

GREAT EXPECTATIONS: THE BIASING EFFECTS OF REPORTED CHILD BEHAVIOR PROBLEMS ON EDUCATIONAL EXPECTANCIES AND SUBSEQUENT ACADEMIC ACHIEVEMENT

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Parental and child expectations of educational achievement have each been linked to a range of beneficial child outcomes. Less is known about the formation of educational expectations, the potential biasing impact of child behavior problems on these expectations, and the prospective influence of expectations on child performance. To test these links, we analyzed longitudinal data (baseline, 5 year follow-up) for 884 children (53% female; $M_{age}=9.75$ years) and their primary caregivers. Parent-reported child behavioral problems predicted parents' educational expectations for their children over and above the children's achievement scores. Parental expectations influenced children's own expectations, an effect partially mediated by parental involvement in educational activities. Parental educational expectations also influenced children's academic performance five years later, even controlling for the children's baseline academic achievement. This influence was partially mediated by children's expectations; both parent and child expectations had substantial independent effects on academic achievement. These data suggest that parents appear to view child behavior problems as indicative of persistent underlying characteristics, and adjust educational expectations downwards. Lower expectations prospectively reduced child academic performance above and beyond indicators of child competence (such as past performance). These data indicate the importance of parent appraisals of child behavior and suggest avenues for intervention.

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Extensive research across numerous domains has demonstrated that expectations held about others can produce outcomes consistent with those expectations. For example, this has been shown in the characteristics elicited in interpersonal interactions (Curtis & Miller, 1986; Snyder, Tanke, & Berscheid, 1977), in the likelihood of being rejected by dating partners (Downey, Freitas, Michaelis, & Khoury, 1998), in the expectations teachers have of their students (Rosenthal & Jacobson, 1966; however, the magnitude and applicability of this effect is controversial; see Dusek, 1985), and in the nonverbal behaviors displayed toward members of stereotyped groups (Word, Zanna, & Cooper, 1974). Moreover, the expectations people hold for themselves can also produce expectation-consistent outcomes. For instance, positive expectations often produce positive outcomes through increased motivation and persistence (Taylor & Brown, 1988). More generally, the helpful or harmful role of expectations across a range of outcomes related to functioning, well-being, and health are clearly established.

A relationship between higher parental educational expectations and a diverse range of beneficial outcomes in children has been established, particularly in the education literature. Higher parental expectations for children have been associated with a greater likelihood of attending college (Hossler & Stage, 1992), selection of more core academic courses (Catsambis, 2001), better school attendance (Kurdek & Sinclair, 1988), and better academic performance (Fehrmann, Keith, & Reimers, 1987; Gill & Reynolds, 1999). Parental expectations also influence child expectations (Patrikakou, 1996, 1997; Trusty, 1998) and motivation (Jacobs, Davis-Kean, Bleeker, Eccles, & Malachuk, 2005), both of which are associated with better academic performance. Darling and Steinberg (1993) and Spera (2006) propose that parents' socialization goals (which include educational expectations) influence the way they involve themselves in their children's education, such as helping with homework and involvement in school activities. In addition, involvement in children's education is associated with a range of positive academic outcomes for children. Thus, several studies indicate that the predictive effect of parental expectations is not exclusive to previous academic achievement and demographic factors (e.g., Englund, Luckner, Whaley, & Egeland, 2004; Gill & Reynolds, 1996; McBride, Schoppe-Sullivan, & Ho, 2005; Jacobs & Harvey, 2005). Despite the well-documented

importance of educational expectations, however, few studies have examined the antecedents or predictors of parental expectations.

Prior research focused on demographic variables (e.g., ethnicity, race, immigration status, gender, and socioeconomic status) as predictors of parental educational expectations. For example, it has been found that African-American and Latino parents typically have higher expectations for their children than do Caucasian parents (e.g., Hossler & Stage, 1992; Stevenson, Chen, & Uttal, 1990; Wentzel, 1998). Additionally, immigrant parents have been shown to exhibit higher expectations for their children than parents of similar ethnicity who were born in the United States (Hao & Bonstead-Bruns, 1998; Glick & White, 2004). Child gender has also been related to parental expectations, such that parents generally expect less of their daughters in mathematics and science than they do of their sons (Eccles, Jacobs, & Harold, 1990; Jacobs et al., 2005; Jacobs & Eccles, 1992).

Socioeconomic status has been consistently linked to educational expectancies (e.g., Astone & McLanahan, 1991; Englund et al., 2004; Hao & Bonstead-Bruns, 1998; Muijs, 1997; Trusty, 1998; Trusty, 2000). High-SES parents have more education than low-SES parents, which is linked to higher educational expectations for children (Hao & Bonstead-Bruns, 1998). Parents may base their expectations for their children in part on their own educational attainment, expecting their children to equal or surpass their own education level. Moreover, high-SES families have greater financial resources, which can be vital in the pursuit of higher education.

