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Parental Expectations and Investments: Links to children's academic performance in an ethnically diverse low-income sample

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Parental Expectations and Investments: Links to children's academic performance in an ethnically diverse low-income sample

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by

Cristal Lynn Byrne

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ABSTRACT OF THE THESIS

Parental Expectations and Investments: Links to children's academic performance in an ethnically diverse low-income sample

by

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Master of Arts in Education

University of California, Los Angeles, 2013

Professor Rashmita S. Mistry, Chair

The aim of this short-term longitudinal study was to provide empirical support for the role that parental investments in children's education play in mediating the association between parental expectations and child academic outcomes. Participants were a hetergeneous sample of 426 low-income urban youth, ages 6 through 16 at the first time point of the current study. Results from regression analyses indicated that parental expectations at Time 1 predicted children's academic achievement outcomes at Time 2, assessed three years later when youth were between the ages of 10 and 18. However, indicators of parental involvement – cognitive stimulation, extracurricular activities, and parental monitoring assessed at Time 2 – did not help to explain achievement outcomes. Finally, cognitive stimulation scores among the expectation/achievement congruent groups was found to be statistically significant. Results provide support for the finding that parents' involvement in the academic performance of their youth is dynamic and responsive.

The thesis of Cristal Lynn Byrne is approved.

Carollee Howes

Sandra Graham

Rashmita S. Mistry, Committee Chair

University of California, Los Angeles

To the people who have nurtured my body, soul, and spirit since birth and who have done everything in their power to help me succeed – mom, dad, James, and grandpa “gramps” and grandma “Mary Poppins” Arizona. I could not have made it this far without your unconditional love and support. Thank you.

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INTRODUCTION

From the time they enter the formal education system in this country, children from socioeconomically disadvantaged families fare less well as compared with their more advantaged peers in terms of academic preparedness (Barbarin et al., 2006; Duncan & Magnuson, 2005; Magnuson, Meyers, Ruhm, & Waldfogel, 2004). Not only do children from low socioeconomic status (SES) families enter school further behind than their peers from higher income families, but this educational disparity persists over time, as their academic careers progress into primary and secondary school (Alexander & Entwisle, 1988; Hill, 2001; Stipek & Ryan, 1997). This developmental trajectory is neither deterministic nor does it occur in a vacuum. Many factors contribute to children's academic trajectories.

On the home front, parental academic expectations and involvement strategies are two family processes shown to affect children's level of academic achievement. High parental expectations have generally been found to boost children's academic performance, irrespective of SES background (Benner & Mistry, 2007; Crosnoe, Mistry, & Elder, 2002; Davis-Kean, 2005; De Civita, Pagani, Vitaro, & Tremblay, 2004; Halle, Kurtz-Costes, & Mahoney, 1997). In addition, parents' provision of academic resources, such as providing rich home-learning environments has been shown to promote academic achievement (Halle, Kurtz-Costes, & Mahoney, 1997; Magnuson, 2007; Taylor, Clayton, & Rowley, 2004). While both sets of family processes have individually been identified as important contributors to academic performance, less well investigated is how parental expectations and involvement collectively influence children's academic outcomes. To address this limitation, the current study sought to examine relations between parental expectations, involvement, and academic achievement among a sample of ethnically diverse, low-income families.

