The Goal Dimension: Perceived Academic Goal Structures

Theoretical and empirical work by Ames, Maehr, Midgley, and their colleagues has demonstrated that constellations of educational practices and policies in classrooms and schools give rise to certain meanings or goals that define what constitutes success (see Ames, 1992a; 1992b; Maehr & Midgley, 1991; Midgley, 1993). Although much of the research on academic goal structures has focused on the classroom level (see Ames, 1992b), Maehr and Midgley (1991) have argued that goal structures can also be perceived at the school level, and are conveyed through the school level policies and practices that students experience in their schools on a regular basis. For instance, public honor rolls or assemblies for the highest achieving students, the use of homogenous ability grouping, special privileges based upon academic standing, and separate report card marks for achievement and effort may all provide important messages about what constitutes success in a given school (see Maehr & Anderman, 1993; Maehr & Midgley, 1991; Midgley, 1993 for extended discussions). One of the primary demands placed upon students within the school setting is the pursuit of academic success, and thereby a sense of personal competence and worth (e.g., Covington, 1992). Thus, the implicit and explicit meanings of success that students perceive at school may relate to their own achievement beliefs, feelings, and behaviors. For instance, evidence from laboratory studies (Dweck & Leggett, 1988), and from an intervention project in elementary school classrooms (Ames, 1990) suggests that changes in the goal context are related to changes in students' approach to learning. We believe similar processes operate at the school level, and posit that

perceptions of the goal structures in school are important antecedents to students' own achievement goals (Maehr & Midgley, 1991).

Two types of school-level goal structures have proven to be helpful in understanding how students' construct meaning about what constitutes successful achievement in school. Schools, through their policies and practices, can emphasize improvement, mastery, and intellectual development ("task goals"), or social comparison, relative ability, and competition among students ("ability goals"). Although relatively few studies have been conducted to date, there is evidence that students' perceptions of the goals emphasized in the school as a whole are related to their personal achievement goals, feelings of academic efficacy, use of effective learning strategies, and in-school behavior. Specifically, perceiving that the school environment emphasizes personal improvement and task mastery is related to personal task goals, use of higher level cognitive strategies, academic self-efficacy, and positive in-school behavior, whereas perceiving that the school environment emphasizes the demonstration of ability relative to others is related to less positive patterns of learning and views of self (personal ability goals, use of surface level cognitive strategies, low self-efficacy, increased incidence of disciplinary problems) (Maehr & Fyans, 1989; Midgley et al., 1995; Urda & Roeser, 1993).

Although research on the relation between perceived school goal structures and cognitive and behavioral variables is growing, virtually no school-based research to date has looked at how perceived school goal structures relate to students' feelings of academic self-consciousness or school-related affect. Achievement goal theorists have long suggested that school settings that are competitive and ability-focused are likely to promote feelings of frustration, disaffection, and self-consciousness for many students, whereas settings that emphasize task mastery and improvement may relate to diminished self-consciousness during learning (e.g., Ames, 1992a; Ames, 1984; Covington, 1992). Despite these theoretical predictions and the demonstration of the links between personal

achievement goals and affect in the laboratory (Dweck & Leggett, 1988), empirical studies of these relationships in actual school settings have yet to be undertaken.

In the current study, we test several hypotheses concerning the relations between students' perceptions of school goal structures and their psychological functioning in school (see Figure 1), and whether personal goals mediate the relation of these perceptions to psychological outcomes. First, we hypothesize that perceptions of a school ability goal structure and a school task goal structure will predict students' personal ability and task goals, respectively. Second, we hypothesize that perceiving an ability goal structure in the school will be positively related to feelings of academic self-consciousness, and that this relation will be mediated through students' personal ability goals. Third, we hypothesize that perceiving a task goal structure in the school will be positively related to academic self-efficacy (e.g., Midgley et al., 1995), and negatively related to academic self-consciousness, and these relations will be mediated through students' personal task goals for learning. Each of these relations are hypothesized to exist above and beyond any influence of students' prior (sixth grade) achievement goals.

#### The Relationship Dimension: Perceived Teacher-Student Relationships

The second strand of research upon which this study builds is based on the growing awareness that schools play an important role in providing a supportive, caring community within which learning and mental health can thrive (Carnegie, 1989). Whereas academic goal structures in the school are thought to relate to students' construction of the meaning of success, and hence, the achievement goals they adopt, social aspects of the school environment have been conceptualized as relating to feelings of school belonging and commitment (see Goodenow, 1992; Moos, 1979). Empirical studies have shown that perceptions of positive teacher-student relationships and feelings of school belonging both relate to positive academic motivation and achievement (Goodenow, 1993a; Midgley et al., 1989; Moos, 1979). Furthermore, Boekaerts (1993) has suggested that supportive academic settings may be perceived by students as extensions of their personal resources,

and may thus serve to reduce anxiety and negative affect that can arise in achievement settings.

The possibility that feelings of belonging mediate the relation between perceptions of the school environment and students' self-efficacy beliefs, school-related affect, and self-consciousness is largely unexplored (e.g., Goodenow, 1993b). Just as students' perceptions of the goals that are promoted in their school can affect their personal goal orientations, we hypothesize that their perceptions of the quality of teacher-student relationships are related to their personal feelings of belonging in school, which in turn relate to psychological and behavioral functioning in school. Specifically, we predict that students who perceive positive teacher-student relationships in school characterized by respect, supportiveness, and care will report a greater sense of school belonging. Positive feelings of school belonging, in turn, are hypothesized to predict increased positive feelings towards school and decreased self-consciousness in learning situations. We test whether feelings of school belonging mediate these relations between teacher-student relationships and these affective outcomes.

### Predicting Achievement

In the final step of the model in Figure 1, we hypothesize that students' academic efficacy beliefs, school-related affect, and academic self-consciousness will predict their end of the year achievement. Other research has documented positive relations between middle school students' academic self-efficacy and academic performance as measured by grades and we expect to replicate these findings with this sample of eighth graders (Pintrich & De Groot, 1990). Academic self-consciousness is conceptualized as operating similar to test anxiety, in that higher levels of academic self-consciousness can have a debilitating influence on school-related self-perceptions and performance (Elias, 1989; Yee & Flanagan, 1985). For instance, self-consciousness in academic situations may be associated with an impaired ability to concentrate, a fear of taking academic risks, and refusals to speak publicly in classes, all of which potentially could lead to lower

performance. Finally, similar to research that has shown that positive attitudes towards school relate positively to achievement (Moos, 1979), we predict that positive affect in school will also be related to higher grades.

### The Role of Student Entry Characteristics

Previous school environment studies have documented the role that students' entry characteristics can play in shaping their subsequent perceptions of the school environment, and subsequent school-related outcomes (see Andersen, 1982). Here we were concerned with whether students' perceptions of their school in the eighth grade, especially their perceptions of the school goal structures, were related to their prior goal orientation. We also were interested in examining the relations in Figure 1 above and beyond any influence that could be attributed to students' prior goal orientation. To address these issues, we first examined the relation of students' sixth grade goal orientation to their eighth grade school perceptions. Second, we partialled out the influence of these prior beliefs in assessing the relations in Figure 1. In addition, we included measures of gender, race/ethnicity, and participation in the school lunch program to address mean level differences in several of our outcome measures that could be attributed to these other entry characteristics of students.