Parental educational goals and values, expressed through parental educational aspirations for their offspring, are related to children's current (e.g., Spera, 2006) and future (e.g., Englund et al., 2004) academic performance. When students perceive that their parents expect them to perform well in school, they in turn expect higher educational attainment (Patrikakou, 1996). This link may in part depend on parental involvement with children's academic life and involvement in school activities (Englund et al., 2004; Spera, 2006; Taylor & Lopez, 2005). Children whose parents encourage them to participate in extracurricular academics (e.g., math and science activities) are more likely to actually participate (Simpkins, Davis-Kean, & Eccles, 2005); in turn, children who participate in these extracurricular activities expect better performance in math and science courses and are more likely to subsequently enroll in them

(Simpkins, Davis-Kean, & Eccles, 2006). There is likely a reciprocal relationship between parents' expectations and children's achievement, with parental involvement and children's expectations potentially playing mediating roles (Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001). Understanding the parameters of parental expectations, including the foundation from which parental expectations are formed, is critical to explaining this entire process.

In the current research, we investigate a largely neglected variable that may impact parental expectations: parental perceptions of behavioral problems exhibited by the child. Previous work has demonstrated reciprocal relationships between child behavior problems and parenting behaviors and monitoring (e.g., Pettit, Laird, Dodge, Bates, & Criss, 2001), again suggesting that parental expectations may function similarly. Observed behavioral problems may lower parental appraisals of the child's ability to succeed in an academic environment (McLeod & Kaiser, 2004); the child's negative behaviors may produce negative expectations even if he or she has a history of adequate academic performance. As research on the fundamental attribution error has shown (Jones & Harris, 1967; Ross, 1977), people tend to infer that others' actions are diagnostic of their traits rather than the product of situational influences. Parents who observe their children engaging in problem behaviors, then, may infer that the behaviors reflect their children's underlying dispositions, and therefore may lower their expectations for their children's academic achievement. The social psychological principle of the fundamental attribution error and its implications may thus be applied to this context in which they may have practical importance: namely, that parent appraisals of their child's behavior problems may have biasing effects that influence parent expectations and behaviors in the short-term, and child expectations, performance, and adjustment in the long-term.

To this point, the only direct examination of the relation between reported behavioral problems and educational expectations of which we are aware is an experimental study by Adams and LaVoie (1974). Teachers were presented with the report cards and photographs of a number of fictitious students, and were asked to predict the students' educational outcomes. The target students' performance in

academic subjects was held constant; the report of their conduct (attendance record, work habits and attitudes toward school) was manipulated, as was the physical attractiveness of the student targets. Students with poor conduct were rated as less successful students (despite their reported history of equal performance in strictly academic domains, which was held constant) and less likely to have parents who were involved in their child's education. Teachers' perceptions of problematic behavior resulted in lowered educational expectations, and a similar process may influence parents' expectations.

If behavioral problems do in fact exert a negative influence on parent expectations, the consequences may be long-lasting, as parental expectations and children's own expectations are closely linked. For example, Trusty (1998) found that children's perceptions of parental support for their education predicted children's expectations for their own educational achievement beyond the impact of SES. In a follow-up study, Trusty (2000) examined changes in children's expectations across time, and found that parental attendance at extracurricular activities predicted the maintenance of high expectations over and above the effects of SES and race. Hao and Bonstead-Bruns (1998) argue that parental expectations influence child expectations via parent-child interactions, both by providing the child with evidence of his or her academic abilities, and by facilitating the communication of parental beliefs about education to their children.

The current study uses data from a national longitudinal survey of children and their parents to examine the relationships between child behavioral problems, parent and child educational expectations, parent involvement, and children's educational outcomes. We hypothesize that parent-reported behavioral problems will predict parental educational expectations at Time 1 beyond children's achievement scores at Time 1. Further, we predict that parental educational expectations at Time 1 will predict child expectations at Time 2, and that this relationship will be partially mediated by parental educational involvement. Last, we predict that children's expectations at Time 2 will be related to their achievement scores. We predict that all of these relationships will hold after controlling for relevant demographic variables (i.e., child gender, income, parent education, age of child, and child race/ethnicity).

METHOD

DATA AND SAMPLE

The data for our analysis come from the Child Development Supplement (CDS), an extension of the Panel Study of Income Dynamics (Hofferth, Davis-Kean, Davis, & Finkelstein, 1999). The PSID is a longitudinal data set that combines two samples of households in the United States: an equal probability national sample in the 48 contiguous states, and a targeted survey of low-income families. The first PSID sample took place in 1968; the same respondents were re-interviewed each year until 1997 and every two years thereafter, generating a time series that includes information on a variety of demographic and economic questions.

In 1997, the PSID incorporated a supplemental data collection effort, the CDS, for a sub-sample of PSID families with children under the age of 13. All PSID families with appropriately aged children were selected for inclusion in the study; 88% participated in the CDS. The primary goal of the CDS was to collect details on the development of these children. Coupled with the data on the parents provided in the main file, an analytical sample can be created with information on the demography of the family and its economic resources as well as measures of the parents' expectations for their child's educational attainment, the child's educational expectations, the child's behavior problems, the child's cognitive test scores, and a variety of other variables. In 2002, the PSID collected another wave of data on the children of the CDS; 82% of eligible families participated in this survey. Many of the questions were repeated, providing information on a variety of topics at two points in time. Each child and his or her primary caregiver were interviewed. The primary caregiver was defined as the person who knows most about the child's activities. It was usually the child's mother; if the mother was not living with the child, the primary caregiver could be the father, legal guardian, or another person. Although our data include some responses from other caregivers, most (>90%) respondents were parents (in fact, mothers), and we therefore use the term "parent" to refer to primary caregivers throughout the manuscript.