LITERATURE REVIEW

Parent Educational Expectations and Children's Academic Achievement

Across the board, adults' (i.e., parents and teachers) educational expectations influence children's academic performance (Benner & Mistry, 2007; Davis-Kean, 2005; De Civita, Pagani, Vitaro, & Tremblay, 2004; Halle, Kurtz-Costes, & Mahoney, 1997; Mistry, White, Benner, & Huynh, 2009). Children are motivated by parent expectations and tend to perform better academically when their parents hold higher expectations of them. Despite their on average lower levels of educational expectations as compared with higher-income parents, the expectations of lower SES parents still impact their child's academic performance (Crosnoe, Mistry, & Elder, 2002). In a recent study, Benner and Mistry (2007) found that among a sample of low-income families, parents' higher educational expectations were associated with higher levels of student engagement and improved academic outcomes. Furthermore, studies examining the lived experience of low-income minority students suggest that parental expectations as well as aspirations are an important source of academic motivation for these students (Ceja, 2004; Howard, 2003). Ceja (2004) found that the academic performance of Chicana students in his sample was largely motivated by parents' expressed hope for a better future for their children. Even more encouraging, Benner and Mistry found that parent expectations buffered the impact of low teacher expectations and helped to support low-income student's academic performance. Thus, it is clear that expectations matter for the educational outcomes of children from both higher and lower-SES backgrounds.

Parental Investment Strategies as Mediators of the Link Between Parental Expectations and Youth's Academic Achievement

While there are many pathways through which family processes can impact a child's academic trajectory, the provision of educational and cognitively stimulating resources – referred to as the parental investment model (PIM) is one pathway that has been well tested empirically (Bradley & Corwin, 2002; Linver, Brooks-Gunn, & Kohen, 2002) and informs the current study. The PIM is a micro-level perspective that asserts that family economic resources play a role in parents' ability to provide their children with the sorts of opportunities (e.g., extracurricular activities, educational materials) shown to promote academic success (see review by Conger, Conger, & Martin, 2010). In so much as lower SES parents have fewer economic resources, they are less well able to provide such resources and experiences to their children. This discrepancy in resources between lower and higher SES families is thought to explain, in part, the academic achievement gap between children from higher and lower SES backgrounds (Alexander & Entwisle, 1988; Barbarin et al., 2006; Duncan & Magnuson, 2005; Entwisle & Alexander, 1992; Hill, 2001; Stipek & Ryan, 1997).

In general, the more resources (i.e., time, money, and experience) parents have to share with their children the better their academic outcomes. This association has been shown to be mediated through the provision of stimulating activities, materials, and services both in (i.e., cognitively stimulating toys and activities) and outside (i.e., childcare environment) of the home (Yeung, Linver, & Brooks-Gunn, 2002). For instance, using the Home Observation for Measurement of Environment (HOME-Short Form), Bradley et al. (2001) found that nonpoor children were more likely to have access to developmentally appropriate books (10 or more), as well as adults available to read and teach them school-related concepts. Related, Yeung and colleagues (2002) found that higher income families were better positioned to invest time engaging in stimulating activities with their children. Furthermore, in her ethnographic study of

parenting practices, Lareau (2002) described her sample of middle class parents as using a "concerted cultivation" approach to child rearing, which emphasizes strategies such as scaffolding learning and promoting both the scholastic and non-scholastic interests of their children (see Bodovski & Farkas, 2008 as well). Given the resources necessary to provide these sorts of experiences to their children, Lareau's investigation, as well as others (Cheadle, 2008; Cheadle, 2009; Cheadle & Amato, 2011), provides support for the notion that "concerted cultivation" is a pathway through which family SES influences academic performance. In general, it has been shown that parental involvement mediates the relationship between income and academic performance such that higher income parents are able to provide their children with the sorts of resources that have been shown to promote academic success.

However, while research suggests that parental investment strategies are often stratified by income, low-income families have also been shown to engage in some of the same strategies employed by their more affluent counterparts. For example, in their qualitative investigation of parenting practices and academic performance, Gutman and McLoyd (2000) found evidence of parents' use of concerted cultivation strategies among a sample of low-income, African American families. What's more, when these strategies were employed, children performed better academically. Parents of these high-achieving students were more likely to be proactively involved and used more specific strategies in helping to guide the academic development of their children. For example, parents of high achieving students used practice lessons and sample questions to provide supplemental exposure to concepts covered in school assignments. Additionally, these parents were more likely to provide encouragement, had an on-going relationship with their child's school, monitored their children's activities and whereabouts more closely, and involved their children in extracurricular activities more often as compared with

parents of low-achieving students. In contrast, parents of low-achieving students were less likely to be actively involved in mentoring their children and instead were more likely to be reactive in their approach, intervening only after the detection of a problem. They were more likely to be discouraging and critical and less likely to involve their children in extra-curricular activities.