### Summary

In summary, this study adds to existing research in the following ways: First, we bring together two separate strands of research on the relations between the perceived school environment and students' beliefs, emotions, and achievement. That is, we incorporate research on both the perceived goal structure and the quality of teacher-student relationships in school. Second, we test a set of mediated relations to determine whether personal achievement goals mediate the relation between perceptions of the school goal structure and psychological outcomes; and whether personal feelings of belonging in school mediate the relation between perceived teacher-student relationships in the school and psychological outcomes. Third, we broaden the range of outcome variables that have

been considered in research adopting an achievement goal perspective by examining affective variables in addition to academic self-efficacy and achievement. Fourth, we take account of students' prior motivational beliefs and achievement history in considering these relationships during adolescents' eighth grade school year.

## Method

### Sample

The students who participated in this study were attending two middle schools that served all 6th, 7th, and 8th graders in one school district. The school district is located near a major metropolitan area in a community that can be characterized as primarily white and working-class. Census statistics (1990) indicated a median family income of about \$40,000, with approximately 6% of the families living in poverty. Eighty percent of the community residents sampled had completed high school and about 15% had a bachelor's degree or higher. The sample consisted of 296 students. Approximately equal numbers of girls ( $n=147$ , 49.6%) and boys participated in the study. The sample was 87% Caucasian and 13% African-American, reflecting the racial/ethnic composition of the surrounding communities. Ten percent of the students in this study received free or reduced fee lunches in school, based on level of family income. In order for students to participate in the study, parental permission was required. Seventy-nine percent of the students in the two schools received permission. Data were collected when the students were in the sixth and eighth grades (Spring, 1991 and Spring, 1993).

One of the two middle schools in this study was participating in a collaborative restructuring project with researchers at the University of Michigan (Maehr & Midgley, in press). The sixth grade measures included in this study were collected prior to the beginning of the collaborative project. Reform efforts in the school participating in the collaborative project did not include the eighth grade level until the year following the collection of the eighth grade data. T-tests assessing mean differences in students'

perceptions of the school context at the eighth grade level revealed no differences between the two schools.

Surveys were administered to students during one class period (approximately forty minutes) each year and were read aloud by trained research assistants. Students were given instructions in the use of Likert-type scales and were encouraged to ask questions during survey administration if anything was unclear. Participants were assured that the information they provided would be confidential, and surveys were removed from the school sites after the students had completed them.

### Measures

The measures used in this study were selected to assess the four sets of constructs depicted in Figure 1, including perceptions of the school environment, mediating processes, and psychological and behavioral outcomes. Principal component factor analytic methods were used to differentiate scales within each of these four hypothesized levels of constructs (Kim & Mueller, 1978). Scales, items, and reliability coefficients for the school context perceptions, personal achievement goals, school belonging, and academic self-efficacy measures are presented in the appendix. These measures were taken from the Patterns of Adaptive Learning Survey (PALS) developed at the University of Michigan over the last five years (Midgley et al., 1995; see Maehr & Midgley, in press; Midgley et al., 1995). These scales and others used in this study are summarized below.

School context perceptions. Three scales were used to measure students' perceptions of the school psychological environment, two reflecting the goal dimension and one reflecting the relationship dimension. Items for all three of these scales were drawn from PALS, and were measured on five-point Likert scales (1 = not at all true in this school, 5 = very true in this school). Principal component factor analysis was used on the full set of items measuring students' school perceptions, and the three hypothesized scales emerged. The perceived task and ability goal structure scales were negatively correlated ( $r = -.45$ ;  $p \leq .01$ ), whereas the perceived teacher-student relationship scale was positively

correlated with the task goal structure scale ( $r = .70$ ;  $p \leq .01$ ), and negatively with the perceived school ability goal structure scale ( $r = -.53$ ;  $p \leq .01$ ). Although these correlations are high, an examination of the tolerances of these variables in the multivariate analyses described below showed that no assumptions concerning multicollinearity were violated (Berry & Feldman, 1985).

The scale measuring student perceptions of a school task goal structure consisted of six items, and had an alpha coefficient of .81. Items in this scale assessed students' perceptions of an emphasis in the school on effort, understanding, and the belief that all students can learn and be successful. The scale measuring perceptions of a school ability goal structure consisted of 5 items ( $\alpha = .80$ ), and included items tapping student perceptions that relative ability is a salient and rewarded marker of success in the school, and that higher achieving students are treated better than other students. The teacher-student relationship scale was comprised of 5 items ( $\alpha = .81$ ), and tapped student perceptions of the quality of teacher-student interactions in school.

Process measures. Three scales, also taken from PALS, were used to measure the processes that were hypothesized to mediate the relation between school perceptions and students' psychological and behavioral functioning in school. These included students' personal task and ability goal orientation, and their feelings of belonging in school. All of the items for these constructs were assessed on five-point Likert scales (1 = not at all true of me, 5 = very true of me), and were factor analyzed together. The three hypothesized scales emerged from the factor analysis. The personal task goal and ability goal measures were positively correlated ( $r = .14$ ;  $p \leq .05$ ), whereas school belonging was positively correlated with personal task goals ( $r = .47$ ;  $p \leq .05$ ) and was unrelated to ability goals ( $r = .09$ , *ns*). The scale assessing students' personal task goals included 5 items ( $\alpha = .81$ ), and assessed students' preferences for challenging work, task mastery and understanding, and learning new things. The scale measuring personal ability goals consisted of 6 items ( $\alpha = .84$ ), and included items that assessed students' desire to demonstrate their ability relative



to others, and to be recognized by their teachers and parents for their ability relative to others. The scale measuring feelings of belonging in school consisted of 4 items ( $\alpha = .76$ ) that assessed whether students felt important, that they mattered, and that they belonged in their middle school. Although early adolescents experience several different classroom environments during a typical middle school day, this study was concerned with the psychological environment in the school as a whole. Thus, we purposely used generalized school-level measures rather than domain specific or classroom specific measures to assess students' orientation to task goals, ability goals, and their feelings of belonging in school.

Psychological outcomes. Students' academic self-efficacy, academic self-consciousness, and general affective experience in school were included as psychological outcomes related to school. The academic self-efficacy scale came from PALS, was comprised of six items ( $\alpha = .86$ ), and assessed students' beliefs that they could master the material and skills taught in school if they were given enough time and exerted enough effort. Items were assessed on a 5-point scale (1 = not at all true of me, 5 = very true of me). For the set of items that tapped students' school-related affect and self-consciousness, factor analysis was used to derive scales. Two scales emerged, including positive school affect (3 items,  $\alpha = .81$ ) and academic self-consciousness (4 items,  $\alpha = .73$ ). All of these items were measured by a 5-point Likert items (1 = not at all true of me, 5 = very true of me). The positive affect scale was developed by Wolters, Garcia, & Pintrich (1992), and assessed the general valence of students' emotional experience while in school. Items for the positive affect scale included "I like being at school," "Most of the time, being in school puts me in a good mood," and "I am happier at school than when I am not at school." The academic self-consciousness items were taken from Eccles' Junior High School Transition Study (see Eccles, Midgley, et al., 1993). Items on this scale included "I am afraid to make mistakes in front of others in my classes," "I feel nervous about performing in front of others or making a presentation", and "I am easily

embarrassed in school.” The positive school affect and academic self-consciousness scales were uncorrelated ( $r = .04$ ; ns).

Achievement. A measure of academic achievement was taken from students’ school records. Grade point average (GPA) from the final semester of students’ eighth grade year was computed by averaging grades in the core academic subjects (English, math, science, social studies). This scale ranged from 1 (E = failing) to 13 (A+).