We selected all African-American and non-Hispanic white children (the two groups comprising the large majority of cases; there

TABLE 1. Descriptive Statistics

	<i>M</i>	<i>SD</i>
BPI (Externalizing)	5.34	-3.89
BPI (Internalizing)	2.82	-2.85
BPI (Total)	7.99	-5.94
Parental Involvement	11.18	-1.26
Woodcock-Johnson (Letter-Word — Time 1)	106.28	-17.95
Woodcock-Johnson (Letter-Word — Time 2)	102.6	-19.62
Woodcock-Johnson (Applied Problems — Time 1)	108.21	-16.75
Woodcock-Johnson (Applied Problems — Time 2)	101.33	-15.71
Age (in months at start of study)	117.01	-23.1
Family Income	52962.3	53345
Parent's Education (years)	12.75	3

were only 34 cases from all other groups combined) from the CDS who had complete data on all variables used in the analysis; children with missing data on any variables were excluded. These criteria yielded a sample of 884 children (465 females, 419 males), who were six to thirteen years old ($M = 9.75$ years) at the start of the CDS study in 1997. Descriptive statistics for the data set are displayed in Table 1.

MEASURES

Child Behavior Problems. The Behavior Problems Index (Peterson & Zill, 1986) was assessed based on responses by the parent as to whether a set of problem behaviors was Often, Sometimes, or Never true of the child. The index is divided into two subscales; 13 items (Cronbach's $\alpha = .82$) measured Internalizing behaviors (e.g., "He/she feels or complains that no one loves him/her.") and 15 items (Cronbach's $\alpha = .87$) measured Externalizing behaviors (e.g., He/she has sudden changes in mood or feeling.). As we were primarily interested in the impact of parents' perceptions on their expect-

tations, and both Internalizing and Externalizing behaviors reflect these perceptions, scores were summed to create an overall index (Cronbach's $\alpha = .90$) of behavior problems.¹ Higher scores implied a greater level of problematic behavior.

Educational Expectations. At Time 1 (1997), parents indicated how much education they expected their child to complete. Their responses were categorized as follows: 12 years of education or fewer (i.e., no college), 13–15 years of education (associate's degree or some college), and 16 or more years of education (i.e., completing college). At Time 2 (2002), children responded to the same question, indicating how much education they expected to complete; their responses were recoded into the same three categories.

Parental Educational Involvement. Parents reported how often they discussed several school-related topics with their children (school activities, class topics, child's school experiences) in the previous 12 months. Responses were categorized as follows: (1) never, (2) rarely, (3) occasionally, and (4) regularly. These responses were aggregated into a summary score (Cronbach's $\alpha = .65$) reflecting total parental involvement in child education.

Academic Achievement. Two subtests (Cronbach's $\alpha > .81$) of the Woodcock-Johnson Revised Test of Achievement (Woodcock & Johnson, 1989) were used to assess academic achievement. The Letter-Word Identification subtest (76 items) assesses "symbolic learning (matching pictures with words) as well as reading identification skills (identifying letters and words)" (Hofferth, Davis-Kean, Davis, & Finkelstein, 1999). The Applied Problems subtest (63 items) "measures skill in analyzing and solving practical problems in mathematics" (Hofferth et al., 1999). Each test was administered in both 1997 and 2002.

Demographic Variables. Two measures of socioeconomic status were included in the analysis. First, family income was assessed by summing the taxable and transfer income of the head of household, his or her spouse, and other family members, as well as income from Social Security. Second, the number of years of education for the head of household was recorded; if this information was missing,

1. Separate analyses using the Internalizing and Externalizing subscales yielded results that were closely comparable to those calculated using the combined score.

we substituted the spouse's education level. In addition, the child's race, sex, and age were included as control variables.

RESULTS

ANALYTIC STRATEGY—ORDERED PROBIT MODEL

As the outcome is categorical and ordinal in some of our models, in these models we have elected not to estimate a model that assumes a continuous (ratio level) outcome. To treat an ordinal measure as continuous requires a strong assumption that an incremental increase from one variable value to another implies the same change throughout the distribution of the independent variable. For example, for the "parental expectations of child's educational attainment" variable, one must assume that a change from low parental expectations (defined as having at most post-secondary vocational training) to moderate parental expectations (defined as having completed some college or an associate degree) is the same as a change from moderate parental expectations to high parental expectations (completing college). We do not believe this assumption to be correct; therefore, we have chosen not to estimate the relationships with a standard estimation model such as ordinary least squares (OLS).