In summary, a large body of research makes clear that children from higher SES families tend to fare better academically than their lower SES counterparts on account of higher levels of material resource availability. Likewise, it has been shown that "concerted cultivation" approaches are more accessible to families with higher levels of resources. However, while economic barriers make it more challenging for lower-SES parents to engage in concerted cultivation practices at the same level or magnitude as higher-SES families and parents, evidence suggests that when they are able to provide their children with similar types of "middle class" investments their children perform better academically. Building on this, in the current study, I aim to examine, using quantitative data, whether parental investments mediate the link between parental expectations and academic performance.

Congruence of Expectations and Achievement as a Moderator of the Link Between Parent Expectations and PIM

The Gutman and McLoyd (2000) study makes three key contributions. First, as noted above, it suggests that despite economic hardship, some low-income parents do use concerted cultivation strategies similar to their higher resourced counterparts to better support their children's academic progress. Second, it shows that when low-income parents use these strategies, their children fare better academically. These results provide further support for the link between parental investment and academic performance. Third, the results suggest that higher parental expectations do not always predict higher levels of academic performance and

that investment strategies may be one path by which this link is realized. While all parents in Gutman & McLoyd's study expressed a belief in the importance of education and their role in contributing to the development of academic competence of their children, this belief was not necessarily reflected in all parents' use of investment strategies. Parents who acknowledged the value of education and used strategies similar to those associated with concerted cultivation had children who showed higher levels of academic achievement. Parents who acknowledged the value of education, but did not use these strategies had children who did not fare as well academically. That is, Gutman and McLoyd observed an apparent disconnect between the educational beliefs and actions of parents whose children showed lower levels of performance. These results suggest that not only are parental investments an important contributor to children's academic performance, but further that high expectations alone are not enough to support high academic performance.

In a similar vein, Alexander, Entwisle, and Bedinger (1994) found that while their sample of low-income parents generally exhibited high educational expectations for their children, parental expectations did not always map on to children's actual level of academic performance. That is, for a subgroup of parents, expectations were out of sync with their child's actual level of academic performance. Instead, parents' educational expectations remained static, characterized by lofty expectations despite the fact that over time indicators of academic performance did not support them. Upon closer examination, Alexander and colleagues (1994) found that parents' expectations were more likely to map on to actual performance when recall of past academic performance was more accurate. That is, when parents' were more accurate in their recall of their child's past academic achievement, their expectations were more line with performance. These findings are key to the present study because accurate recollection of past grades may have

implications for level of parent investment. That is, parents with higher expectations who are also able to recount past grades more accurately might also be those who show higher levels of involvement. Conversely, more accurate recall of prior achievement may lead some parents to lower their educational expectations accordingly, and thus reduce their level of investments over time. The proposed study aims to test such hypotheses more explicitly by examining how parental expectations and children's academic performance interact and conjointly affect the link between parental expectations and investments. Therefore, if parental investments are indeed shown to partially mediate the link between parent expectations and children's academic achievement outcomes, then this study seeks to determine if this association is moderated by the congruence or dissonance between parental expectations and children's academic performance.

The Current Study

Family process variables such as parental expectations and investment strategies have been consistently shown to influence the academic performance of children. While high parental expectations have been associated with higher levels of child academic performance (Davis-Kean, 2005; De Civita, Pagani, Vitaro, & Tremblay, 2004; Halle, Kurtz-Costes, & Mahoney, 1997; Madon et al., 1998), findings also suggest that the benefit of high expectations alone is not necessarily enough to support positive academic outcomes (Alexander, Entwisle, & Bedinger, 1994; Gutman & McLoyd, 2000). In addition to parental expectations, it has also been shown that the ways in which children's academic endeavors are supported (e.g., parental investment strategies) promotes higher levels of academic performance. Together, these family process variables paint a more complete picture of the role of parental influence on academic performance.