Student entry characteristics. We also included measures of students’ entry characteristics, including prior achievement goals, gender, ethnicity, free lunch status, and sixth grade achievement (hereafter referred to as “statistical controls”). These variables were included in all analyses to account for statistically significant differences between groups on several of the process and outcome measures.<sup>1</sup> Students’ academic grades from sixth grade were taken from school records. A measure of prior academic performance was created by averaging year end grades in math, English, science, and social studies. This achievement measure also ranged from 1 to 13 (E to A+). Prior achievement goals were assessed on surveys administered to students during their sixth grade year. Similar to the eighth grade goal measures, these scales consisted of five point Likert items, included slightly fewer items than the eighth grade measures, and were reliable. The sixth grade goal measures are also presented in the appendix.

## Results

### Bivariate Relations

Summary statistics and correlations among all of the measures are presented in Table 1. The bivariate relations among the school perceptions, personal achievement goals and feelings of school belonging, and psychological and achievement outcomes exhibited a predictable pattern of results. Of particular interest in this study were the correlations between perceptions of the school psychological environment and the other measures. Perceiving an emphasis on mastery and improvement in the school (school task goal structure) was significantly positively related to students’ adoption of personal task-goals,

feelings of school belonging, academic self-efficacy, positive school affect, and final semester grade point average. The same pattern of correlations emerged for perceptions of the quality of teacher-student relationships. Perceiving an emphasis on relative ability and competition in school (school ability goal structure), on the other hand, was significantly positively correlated with students' adoption of personal ability goals, and negatively correlated with feelings of school belonging, positive affect in school, and final semester grade point average in eighth grade.

### The Role of Prior Achievement Goal Beliefs

In order to examine whether students' prior achievement goals influenced their perceptions of the school environment during eighth grade, we regressed each of the school perception variables on the prior goal measures. Results showed that students' sixth grade personal task goals had a moderate, positive effect on subsequent perceptions of a school task goal structure ( $\beta = .27, p \leq .01$ ) and on perceptions of the quality of teacher-student relationships ( $\beta = .27, p \leq .01$ ), and a negative predictive effect on perceptions of a school ability goal structure ( $\beta = -.22, p \leq .01$ ) during eighth grade. Sixth grade ability goals had a small positive effect on perceptions of a school ability goal structure during eighth grade ( $\beta = .14, p \leq .05$ ). The sixth grade personal achievement goals accounted for only a small amount of the variance in students' school environment perceptions at the eighth grade level (adjusted r-squares .05 - .07).

These regressions indicated that prior goals were modest predictors of subsequent perceptions of the school environment. We wanted to understand the pattern of relationships among the constructs in Figure 1 independent of students' prior goal beliefs. Therefore, each of the school perception, mediating process, and outcome measures was regressed on the prior goal measures, and residual scores from these regressions were used in the subsequent analyses. Partialling out the variance due to students' prior achievement goal beliefs in both the eighth grade predictor and outcome measures allowed us to examine the multivariate relations among these measures net of the influence of prior goals

(Pedhazur, 1982). For the goal measures, prior task and ability goals predicted 14% of the variance in eighth grade task goals, and 16% of the variance in eighth grade ability goals.<sup>2</sup> For the other measures, small amounts of variance were explained by the prior goal measures (adjusted r-squares .05 - .07). Distributions of the residuals were inspected to insure their normal distribution and heteroscedacity. All of the coefficients presented subsequently (Figure 2, Tables 2 - 3) represent the predictive relations among the variables above and beyond any influence attributable to students' prior achievement goals. Because the correlations among these measures were slightly different from those presented in Table 1, they are presented in Tables 2 - 3 along with the regression results.

### Regression Analyses

To examine the multivariate relations among the eighth grade measures specified in Figure 1, after partialling out any variance due to students' prior achievement goals, regression analyses were conducted with the residual measures. Sequential regression analyses were used to test the two sets of mediated relations specified in Figure 1. First, we were interested in whether the personal goal and belonging measures mediated the relations between the school perceptions and the psychological outcomes. Second, we examined whether the psychological outcomes mediated the relations between the goal and belonging measures and academic achievement, controlling for the other variables in the model.

According to Baron and Kenny (1986), to conclude that there is evidence of a mediated relationship, the following conditions must be met: (1) there must be significant relations between the predictors and the outcomes; (2) there must be significant relations between the predictors and the mediators; and finally (3) there must be significant relations between the mediators and the outcomes when all of the variables are entered into the same equation, and these relations must reduce the direct effects of the predictors on the outcomes. In instances where these conditions of mediation were satisfied, we then

calculated the indirect effects, their standard errors, and their level of statistical significance using a formula described by Sobel (1982; as cited in Baron & Kenny, 1986)

Following Judd and Kenny (1981), sequential regression analyses were conducted to test each of these three conditions for mediation. The first set of mediated relations we examined involved the school perceptions (predictors), goal and belonging measures (mediators) and psychological outcome measures (outcomes). First, we regressed each of the psychological outcome measures on the school perceptions to test for direct effects (Condition 1). Once these direct effects were established, the goal and belonging measures were regressed on the school perceptions to examine the first links in the hypothesized mediational sequence (Condition 2). Finally, the last analysis involved simultaneous regressions for each outcome measure which included both the school perceptions (predictors), and the personal goal and belonging measures (mediators). Evidence for mediated relations would include a direct effect of the mediators on the outcomes, and the diminishment of the direct links between the school environment perceptions and the outcomes in these final equations (Condition 3). The same strategy was used to test the second set of mediated relations. This set of regressions examined the direct and indirect relations between the goal and belonging measures (predictors), psychological outcome measures (mediators), and academic achievement (outcome).

#### From Predictors to Outcomes: School Perceptions and Psychological Outcomes

Table 2 presents the first set of sequential regressions. Direct effects of the school perceptions on the psychological outcomes are found under the "Model 1" column. To examine the direct effects of the school perceptions on the psychological outcomes (academic self efficacy, self-consciousness, school affect), each of these outcomes was regressed on the school perception measures and the statistical controls (gender, race, lunch status, prior achievement). Results showed that perceptions of a school task goal structure had a direct positive effect on academic self-efficacy ( $\beta = .28, p \leq .01$ ) after controlling for the students' entry characteristics and the other school perceptions. Similarly, perceptions

of a school ability goal structure had a direct positive effect on academic self-consciousness ( $\beta = .22, p \leq .01$ ), whereas perceived teacher-student relationships had a direct positive effect on positive school affect ( $\beta = .23, p \leq .01$ ).

#### From Predictors to Mediators: School Perceptions and Goals and Belonging

The second set of analyses regressed each of the mediating variables, in this case the personal goal and belonging measures, on the school perceptions and statistical controls. These results are summarized in Figure 2. As hypothesized, perceptions of a school ability goal structure was the strongest positive predictor of personal ability goals ( $\beta = .40, p \leq .01$ ), whereas perceptions of a school task structure ( $\beta = .34, p \leq .01$ ) and the quality of teacher-student relationships ( $\beta = .22, p \leq .01$ ) were the strongest predictors of personal task goals and feelings of school belonging, respectively. Perceptions of a school task goal structure also had a small, positive effect on feelings of school belonging ( $\beta = .17, p \leq .05$ ).