Instead, we assume a linear regression model in which the latent outcome is continuous. For instance, returning to the parental expectations example, we assume that parents have expectations for the exact level of education for their children, but that this variable is unobserved. We do, however, have categorical information on parent's educational expectations. Suppose there are J categories in the data set. We assume that individuals report category one for latent variable values less than or equal to cutpoint, p_1 , category two for latent variable values greater than p_1 , but less than or equal to p_2 , all the way through category J for latent variable values greater than p_{j-1} , where $0 < p_1 < p_2 < \dots < p_{j-1}$. We also assume that the disturbance in this latent regression model is normally distributed with a normalized mean equal to zero and variance equal to one. Given these assumptions, we can estimate this model with an ordered probit. (Please see Greene, 1997, pp. 926–931 for a detailed description of the ordered probit model.)

Because the coefficient estimates from the ordered probit model can be difficult to interpret, we convert the results from this model into partial derivatives (reported in Table 2). These partial derivatives, or Marginal Effects, should be interpreted as the change in the probability of a particular outcome with a marginal change in the regressor of interest when the other regressors are set equal to their mean values, *ceteris paribus*, or much like one would interpret the unstandardized slope coefficient from an OLS model.

ANALYTIC STRATEGY—MODEL AND COVARIATES

As we have outlined, we tested hypothesized that parent-observed behavioral problems are associated with parents' expectations for their children's educational achievement. We proposed that these expectations, in turn, have lasting effects. Specifically, parents' expectations will influence children's academic achievement five years later, a relation partially mediated by children's own educational expectations. We also hypothesized that the relation between parents' expectations and children's expectations five years later would be partially mediated by parental educational involvement.

Parents' expectations for their children's educational attainment are very likely related to the children's academic achievement. Our primary hypotheses concerned the *biasing* effect of perceived behavioral problems on parents' expectations for their children, and the long-term implications of these lowered expectations. Therefore, all analyses controlled for children's Woodcock-Johnson Letter-Word Identification and Applied Problems standardized test scores at Time 1, so that analyses reflect effects over and above children's initial achievement scores. All analyses also controlled for a set of relevant demographic characteristics: the child's race, age, sex, and SES (indicated by parental education and family income).

PARENTAL EDUCATIONAL EXPECTATIONS

Our first analysis tested the contribution of perceived child behavioral problems on parental educational expectations, controlling for demographics and children's initial achievement scores. As noted,

TABLE 2. Ordered Probit Model of Parental Education Expectations,
Marginal Effects Reported

	Low Parental Expectations	Moderate Parental Expectations	High Parental Expectations
Behavior Problems	.006** (3.21)	.003** (3.07)	-.008** (3.24)
Child Race (Black)	-0.042 (1.83)	-0.019 (1.78)	0.062 (1.83)
Child Sex (Female)	-0.019 (0.88)	-0.008 (0.88)	0.027 (0.88)
Child Age	0 (0.77)	0 (0.77)	0 (0.77)
Family Income	-.000** (6.67)	-.000** (5.02)	.000** (6.57)
Parental Education	-.016** (4.24)	-.007** (3.96)	.024** (4.33)
Woodcock-Johnson Letter-Word Test (Time 1) (1997)	-.004** (4.8)	-.002** (4.29)	.006** (4.87)
Woodcock-Johnson Applied Problems Test (Time 1) (1997)	-.003** (3.29)	-.001** (3.13)	.004** (3.32)

Marginal effects are partial derivatives of outcome with respect to the independent variable listed. The marginal effects should be interpreted as the predicted change in the category of the outcome with a one unit change in the independent variable. Absolute value of z-ratios for marginal effects in parentheses. * $p < .05$; ** $p < 0.01$.

parental and child educational expectations were recoded into one of three categories: low (not attending college), moderate (completing some college or earning an associate's degree), and high (graduating from a 4-year college). We hypothesized that parents who perceived their children as behaving more problematically would have lower expectations for their children's educational attainment. We examined this relation using an ordered probit regression. As previously described, examining marginal effects enables the impact of perceived behavioral problems on parental expectations to be quantified.

Most parents (67.2%) expected their children to graduate from a four-year college. For these parents, a one standard deviation increase in perceived behavioral problems was associated with a

4.9 percentage point decline in the likelihood of having high educational expectations.² (Please see Table 2 for marginal effect estimates.) That is, the likelihood that a parent had high expectations for their child dropped from 67.2% to 62.3% if the observed level of behavior problems was one standard deviation above the mean, to 57.4% if behavior problems were two standard deviations above the mean, and so forth. This change in probability was significant, $z = -3.24$, $p = .001$. Low parental expectations, on the other hand, were somewhat rare in the data set, representing only 22% of responses. However, a one standard deviation increase in perceived behavioral problems was associated with a 3.3 percentage point increase in the likelihood that parents expect their children not to attend college; this increase was also significant, $z = 3.21$, $p = .001$.

We hypothesized that parental expectations would, in turn, impact children's expectations. Our next analysis examined this link using a second ordered probit regression, predicting child expectations from the expectations reported by their parents five years previously, and again controlling for children's initial achievement scores and the set of demographic variables. As hypothesized, parental expectations were closely related to children's expectations five years later. Children whose parents expected them to complete college were 11.2 percentage points more likely to themselves expect to complete college (relative to children of parents who did not expect them to attend college). This difference in probability was statistically significant, $z = 2.64$, $p = .008$.