The first aim of this study was to replicate the well-established association between parental expectations and child academic performance. Further, since the link between parental investment and child performance has also been well documented, the second aim was to determine if parental investments help to explain how parents' educational expectations affect children's academic performance. That is, this study assessed whether parental investments mediate the link between educational expectations and academic achievement. Parents with high expectations who are also more involved and invested in their children's education were in turn expected to have children who performed better academically. In contrast, high parental expectations that do not translate into higher levels of investments in their children's education, as demonstrated by greater use of concerted cultivation strategies, were not expected to be as strongly related to children's academic achievement outcomes. This study's third aim was to determine whether the congruence or dissonance between parental expectations and children's academic achievement differentiated the levels of parents' educational investments. Specifically, I anticipated that parental investments would be highest when parents with high performing children had high expectations (congruence), and lowest when parents with low performing children had low expectations (congruence). Of greater interest, but less predictable were the investment levels of parents with college expectations in the face of below average achievement (dissonance). Whereas investments levels were expected to be lower for the two dissonance groups as compared with the high expectations-high prior achievement congruence group, it is less clear how differentiated the investment levels will be among the two dissonance groups.

My first hypothesis was that a positive association would be observed between parental educational expectations and academic performance. It was also hypothesized that parental investment strategies will mediate the relation between parents' educational expectations and

children's academic performance. Lastly, I expected differences in parents' level of educational investments based on the degree of congruence or dissonance between parental expectations and children's academic performance.

METHOD

Data Source

Data for the study came from a larger evaluation of the New Hope Project (''New Hope''), a three-year antipoverty demonstration program implemented in Milwaukee, Wisconsin during the mid-1990's (see Bos et al.,1999). Eligibility requirements for New Hope were that participants be 18 years of age or older, live in households at or below 150% of the federal poverty line, and be willing to work 30 or more hours weekly. Eligible participants were randomly assigned to either a control or program group. Those assigned to the program group were eligible for New Hope services (i.e., earnings supplements, health insurance and child care subsidies, access to community service jobs, individual case management) for three years from the time of random assignment (see Bos et al., 1999). Participants assigned to the control group, although not eligible for New Hope services, remained eligible for other government assistance programs or services available in the community.

All adults in the New Hope sample who had at least one dependent child between the ages of 1 and 10 at baseline (N = 745) were eligible to participate in a study designed to assess program effects on families with children in early and middle childhood. At baseline, when they applied for New Hope, parents were 29.4 years, on average; slightly over half (55%) were non-Hispanic African American, and 29% were Hispanic. About half had a high school diploma or

GED. The majority had a history of employment, but most had earnings of less than $5,000 in the previous year. Approximately 80% were receiving public assistance.

Participants

Data for the current study are drawn from evaluations conducted five and eight years (referred to as T1 and T2, respectively, hereafter) after the implementation of New Hope (N = 561 families; 863 children). The sample is identical to that used in a recent study by Mistry, White, Benner, and Huynh (2009). In that study, children younger than age 6 at T1 were excluded because educational expectations data were not available for these children (n = 302). Due to the small sample size (n = 39), youth with only father reports of educational expectations were also excluded from the final sample, as were youth who had already graduated from high school by T2 (n = 75). An additional 20 youth were excluded for multiple reasons—those missing high school graduation data at T2 and aged 18 years or older at T2 (n = 7), missing high school graduation data at T2 and age data (either T1 or T2) (n = 11), and missing a majority of baseline data, expectation data, and outcome measures (n = 2).

With these restrictions, the final sample used in this study comprised 426 youth from 309 families. The average age of the youth was 12.2 years (SD = 2.05; range = 6.8–16.6 years) at T1 and 15.7 years (SD = 2.07; range = 10.3–20.0 years) at T2. The sample included roughly equal numbers of boys (54%) and girls and was ethnically diverse (60% non-Hispanic African American; 26% Hispanic, any race; and 14% non-Hispanic White). Approximately 30% of youth received special educational services for a physical, emotional or learning problem at T1; 35% received such services at T2. The majority of students attended public schools at both T1 and T2.