#### Mediated effects: Goals and Belonging to Psychological Outcomes

Mediation was tested by regressing each of the psychological outcomes on the goal and belonging measures in the presence of the school environment perceptions and statistical controls. Results are presented in Table 2 under the column labeled "Model 2." For academic self-efficacy, students' personal task goals ( $\beta = .17, p \leq .05$ ) and feelings of school belonging ( $\beta = .17, p \leq .05$ ) had positive effects in the full equation that included the school perception measures. Furthermore, in the presence of these mediators, the relation of school task goal perceptions to academic self-efficacy dropped to non-significance ( $\beta = .10, ns$ ). Together, these results satisfied Baron & Kenny's (1986) criteria for mediation. As predicted, the indirect effect of a perceived school task goal structure on academic self-efficacy through personal task goals was significant ( $\beta = .14, p \leq .001$ ); the indirect relation through feelings of school belonging was not. Overall, 48%

of the variance in academic self-efficacy was explained, with prior GPA, personal task goals, and feelings of belonging emerging as the strongest predictors.

For self-consciousness, personal ability goals ( $\beta = .39, p \leq .01$ ) and feelings of belonging ( $\beta = -.23, p \leq .01$ ) had significant effects in Model 2. Students' ability goals had a positive relation to feelings of self-consciousness in school, whereas feelings of belonging were negatively related to self-consciousness. In addition, the direct relation of perceptions of a school ability goal structure on self-consciousness dropped to non-significance in this equation ( $\beta = .07, ns$ ), indicating mediation. Again, as hypothesized, the indirect effect of perceptions of a school ability goal structure on academic self-consciousness through personal ability goals was significant ( $\beta = .16, p \leq .001$ ). Twenty-one percent of the total variance was explained, and personal ability goals emerged as the strongest predictor of academic self-consciousness during eighth grade.

For positive school affect, evidence for mediation was also found. In the second model, students' feelings of school belonging ( $\beta = .45, p \leq .01$ ) and personal task goals ( $\beta = .25, p \leq .01$ ) had significant positive effects on positive school affect, and the direct relation of a perceived teacher-student relationships dropped to non-significance ( $\beta = .14, ns$ ) in this equation. The indirect effect of perceived teacher-student relationships on positive school affect through feelings of school belonging was significant ( $\beta = .07, p \leq .05$ ). In total, 25% of the variance in positive school affect was explained, with personal task goals and feelings of school belonging emerging as the only significant predictors in the final model.

### Predicting Year-End Academic Grades

Table 3 shows the results for the final set of analyses which examined the predictors of students' year-end academic grade point average. We tested whether the psychological outcomes (academic self-efficacy, self-consciousness, school affect) mediated the relations between students' achievement goals and school belonging, and their academic grades. No support for these mediated effects emerged. Thus, only results of

the second model that included all of the predictors simultaneously are discussed. These results are summarized in Figure 2. For students' year end grade-point average, prior academic grade point average was by far the strongest predictor ( $\beta = .66, p \leq .01$ ). Academic self-efficacy ( $\beta = .12, p \leq .05$ ) and feelings of belonging ( $\beta = .15, p \leq .01$ ) also had small, positive effects on year-end grades above and beyond the variance explained by prior academic achievement. In total, 63% of the variance in year-end grades was explained.

### Discussion

The results of this study suggest that middle school environments that are perceived as supportive, caring, and emphasizing individual effort and improvement are related to a more adaptive pattern of cognition, affect, and behavior than are middle school environments perceived as less supportive and emphasizing relative ability and competition (e.g., Battistich et al., 1995; Eccles, Midgley, et al., 1993; Maehr & Fyans, 1989). These results corroborate previous research on early adolescence and schooling (see Eccles & Midgley, 1989), and are strengthened because we (a) tested the direct and indirect relations between measures of the perceived context, mediating motivational beliefs, and indicators of psychological and behavioral functioning in school using a rather rigorous set of criteria (Baron & Kenny, 1986) and (b) used longitudinal measures to account for prior student characteristics known to influence subsequent perceptions (Nolen & Haladyna, 1990). Below we discuss findings concerning the inter-relations among different dimensions of the perceived school environment, as well as the processes by which these different dimensions relate to specific academic outcomes.

#### Dimensions of the School Psychological Environment

The current study focused on two dimensions of the school psychological environment, the relationship and goal dimensions, which to our knowledge have not been examined together previously. We found that students' perceptions of the goal dimension



of the school environment were strongly related to their perceptions of the relationship dimension of the school environment. Students who perceived their school as emphasizing understanding, effort, and personal development also perceived that teachers cared about, trusted, and respected students. In contrast, when students perceived that only the most able students were recognized, rewarded, and given support, they also perceived that relationships between students and teachers in the school were less warm and responsive.

There is currently considerable discussion about the need to enact reforms that create a personalized, caring environment in schools that serve young adolescents (Battistich et al., 1995). Recommendations to develop “small houses” or schools-within-a-school and advisory periods are examples of such reform efforts (Carnegie, 1989). However, there is less discussion about the need to de-emphasize honor rolls, special privileges for the brighter students, and competition among students. It has been our experience in middle schools that recognizing and rewarding students based on their ability relative to others is a common practice and one that is assumed to have a positive influence on the motivation of most, if not all students (Maehr & Midgley, in press). In our conversations with middle school teachers, they speak positively about the role of the honor society, special privileges for the more able students, and recognition for superior performance. These are often thought of as “incentives,” and as promoting higher standards. In reality, these “incentives” may be undermining students’ perceptions that their schools value and care for them as individuals, and may be limiting the number of students who feel a sense of success and belonging at school (Elias, 1989; Marsh, 1991).

Given that we know youth who experience secondary schools as both frustrating academically and unsupportive interpersonally are most likely to disengage from school (Fine, 1991; Wehlage & Rutter, 1986), these issues deserve further research attention. Future studies could draw upon multiple informants (e.g., teachers and students) and utilize multiple methods (observations, interviews) to provide a more thorough portrayal of

how social relationships and motivational goal structures are related in the everyday experience of adolescents in school.

### Relations of School Dimensions to Academic Outcomes

Although other studies have documented the relations between perceptions of the school environment and psychological and behavioral outcomes related to school (e.g., Maehr & Fyans, 1989), less attention has been directed towards clarifying the processes that link student perceptions of the psychological environment with academic outcomes (Andersen, 1982). In one set of relations, we examined how it is that perceiving that the school emphasizes qualitatively different purposes for learning (e.g., task or ability goals) relates to student outcomes. Our results indicate that it is through the achievement goals students adopt themselves in a given environment, and that these goals reflect students' active attempts at understanding and interpreting the purposes for achievement that are emphasized in their school (Maehr, 1991).

Students' who perceived their school as emphasizing task goals reported feeling more academically efficacious, with this relation being mediated through students' personal task goal orientation. Given the many studies that have found links between students' task goals, their academic self-efficacy beliefs, and actual achievement as measured by grades (Ames, 1992a; Multon, Brown, & Lent, 1991), understanding the school and classroom-level factors that promote students' adoption of task goals remains a high priority for researchers in this area.

A different set of mediated relations were found for perceptions of a school ability goal focus. Students who perceived an emphasis on competition and relative ability in their school were more likely to feel self-consciousness in academic situations, with this relation being mediated through students' own espousal of ability goals. Adolescence is known to be a time of increased academic concerns and general self-consciousness (Elkind & Bowen, 1979; McQuire et al., 1987), and some researchers have argued that competitive academic environments may serve to increase these feelings of self-consciousness at a time

when this could be most detrimental to youths' self-image (see Eccles & Midgley, 1989; Elias, 1989). This study provides support for these notions. The anxiety that appears to accompany students' efforts to outperform others, as well as the need to negotiate perceived threats to self-worth under these goal conditions seem less than optimal for both learning and positive development (Covington, 1992; Elias, 1989; Nicholls, Patashnick, Cheung, Thorkildsen & Lauer, 1989). As Elias (1989) notes, "the competition to be the best pervades many school climates. But too few children have access to this valued role and the resulting pressures ... contribute to a sense of failure and alienation" (pp. 394). Although some concern and worries in academic settings where evaluation is ubiquitous may be natural, to the extent that a reduction of anxiety in school settings is a valued educational outcome in its own right, practices that serve to de-emphasize relative ability and competition in middle level schools may be desirable.