ROLE OF PARENTAL EDUCATIONAL INVOLVEMENT

To test the hypothesis that parental educational involvement would play a role in transmitting parents' expectations to children, we examined this relationship more closely using a mediational analysis (Baron & Kenny, 1986). Having already shown that the relation between parental and child expectations is significant (Step 1), we next regressed the proposed mediator (parental involvement at Time 1) on dummy-coded parental expectations (Step 2) using OLS; this re-

2. The marginal effect was -0.0082. A one standard deviation change (5.93) would produce a $(-0.0082 \times 5.93 = 0.049)$ a 4.9 percentage point decline in the probability of high parental expectations.

lationship was significant for both moderate (standardized $\beta = .117$, $t = 3.18$, $p = .001$) and high ($\beta = .232$, $t = 5.64$, $p < .001$) parental expectations. Relative to parents with low expectations, parents with moderate expectations scored 0.48 points higher on the parental involvement score (SD for parental involvement is 1.26), and parents with high expectations scored about 0.62 points higher on the parental involvement score. Last, we predicted child expectations from both parent expectations and involvement (Step 4). The impact of parental expectations on child expectations was diminished when involvement was included in the model; the children of parents with high expectations were 9.9 percentage points more likely to expect to graduate from college than the children of parents with low expectations, compared to a difference of 11.2 percentage points when involvement was not included in the model. This decrease was statistically significant ($z = 2.05$, $p = .04$), suggesting partial mediation. (Tables of results from these mediational models are available from the authors upon request.)

IMPACT OF EDUCATIONAL EXPECTATIONS

To examine the long-term impact of parental educational expectations, we predicted Woodcock-Johnson scores at Time 2 from parental expectations at Time 1 using OLS regression, controlling as before for demographics and children's Woodcock-Johnson scores at Time 1 (results of this analysis are reported in Table 3). As predicted, high (versus moderate and low) parental expectations predicted both Letter-Word Identification (standardized $\beta = .114$, $t = 3.64$, $p < .001$) and Applied Problems ($\beta = .103$, $t = 3.45$, $p = .001$) scores. Early parental expectations predict subsequent academic achievement over and above the achievement scores measured five years previously.

We further predicted that parental expectations have their impact on academic performance in part by influencing children's expectations. We examined this possibility by conducting a second mediational analysis, again controlling for initial achievement scores and demographics. Having already shown that parental expectations predict academic performance (Step 1), and that parental and child expectations are closely related (Step 2), it remains only to show

TABLE 3. Predictors of Academic Outcomes (standardized β)

	Woodcock-Johnson Letter-Word Identification Test (Time 2) (2002)	Woodcock-Johnson Applied Problems Test (Time 2) (2002)
Moderate Parental Expectations	0.021	0.004
	-0.77	-0.16
High Parental Expectations	.114**	.103**
	-3.64	
Child Race (Black)	-.111**	-.179**
	-3.99	-6.71
Child Sex (Female)	0.046	-0.03
	-1.86	-1.25
Child Age	0.01	-.082**
	-0.43	-3.54
Family Income	-0.014	0.024
	-0.48	-0.87
Parental Education	0.024	.083**
	-0.087	-3.1
Woodcock-Johnson Letter-Word Test (Time 1) (1997)	.572**	.153**
	-17.99	-5.01
Woodcock-Johnson Applied Problems Test (Time 1) (1997)	0.039	.428**
	-1.2	-13.65

Absolute values of t-ratios in parentheses. * $p < .05$; ** $p < .01$.

that child expectations predict academic performance (Step 3) before testing the degree of mediation (Step 4). Indeed, high (versus moderate and low) child expectations predicted both Letter-Word Identification (standardized $\beta = .106$, $t = 3.09$, $p = .002$) and Applied Problems (standardized $\beta = .148$, $t = 4.53$, $p < .001$) scores. Last, we conducted a Sobel test (Baron & Kenny, 1986) to measure the indirect effect. When child expectations were included in the regression model predicting Letter-Word Identification scores, there was a significant reduction in the coefficient of parental expectations, $z = 2.02$, $p = .04$, indicating partial mediation. A similar reduction was observed in the regression model predicting Applied Problems scores, $z = 1.88$, $p = .06$.

SUMMARY

Parent-reported behavioral problems predicted parents' educational expectations for their children over and above the children's academic achievement at that time. These expectations influenced children's own expectations, an effect that was partially mediated by parental involvement in educational activities. Moreover, parental educational expectations influenced children's academic performance five years later, beyond the children's original academic achievement. This influence was partially mediated by children's expectations; both parent and child expectations had substantial effects on academic achievement.

DISCUSSION

This study prospectively examined the links between child behavior problems, parents' expectations for their children's educational attainment, parents' educational involvement, children's own educational expectations, and children's academic outcomes. In brief, we found that parents' educational expectations are reduced in response to problem behaviors exhibited by the child and, further, that these lowered expectations appear to prospectively reduce academic achievement above and beyond indicators of child academic competence (i.e., past performance).