In a second set of relations, we found that students' who reported more positive teacher-student relationships also said that they liked and felt good when in school, with this relation being mediated through feelings of school belonging. Students who experienced a feeling of belonging in their middle school also felt more academically efficacious and less self-conscious. Feeling positively about how teachers and students interact in school may provide a secure emotional basis from which students can both come to enjoy school and also develop their academic competence without feeling self-conscious or worried about failure (e.g., Boekaerts, 1993; Connell, 1990). Furthermore, positive relationships with teachers may serve a particularly important role in facilitating adjustment during early adolescence when youth need non-parental role models and mentors.

#### The prediction of school achievement

In examining the predictors of students' end of the year school achievement, prior academic achievement emerged as the strongest predictor. This suggests that school achievement is quite stable across these years (e.g., Skaalvik & Hagtvet, 1990). However, corroborating other research on academic self-perceptions and achievement, we also found

that students' who felt more academically efficacious received higher year end grades, even after controlling for the influence of prior achievement (Bandura, 1993; Eccles, 1983; Pintrich & De Groot, 1990). It is interesting to note that academic self-efficacy did not mediate the relations of students' personal goals and year end grades, however. This suggests that achievement goals relate primarily to other aspects of motivation (e.g., efficacy beliefs) and cognition (e.g., learning strategy use), and that it is these factors which in turn are related to actual achievement (Ames, 1987; Pintrich & De Groot, 1990). We also found a direct relation of feelings of school belonging with end of the year achievement after controlling for students' prior achievement and all of the other variables in the model. Although we cannot be certain of the causal direction of this relation, it certainly accords with work that suggests emotional support and feelings of relatedness are important motivators of achievement (Connell, 1990; Goodenow, 1993a).

### Summary

Several limitations of the present study are important to note. First, the correlational nature of these findings preclude us from ascertaining the causal flow among the variables examined. It is likely that many of these relations are reciprocal over time. The replication of this study with longitudinal measures would help to clarify the causal nature of these relations. Second, we emphasized the primary role of students' phenomenological experience of school in relation to their individual psychological and behavioral functioning at school, and suggested that policies and practices in middle schools influence students' perceptions of the goal structures in these schools (Maehr, 1991; Maehr & Midgley, 1991). Although an examination of practices in middle schools, as well empirical studies comparing elementary and middle school environments support these assumptions (Midgley, 1993; Midgley et al., 1995), this study did not examine the link between school policies and practices and students' perceptions. Thus, the generalization of these findings, which are based upon individual perceptions, to discussions of the associations between academic outcomes and the school context per se

must be made with caution (Andersen, 1982). In the future, the use of longitudinal measures of students' school experiences and functioning, and triangulation of the findings reported here with other sources of information on the school context including principal and teacher reports, observational measures, and checklists of school level practices and procedures would serve to strengthen our interpretations of these results. Finally, the measures examined in this study contributed little to the prediction of achievement when prior achievement was included in the analyses. We believe that the indicators in this study are likely to share stronger relations with other important behavioral outcomes associated with school such as task persistence, choice, continuing motivation, etc. (Eccles, 1983; Nicholls, 1984). Expanding the set of outcome measures to include these other types of educational outcomes, as well as aspects of students' mental health is part of our on-going research program (Midgley & Maehr, 1994; Roeser & Eccles, 1995).

## References

- Ames, C. (1984). Competitive, cooperative, and individualistic goal structures: A cognitive motivational analysis. In R. E. Ames & C. Ames (Eds.), Research on motivation in education: Vol. 1. Student motivation (pp. 177-208). New York: Academic Press.
- Ames, C. (1987). The enhancement of student motivation. In Advances in Motivation and Achievement: Enhancing Motivation (Vol. 5, pp. 123-148). JAI Press.
- Ames, C. (1990, April). Achievement goals and classroom structure: Developing a learning orientation. Paper presented at the annual meeting of the American Educational Research Association, Boston.
- Ames, C. (1992a). 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: Lawrence Erlbaum Associates.
- Ames, C. (1992b). Classrooms: Goals, structures, and student motivation. Journal of Educational Psychology, 84, 261-271.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Student's learning strategies and motivation processes. Journal of Educational Psychology, 73, 411-418.
- Andersen, C.S. (1982). The search for school climate: A review of the research. Review of Educational Research, 52, 368-420.
- Anderman, E.M., & Maehr, M.L. (1994). Motivation and schooling in the middle grades. Review of Educational Research, 64, 287-309.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. Educational Psychologist, 28, 117-148.
- Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.

Battistich, V., Solomon, D., Kim, D., Watson, M., & Schaps, E. (1995). School as communities, poverty levels of student populations, and students' attitudes, motives, and performance: A multilevel analysis. American Educational Research Journal, *32*, 627-658.

Berry, W.D., & Feldman, S. (1985). Multiple regression in practice. Newbury Park, CA: Sage Publications, Ltd.

Boekaerts, M. (1993). Being concerned with well-being and with learning. Educational Psychologist, *28*, 149-167.

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

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., Spencer, M.B., & Aber, J.L. (1994). Education risk and resilience in African-American youth: Context, self, action, and outcomes in school. Child Development, *65*, 493-506.

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.

Dweck, C.S. (1992). The study of goals in psychology. Psychological Science, *3*, 165-166.

Dweck, C.S., & Leggett, E. (1988). A social-cognitive approach to motivation and personality. Psychological Review, *95*, 256-273.

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., Lord, S., & Roeser, R.W. (in press). 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, Volume VII: Adolescence: Opportunities and Challenges. Rochester, NY: University of Rochester Press.

Eccles, J.S., & Midgley, C. (1989). Stage-environment fit: Developmentally appropriate classrooms for young adolescents. In C. Ames and R. Ames (Eds.), Research on motivation in education: Volume 3, Goals and cognitions (pp. 13-44). New York: Academic 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., Wigfield, A., Midgley, C., Reuman, D., Mac Iver, D., Feldlaufer, H. (1993). Negative effects of traditional middle schools on students' motivation. The Elementary School Journal, *5*, 553-574.

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

Elkind, D., & Bowen, R. (1979). Imaginary audience behavior in children and adolescents. Developmental Psychology, *15*, 38-44.

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

Gold, M., & Mann, D. (1985). Expelled to a friendlier place: A study of effective alternative schools. Ann Arbor, MI: University of Michigan Press.

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



Goodenow, C. (1992). Strengthening the links between educational psychology and the study of social contexts. Educational Psychologist, *27*, 177-196.

Goodenow, C. (1993a). Classroom belonging among early adolescent students: Relationships to motivation and achievement. Journal of Early Adolescence, *13*, 21-43.

Goodenow, C. (1993b). The psychological sense of school membership among adolescents: Scale development and educational correlates. Psychology in the Schools, *30*, 79-90.

Harter, S., Whitesell, N.R., & Kowalski, P. (1992). Individual differences in the effects of educational transitions on young adolescents' perceptions of competence and motivational orientations. American Educational Research Journal, *29*, 777-808.

Judd, C.M., & Kenny, D.A. (1981). Process analysis: Estimating mediation in evaluation research. Evaluation Research, *5*, 602-619.