Parent-perceived behavioral problems predicted parents' educational expectations for their children over and above the children's academic achievement at that time. This suggests that parents do not view their children's current academic performance as the only indicator of the child's academic ability. That is, children who behave problematically are seen as less likely to complete college, independent of their current level of achievement. The behavior problems assessed by the BPI include sudden mood changes, anxiety, and meanness towards others, behaviors that may prevent a child from properly integrating into their social environment. Our findings imply that parents who perceive their child as having frequent or serious behavior problems consider these behaviors as inhibiting their child's ability to succeed academically (McLeod & Kaiser, 2004), and adjust their expectations accordingly. Thus, it is

likely that parents associate proper social integration with the ability to achieve academically.

We also found that parental expectations influenced children's own educational expectations, an effect that was partially mediated by parental involvement in educational activities. Parental involvement likely plays an important role in communicating parents' beliefs about academic success to the child (Hao & Bonstead-Bruns, 1998; Simpkins et al, 2005; Jodl et al., 2001). If parents show a strong appreciation for academic achievement, their children will probably be motivated to try harder in school to gain attention, respect, and other rewards from their parents. When parents spend time discussing school with their children, they demonstrate their belief that the children have the ability to succeed academically, which may provide additional confidence and motivation (Crosnoe, 2001). Furthermore, parental involvement with schoolwork may make learning more interesting for the child. Because homework requires a certain degree of "alone time"—a relatively new concept for many younger children—it might make the child feel less isolated from family and friends if someone is there to partake in the activity with them (at least until they reach an age where working independently becomes routine). If a parent participates in homework and other projects, the child may de-emphasize the feeling of missing out on desired activities, and instead may begin to perceive academic achievement as intrinsically rewarding (Xu & Corno, 2003). Indeed, parent involvement has been linked to lower dropout rates in high school students (Stone, 2006).

Early parental educational expectations predicted children's academic performance five years later, over and above the children's original academic achievement. The mechanism by which parental expectations have such a strong relation to future academic achievement may, in part, be linked to parental involvement and children's own educational expectations. That is, if parents have high expectations regarding the child's success in academics, then the child is also likely to place a stronger emphasis on his or her academic achievement, because the success provides him/her with positive feedback and other rewards. In this way, the child learns to feel good about themselves through their academic accomplishments and is more likely to continue succeeding, in part because good grades and other academic successes do become their own reward.

Evidently, if parents believe in their children's ability to succeed, then the children themselves may develop a stronger sense of self-efficacy in the educational domain (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). This suggests that children performing at a sub-optimal level early in their educational program may have the opportunity to overcome these challenges if parental support (in the form of positive expectations and active involvement) is present.

In this study, we found that parents' and children's expectations each had significant effects on academic achievement. We also found evidence suggesting that parents' expectations for behaviorally problematic children are disproportionately low, relative to the children's actual academic achievement at that time. It is possible that low parental expectations could generate problematic behavior, rather than the other way around as we have asserted. Indeed, it is even possible that parents' perceptions are not accurate, and that the link between parent-reported behavior problems and parental expectations is a function of excessive parental vigilance or bias rather than children's actual behavior (although there is evidence to suggest that this is not the case; see Carlson & Corcoran, 2001). It appears, though, that regardless of how children are actually behaving, parents' interpretation of their children's behaviors is associated with educational expectations and their consequences.

It should be noted that these conclusions are based on the analysis of a large longitudinal data set, and as such are limited by the caveats inherent in such an approach. That is, our analyses reveal predictive rather than causal relations. However, the use of data from two time periods allows us to examine prospective relations, which—although still not causal—do show a predictive relationship across time. Second, our analyses were performed on the cases with complete data on all measures; not all children completed both waves of data collection, and these children differed demographically (specifically, they come from lower-income families) from those who were retained for analysis. This limits our ability to generalize the results beyond the sample. Third, the inclusion of behavioral data and educational expectations from the children's teachers would be useful. Such data would provide a second source of information about child behavior from a perspective with different biases and norms; it would also reflect behavior more closely tied to the educational context, which might have particular relevance to educational expectations. Indeed, the interaction among parent and

teacher expectations is an emerging area of investigation; recent research suggests that high parent expectations can buffer against the effects of low teacher expectations (Benner & Mistry, 2007), and it could be illuminating to explore how reported behavioral problems influence these expectations independently and jointly.

This study suggests that parents appear to make judgments consistent with the fundamental attribution error (Ross, 1977): parents appear to view child behavior problems as indicative of persistent underlying characteristics, and adjust educational expectations downwards as a result. In turn, lowered expectations are associated with fewer (educationally) supportive and involvement behaviors, and also with lower child educational expectations. Such changes are potent; these data indicate that they prospectively influence child academic performance above and beyond indicators of child competence (such as past performance).

Although troubling in terms of the potentially dramatic negative impact of early child behavior problems, a number of positive insights can be also taken from this study. Although we have discussed the biasing effects primarily in terms of lowered expectations, the opposite is also true. That is, parents with (even unduly) high educational expectations similarly influence their own and children's behaviors, and this should lead to better long-term outcomes (e.g., improved academic performance). Returning to children exhibiting behavior problems, this study suggests both the need for, and potential of, interventions. Most notably, interventions can be targeted at parent appraisals of child behavior (i.e., merging clinical intervention with education about the fundamental attribution error), and designed to promote parental supportive educational behaviors, even in the face of behavior problems (Domina, 2005). Although considerable extant research has found associations between parental expectations (e.g., Taylor & Lopez, 2005) and behaviors (e.g., Lee & Bowen, 2006) and child outcomes, examination of the efficacy of interventions targeting these appraisals and behaviors has been inconclusive and fraught with methodological limitations (Mattingly, Prislin, McKenzie, Rodriguez, & Kayzar, 2002). Future research should test these interventions using controlled experimental designs, focusing on both proximal (e.g., parent attributions, supportive behaviors) and distal (child academic performance, child well-being and adjustment) outcomes.

REFERENCES

- Adams, G. R., & LaVoie, J. C. (1974). The effect of student's sex, conduct, and facial attractiveness on teacher expectancy. *Education, 95*, 76–83.
- Astone, N. M., & McLanahan, S. S. (1991). Family structure, parental practices and high school completion. *American Sociological Review, 56*, 309–320.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Development, 72*, 187–206.
- 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.
- Benner, A. D. & Mistry, R. S. (2007). Congruence of mother and teacher educational expectations and low-income youth's academic competence. *Journal of Educational Psychology, 99*, 140–153.
- Carlson, M. J., & Corcoran, M. E. (2001). Family structure and children's behavioral and cognitive outcomes. *Journal of Marriage and the Family, 63*, 779–792.
- Catsambis, S. (2001). Expanding knowledge of parental involvement in children's secondary education: Connections with high school seniors' academic success. *Social Psychology of Education, 5*, 149–177.
- Crosnoe, R. (2001). Academic orientation and parental involvement in education during high school. *Sociology of Education, 74*, 210–230.
- Curtis, R. C., & Miller, K. (1986). Believing another likes or dislikes you: Behaviors making the beliefs come true. *Journal of Personality and Social Psychology, 51*, 284–290.
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin, 113*, 487–496.
- Domina, T. (2005). Leveling the home advantage: Assessing the effectiveness of parental involvement in elementary school. *Child Development, 78*, 233–249.
- Downey, G., Freitas, A. L., Michaelis, B., & Khouri, H. (1998). The self-fulfilling prophecy in close relationships: Rejection sensitivity and rejection by romantic partners. *Journal of Personality and Social Psychology, 75*, 545–560.
- Dusek, J. B., (Ed.) (1985). *Teacher Expectancies*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Eccles, J. S., Jacobs, J. E., & Harold, R. D. (1990). Gender role stereotypes, expectancy effects, and parents' socialization of gender differences. *Journal of Social Issues, 46*, 183–201.
- Englund, M. M., Luckner, A. E., Whaley, G.J.L., & Egeland, B. (2004). Children's achievement in early elementary school: Longitudinal effects of parental involvement, expectations, and quality of assistance. *Journal of Educational Psychology, 96*, 723–730.
- Fehrman, P. G., Keith, T. Z., & Reimers, T. M. (1987). "Home influence on school learning: Direct and indirect effects of parental involvement on high school grades." *Journal of Educational Research, 86*, 330–337.
- Gill, S., & Reynolds, A. J. (1996). Role of parent expectations in the school success of at-risk children. Paper presented at the Biennial Meeting of the International Society for the Study of Behavioural Development (14th, Quebec City, Quebec, Canada, August 12–16, 1996).

- Gill, S., & Reynolds, A. J. (1999). Educational expectations and school achievement of urban African American children. *Journal of School Psychology Special Issue: Schooling and high-risk populations: The Chicago Longitudinal Study*, 37, 403–424.
- Glick, J. E., & White, M. J. (2004). Post-secondary school participation of immigrant and native youth: The role of familial resources and educational expectations. *Social Science Research*, 32, 272–299.
- Greene, W. H. 1997. *Econometric Analysis*, (3rd ed.). Upper Saddle River, NJ: Prentice-Hall, Inc.
- Hao, L., & Bonstead-Bruns, M. (1998). Parent-child differences in educational expectations and the academic achievement of immigrant and native students. *Sociology of Education*, 71, 175–198.
- Hofferth, S. L., Davis-Kean, P. E., Davis, J., & Finkelstein, J. (1999). Child development supplement to the panel study of income dynamics: 1997 user guide. Ann Arbor, MI: Institute for Social Research, University of Michigan.
- Hossler, D., & Stage, F. K. (1992). Family and high school experience influences on the postsecondary educational plans of ninth-grade students. *American Educational Research Journal*, 29, 425–451.
- Jacobs, J. E., Davis-Kean, P., Bleeker, M., Eccles, J. S., & Malachuk, O. (2005). "I can, but I don't want to": The impact of parents, interests, and activities on gender differences in math. In Gallagher, M. Ann, & J. C. Kaufman (Eds.), *Gender differences in mathematics: An integrative psychological approach* (pp. 246–263). New York, NY: Cambridge University Press.
- Jacobs, J. E., & Eccles, J. S. (1992). The impact of mothers' gender-role stereotypic beliefs on mother's and children's ability perceptions. *Journal of Personality and Social Psychology*, 63, 932–944.
- Jacobs, N., & Harvey, D. (2005). Do parents make a difference to children's academic achievement? Differences between parents of higher and lower achieving students. *Educational Studies*, 31, 431–448.
- Jodl, K. M., Michael, A., Malanchuk, O., Eccles, J. S., & Sameroff, A. (2001). Parents' roles in shaping early adolescents' occupational aspirations. *Child Development*, 72, 1247–1265.
- Jones, E. E., & Harris, V. A. (1967). The attribution of attitudes. *Journal of Experimental Social Psychology*, 3, 1–24.
- Kurdek, L. A., & Sinclair, R. J. (1988). Relation of eighth graders' family structure, gender, and family environment with academic performance and school behavior. *Journal of Educational Psychology*, 80, 90–94.
- Lee, J., & Bowen, N. (2006). Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal*, 43, 193–218.
- Mattingly, D. J., Prislis, R., McKenzie, T. L., Rodriguez, J. L., & Kayzar, B. (2002). Evaluating evaluations: The case of parent involvement programs. *Review of Educational Research*, 72, 549–576.
- McBride, B. A., Schoppe-Sullivan, S. J., & Ho, M. (2005). The mediating role of fathers' school involvement on student achievement. *Journal of Applied Developmental Psychology*, 26, 201–216.
- McLeod, J. D., & Kaiser, K. (2004). Childhood emotional and behavioral problems and educational attainment. *American Sociological Review*, 69, 636–658.