Kim, J., & Mueller, C.W. (1978). Introduction to factor analysis: What it is and how to do it. Newbury Park, CA: Sage Publications, Ltd.

Maehr, M.L. (1991). The "psychological environment" of the school: A focus for school leadership. In P. Thurstone & P. Zodiates (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. The 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. Vol. 6, 215-247.

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

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

Marsh, H. (1991). Failure of high-ability high schools to deliver academic benefits commensurate with their students' ability levels. American Educational Research Journal, 28, 445-480.

McGuire, D.P., Mitic, W., & Neumann, M.A. (1987). Perceived stress in adolescents: What normal teenagers worry about. Canada's Mental Health, 35, 2-5.

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

Midgley, C., Anderman, E., & Hicks, L. (1995). Differences between elementary and middle school teachers and students: A goal theory approach. Journal of Early Adolescence, 15, 90-113.

Midgley, C., Feldhauser, H. & Eccles, J.S. (1989). Student/teacher relations and attitudes towards mathematics before and after the transition to junior high school. Child Development, 90, 981-992.

Midgley, C., Kaplan, A., Urdan, T.C., Hicks, L., Roeser, R.W., Anderman, E., & Maehr, M.L. (1995). Validation of a measure of students' achievement goal orientation. Manuscript submitted for publication.

Midgley, C., & Maehr, M.L. (1994). Achievement goals and adjustment during adolescence. Grant #94-1574: W.T. Grant Foundation.

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

Moos, R.H. (1979). Evaluating educational environments. San Francisco, CA: Jossey-Bass.

Multon, K.D., Brown, S.D., & Lent, R.W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. Journal of Counseling Psychology, 38, 30-38.

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

Nicholls, J.G., Patashnick, M., Cheung, P.C., Thorkildsen, T.A., & Lauer, J.M. (1989). Can achievement motivation theory succeed with only one conception of success? In F. Halisch & J.H.L. van der Bercken (Eds.), International perspectives on achievement and task motivation (pp. 187-208). Amsterdam: Swets & Zeitlinger.

Nolen, S.B., & Haladyna, T.M. (1990). Personal and environmental influences on students' beliefs about effective study strategies. Contemporary Educational Psychology, 15, 116-130.

Pedhazur, E.J. (1982). Multiple regression in behavioral research: Explanation and Prediction, Second Edition. Fort Worth: Harcourt Brace College Publishers.

Pintrich, P., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. Journal of Educational Psychology, 82, 33-40.

Roeser, R.W., Aberbach, A., & Anderman, E. (1993, April). Teacher characteristics and their effects on within year changes in student motivation. Paper presented at the annual meeting of the American Educational Research Association, Atlanta.

Roeser, R.W., & Eccles, J.S. (1995). Middle school experience and longitudinal change in early adolescents' academic motivation, school behavior, and psychological adjustment. Manuscript submitted for publication.

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

Skaalvik, E.M., & Hagtvet, K.A. (1990). Academic achievement and self-concept: An analysis of causal predominance in a developmental perspective. Journal of Personality and Social Psychology, 58, 292-307.

Sobel, M.E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), Sociological methodology 1982 (pp. 290-312). San Francisco: Jossey-Bass.

Tye, K.A. (1974). The culture of the school. In J.I. Goodlad, M.F. Klein, J.M. Novotnew, & K.A. Tye (Eds.), Towards a mankind school: An adventure in humanistic education. New York: McGraw-Hill.

Urdu, T.C., Midgley, C.M., & Wood, S. (1995). Special issues in reforming middle level schools. Journal of Early Adolescence, 15, 9-37.

Urdu, T.C., & Roeser, R.W. (1993, April). The relations among adolescents' social cognitions, affect, and academic self-schemas. Paper presented at the annual meeting of the American Educational Research Association, Atlanta.

Wehlage, G., & Rutter, R. (1986). Dropping out: How much do schools contribute to the problem? Teachers College Record, 87, 374-392.

Weiner, B. (1980). Human motivation. New York: Holt, Rinehart & Winston.

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: Vol. 3, Goals and cognitions. (pp. 13-44). New York: Academic Press.

Wolters, C., Garcia, T., & Pintrich, P.R. (1992). Assessing early adolescents' school competence and commitment. Unpublished manuscript, The University of Michigan, Ann Arbor.

Yee, D.K., & Flanagan, C. (1985). Family environments and self-consciousness in early adolescence. Journal of Early Adolescence, 5, 59-68.

### Footnotes

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<sup>1</sup> T-tests revealed the following significant differences: Boys endorsed ability goals more strongly than did girls at both the sixth and eighth grade ( $t = -2.25, p \leq .05$ ;  $t = -3.15, p \leq .01$ ); girls perceived the school as more task-oriented than did boys ( $t = 2.61, p \leq .01$ ). African-American students had more positive feelings of academic efficacy ( $t = 2.56, p \leq .01$ ), lower feelings of academic self-consciousness ( $t = -2.01, p \leq .05$ ), lower prior achievement ( $t = -4.59, p \leq .01$ ) and eighth grade GPA ( $t = -2.21, p \leq .05$ ) than their Caucasian peers. School lunch program participants had lower prior achievement scores ( $t = -2.61, p \leq .01$ ) and eighth grade GPA ( $t = -3.59, p \leq .01$ ) than those students who did not participate in this program.

<sup>2</sup> For the prediction of eighth grade personal task goals, prior task goals were significant ( $\beta = .38, p \leq .0001$ ) and prior ability goals were not. In the prediction of eighth grade ability goals, prior ability goals were a significant predictor ( $\beta = .38, p \leq .0001$ ) whereas prior task goals were not.

## Appendix

### School Goal Dimension

#### School Task Goal Structure (6 items)

 $\alpha = .81$ 

In this school, teachers believe all students can learn.

(1 = Not at all true in this school, 3 = Somewhat true in this school, 5 = Very true in this school)

In this school, understanding the work is more important than getting the right answers.

In this school, mistakes are okay as long as we are learning.

In this school, teachers think how much you learn is more important than test scores or grades

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

Trying hard counts a lot in this school.

#### School Ability Goal Structure (5 items)

 $\alpha = .80$ 

In this school, teachers treat kids who get good grades better than other kids.

(1 = Not at all true in this school, 3 = Somewhat true in this school, 5 = Very true in this school)

In this school, only a few kids get praised for their school work.

In this school, teachers only care about the smart kids.

This school has given up on some of its students.

In this school, special privileges are given to students who get the highest grades.

### School Relationship Dimension

#### Perceived Teacher-Student Relationships (5 items)

 $\alpha = .81$ 

In this school, students' ideas are listened to and valued.

(1 = Not at all true in this school, 3 = Somewhat true in this school, 5 = Very true in this school)

In this school, teachers and students really trust one another.

In this school, teachers treat students with respect.

In this school, students feel like they belong.

This school really cares about students as individuals.

## Personal Achievement Goals

### *Eighth Grade Personal Task Goals (5 items)* $\alpha=.81$

Understanding the work in school is more important to me than the grade I get.

(1 = Not at all true of me, 3 = Somewhat true of me, 5 = Very true of me)

I like school work that I'll learn from even if I make a lot of mistakes.

The main reason I do my work in school is because I like to learn.

I like school work the best when it really makes me think.

I feel most successful in school when I learn something I didn't know before.

### *Sixth Grade Personal Task Goals (3 items)* $\alpha=.73$

I often choose projects that I will learn from, even if I know I will need to work very hard.

(1 = Not at all true of me, 3 = Somewhat true of me, 5 = Very true of me)

I like to learn new things.

When I work hard in school, it's mainly because I like learning new things.

### *Eighth Grade Personal Ability Goals (6 items)* $\alpha=.84$

I feel good if I am the only one who can answer the teacher's questions in class.

(1 = Not at all true of me, 3 = Somewhat true of me, 5 = Very true of me)

I like to show my teachers I'm smarter than the other kids.

I worry about whether my teachers think I am as smart as other kids in my classes

I would feel successful in school if I did better than the other students in my classes.

I'd like to show my parents that I'm smarter than the other kids in my classes.

I worry about doing worse than other students in school

### *Sixth Grade Personal Ability Goals (3 items)* $\alpha=.62$

I like to show my teachers that I'm smarter than the other kids.

(1 = Not at all true of me, 3 = Somewhat true of me, 5 = Very true of me)

If I were the only one in a class who could answer a question, I would feel really good.

Doing better than other kids in my classes is important to me.

**Relatedness****School Belonging (4 items)** $\alpha = .76$ 

I feel like I belong in this school

(1 = Not at all true of me, 3 = Somewhat true of me, 5 = Very true of me)

I feel like I am successful in this school.

I feel like I matter in this school.

I do not feel like I am important in this school (reversed).

**Self-Beliefs****Academic Self-Efficacy (6 items)** $\alpha = .86$ 

I'm certain I can master the skills taught in school this year.

(1 = Not at all true of me, 3 = Somewhat true of me, 5 = Very true of me)

I can do even the hardest school work if I try.

If I have enough time, I can do a good job on all my school work.

I can do almost all the work in school if I don't give up.

Even if the work in school is hard, I can learn it.

I'm certain I can figure out how to do the most difficult school work.



## List of Figures

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**Figure 1. Theoretical Model And Constructs.**

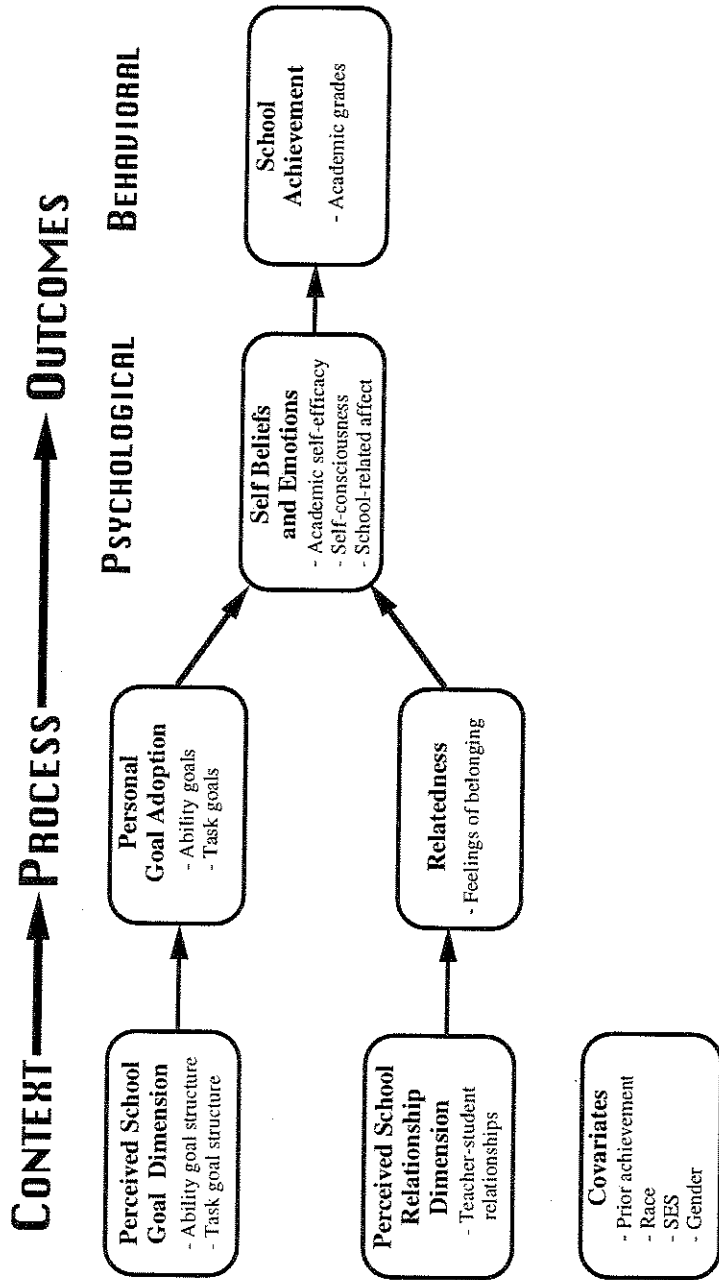
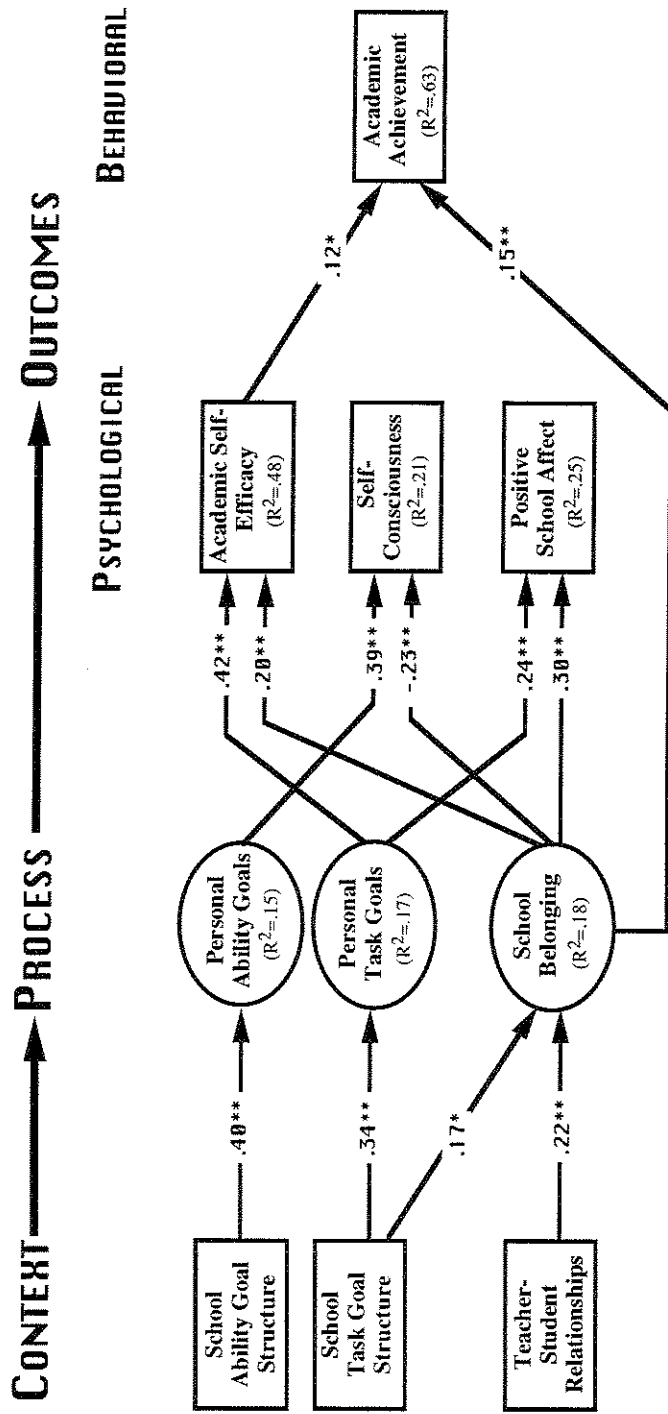


Figure 2. Results of Regression Analyses.