- Muijs, R. D. (1997). Predictors of academic achievement and academic self-concept: A longitudinal perspective. *British Journal of Educational Psychology, 67*, 263–277.
- Patrikakou, E. N. (1996). Investigating the academic achievement of adolescents with learning disabilities: A structural modeling approach. *Journal of Educational Psychology, 88*, 435–450.
- Patrikakou, E. N. (1997). A model of parental attitudes and the academic achievement of adolescents. *Journal of Research and Development in Education, 31*, 7–26.
- Peterson, J. L., & Zill, N. (1986). Marital disruption, parent-child relationships, and behavioral problems in children. *Journal of Marriage and the Family, 48*, 295–307.
- Pettit, G., Laird, R., Dodge, K., Bates, J., & Criss, M. (2001). Antecedents and behavior-problem outcomes of parental monitoring and psychological control in early adolescence. *Child Development, 72*, 583–598.
- Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (vol. 10, pp. 173–220). New York: Academic Press.
- Rosenthal, R., & Jacobson, L. (1966). Teachers' expectancies: Determinants of pupils' IQ gains. *Psychological Reports, 19*, 115–118.
- Simpkins, S. D., Davis-Kean, P. E., & Eccles, J. S. (2005). Parents' socializing behavior and children's participation in math, science, and computer out-of-school activities. *Applied Developmental Science, 9*, 14–30.
- Simpkins, S. D., Davis-Kean, P. E., & Eccles, J. S. (2006). Math and science motivation: A longitudinal examination of the links between choices and beliefs. *Developmental Psychology, 42*, 70–83.
- Snyder, M., Tanke, E. D., & Berscheid, E. (1977). Social perception and interpersonal behavior: On the self-fulfilling nature of social stereotypes. *Journal of Personality and Social Psychology, 35*, 656–666.
- Spera, C. (2006). Adolescents' perceptions of parental goals, practices, and styles in relation to their motivation and achievement. *Journal of Early Adolescence, 26*, 456–490.
- Stevenson, H. W., Chen, C., & Uttal, D. H. (1990). Beliefs and achievement: A study of Black, White, and Hispanic children. *Child Development Special Issue: Minority children, 61*, 508–523.
- Stone, S. (2006). Correlates of change in student reported parent involvement in schooling: A new look at the national education longitudinal study of 1988. *American Journal of Orthopsychiatry, 76*, 518–530.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103*, 193–210.
- Taylor, R. D., & Lopez, E. I. (2005). Family management practice, school achievement, and problem behavior in African American adolescents: Mediating processes. *Journal of Applied Developmental Psychology, 26*, 39–49.
- Trusty, J. (1998). Family influences on educational expectations of late adolescents. *Journal of Educational Research, 91*, 260–270.

- Trusty, J. (2000). High educational expectations and low achievement: Stability of educational goals across adolescence. *Journal of Educational Research, 93*, 356–365.
- Wentzel, K. R. (1998). Parents' aspirations for children's educational attainments: Relations to parental beliefs and social address variables. *Merrill-Palmer Quarterly, 44*, 20–37.
- Woodcock, R. W., & Johnson, M. B. (1989). *Woodcock–Johnson revised Tests of Cognitive Ability: Standard and supplemental batteries*. Itasca, IL: Riverside.
- Word, C. O., Zanna, M. P., & Cooper, J. (1974). The nonverbal mediation of self-fulfilling prophecies in interracial interaction. *Journal of Experimental Social Psychology, 10*, 109–120.
- Xu, J., & Corno, L. (2003). Family help and homework management reported by middle school students. *The Elementary School Journal, 103*, 503–517.