N = 264; \* p ≤ .05, \*\* p ≤ .01; Standardized regression coefficients and adjusted r-squares are presented. Measures of prior achievement, gender, race, and free-lunch status were included in the equations as statistical controls but are not presented for reasons of clarity. All measures have been adjusted for adolescents' prior achievement goals. Prior achievement was the strongest predictor of academic achievement (β = .66, p ≤ .001), but this coefficient is not depicted here.

**Table 1**  
**Summary Statistics and Bivariate Correlations for Student Entry Characteristics, School Environment Perceptions, Process Measures, and Outcomes**

Variable	Time 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1. Personal ability goals	T1	-----															
2. Personal ability goals	T2	.39**	-----														
3. Personal task goals	T1	.28**	.19**	-----													
4. Personal task goals	T2	.11	.14*	.38**	-----												
5. Feelings of school belonging	T2	.05	.09	.14*	.46**	-----											
6. Academic self-efficacy	T2	.07	.19**	.22**	.63**	.52**	-----										
7. Academic self-consciousness	T2	.14*	.41**	.23**	-.01	-.17**	-.04	-----									
8. Positive school affect	T2	.07	.08	.25**	.46**	.45**	.33**	.04	-----								
9. End of the year 6th grade GPA	T1	.04	.15*	.10	.27**	.30**	.37**	.08	.18**	-----							
10. Second semester 8th grade GPA	T2	.06	.17**	.13*	.34**	.38**	.42**	.03	.18**	.72**	-----						
11. School ability goal structure	T2	.08	.33**	-.19**	-.23**	-.17**	-.09	.10	-.16*	-.06	-.13*	-----					
12. School task goal structure	T2	.07	.02	.26**	.48**	.35**	.37**	.11	.32**	.14*	.19**	-.45**	-----				
13. Teacher-student relationships	T2	.09	-.02	.28**	.39**	.35**	.28**	.09	.35**	.10	.19**	-.53**	.70**	-----			
14. Gender	T2	.13*	.19**	.01	-.08	.05	.06	-.09	-.11	-.15*	-.11	.12	-.14*	-.11	-----		
15. Race/Ethnicity	T2	.03	.00	.01	.00	-.04	-.11	.12	.01	.15*	.16*	.00	-.07	.01	-.05	-----	
16. School lunch program (SES)	T2	-.02	.05	.07	.05	.04	.06	.03	.01	.25**	.21**	-.02	.04	-.01	.01	.09	
Mean		3.08	2.90	3.31	3.18	3.48	3.72	2.90	2.79	8.10	7.95	2.83	3.55	3.11	0.51	0.87	0.88
(SD)		(1.08)	(0.93)	(0.80)	(0.83)	(0.86)	(0.81)	(0.97)	(1.00)	(2.41)	(2.94)	(0.92)	(0.79)	(0.80)	(0.50)	(0.33)	(0.32)

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

N = 241 Due to missing data and listwise deletion of cases for analyses. Gender is coded 0 = Females, 1 = Males. Race/Ethnicity is coded 0 = African-American, 1 = Caucasian; School Lunch Program is used as an indice of socio-economic status (SES), and is coded 0 = Participation, 1 = No participation. GPA refers to grade point average. Time refers to time of variable measurement, with "T1" referring to measures from the sixth grade, and "T2" referring to measures from the eighth grade.

**Table 2**

Standardized Regression Coefficients for Student Entry Characteristics, School Environment Perceptions, and Mediating Process Measures Predicting Psychological Outcomes Related to School

Predictors	Psychological Outcomes								
	Academic Self-Efficacy			Academic Self-Consciousness			Positive School Affect		
	Model 1	Model 2	r	Model 1	Model 2	r	Model 1	Model 2	r
<u>Step One Variables</u>									
Prior academic achievement	.38**	.25**	.35**	.01	.04	.05	.12	.00	.17**
Gender	.16**	.13**	.07	-.11	-.13*	-.10	-.06	-.10	-.10
Race/Ethnicity	-.14**	-.11*	-.11	.10	.08	.13*	.05	.07	.09
School lunch program (SES)	-.03	-.03	.05	.02	-.01	.02	.01	.02	.06
School ability goal structure	.11	.08	-.05	.22**	.07	.14*	.05	.03	-.12
School task goal structure	.28**	.10	.33**	.09	.12	.05	.11	-.02	.27**
Teacher-student relationships	.07	.00	.23**	.07	.11	.02	.23**	.14	.27**
<u>Step Two Variables</u>									
Personal ability goals	-----	.06	.15*	-----	.39**	.37**	-----	.02	.04
Personal task goals	-----	.42**	.61**	-----	-.10	-.12	-----	.24**	.41**
Feelings of belonging in school	-----	.20**	.50**	-----	-.23**	-.22**	-----	.30**	.42**
R-Square Change	-----	.23		-----	.18		-----	.16	
F-Change	13.33**	38.39**		2.36*	19.53**		5.09**	40.72**	
Total Adjusted R-Square	.25	.48		.03	.21		.10	.25	

N = 264; \* p ≤ .05; \*\* p ≤ .01

Model 1 included entry characteristics and school perceptions only. Model 2 included entry characteristics, school perceptions, and hypothesized mediators. Gender is coded 0 = Females, 1 = Males; Race/Ethnicity is coded 0 = African-American, 1 = Caucasian; School Lunch Program is an indice of socio-economic status (SES), and is coded 0 = Participation, 1 = No participation. Note: "r" refers to the bivariate correlations between the predictor and outcome measures that have been adjusted for students' prior achievement goals.

**Table 3**

Standardized Regression Coefficients for Student Entry Characteristics,  
School Environment Perceptions, Mediating Process Measures, and  
Psychological Outcomes Predicting Academic Achievement

Predictors	Behavioral Outcome		
	Second Semester Eighth Grade		
	Academic Grade Point Average		
	Model 1	Model 2	r
<u>Step One Variables</u>			
Prior academic achievement	.69**	.66**	.76**
Gender	.00	-.03	-.08
Race/Ethnicity	.04	.06	.14*
School lunch program (SES)	.03	.04	.23**
School ability goal structure	-.02	-.02	-.06
School task goal structure	.01	.00	.17**
Teacher-student relationships	.02	.04	.14*
Personal ability goals	.08	.08	.17*
Personal task goals	.06	.02	.34**
Feelings of belonging in school	.16**	.15**	.40**
<u>Step Two Variables</u>			
Academic self-efficacy	----	.12*	.45**
Self-consciousness	----	-.03	.01
Positive school affect	----	-.07	.18**
R-Square Change	----	.01	
F-Change	44.23**	2.70**	
Total Adjusted R-Square	.63	.63	

N = 260; \* p ≤ .05; \*\* p ≤ .01

Model 1 included entry characteristics, school perceptions, and mediating process measures only.

Model 2 included entry characteristics, school perceptions, mediating process measures, and psychological outcomes related to school.

Gender was coded 0 = Girls, 1 = Boys; Race/Ethnicity was coded 0 = African-American, 1 = Caucasian. Note: "r" refers to the bivariate correlations between the predictor and outcome measures that have been adjusted for students' prior achievement goals.