Measures

Measures included in the New Hope Child and Family Study (CFS) were primarily drawn from other existing large-scale surveys and studies involving low-income and racially/ethnically diverse samples. All study measures were pilot-tested and modified accordingly.

Parent Educational Expectations. Primary caregivers answered questions regarding expectations that youth would attend college. Specifically, caregivers reported how much education they expected their child to complete: some high school (1), finish high school (2), technical school after high school (3), some college (4), finish college (5), or graduate or professional school after college (6). This item was adapted from one used by Medrich and colleagues (1994). Parent expectation of educational attainment was included in the model as a predictor variable and was assessed at T1.

Parental Investment Strategies. In order to determine level of parental investment, caregivers answered questions pertaining to three indicators of investment strategies including cognitive stimulation (as adapted from the HOME inventory; Bradley, Caldwell, Rock, & Hamrick, 1989), parental monitoring, and child participation in extracurricular activities (Roksa & Potter, 2011). For the purposes of this study, parental investment variables were assessed at T1 only. Two questions regarding cognitive stimulation focused on youth's frequency of use of academic resources (i.e., books/magazine and computer/internet access) in the home. These questions were assessed on a scale ranging from 1 to 5: never (1), less than once a month (2), about every month (3), about every week (4), and about every day (5). Answers were averaged to create a single mean score composite variable. Since only two questions pertaining to cognitive stimulation were available for use in these analyses, an inter-item correlation coefficient, rather than a Cronbach's alpha was calculated. The inter-item correlation coefficient was .29.

Caregivers also answered questions about their knowledge of youths' activities both in and outside of the home, such as watching television, youths' whereabouts and caregiver's familiarity with their peers, on a frequency scale ranging from 1 to 6: never (1), almost never (2), sometimes (3), often (4), almost always (5), and always (6). A principal axis, exploratory factor analysis of eleven questions pertaining to parental monitoring, using promax rotation, was conducted. Results revealed a multi-dimensional factor that explained 81% of the variance, comprised of four subscales with eigen values greater than 1. The subscales were parental monitoring of: activities (e.g., knows were child is when not at home, knows what child is doing after school), whereabouts (e.g., knows when child goes out on a weekday/weekend night, knows when child is late getting home), friends (e.g., knows child's friends first and last name, knows child's friends phone numbers), and television viewing (e.g., knows how much TV child watches, knows what TV programs child watches) (see Table 1). Internal consistency for each of the subscales was examined using Cronbach's alpha. The alphas were .71 and .87 for parental monitoring of activities and whereabouts, respectively. Since the parental monitoring of friends and television viewing subscales consisted of two items each, inter-item correlations were calculated. The inter-item correlation coefficient for parental monitoring of friends was .63 and the inter-item correlation coefficient for monitoring of television was .67 at the alpha .05 level of significance. A composite variable was created for each of the four subscales by averaging scores across questions.

Youth's participation in extracurricular activities (e.g., music lessons, sports, clubs, etc.) was measured on a frequency scale ranging from 1 to 5: never (1), less than once a month (2), about every month (3), about every week (4), and about every day (5). A principal axis, exploratory factor analysis of five questions pertaining to involvement in extracurricular

activities, using promax rotation, was conducted. Results revealed a multi-dimensional factor, which explained 64% of the variance, comprised of two subscales with eigen values greater than 1. The subscales were extracurricular activities: structured academic (e.g., child goes to a community center with adult supervision, child goes to program for help with school or homework) and structured non-academic (e.g., child takes dance/art/music lessons, child plays sports). Internal consistency for structured academic activities was adequate (Cronbach's alpha = .70). Since the structured non-academic activities subscale was comprised of only two items, an inter-item correlation was calculated. The inter-item correlation coefficient was .32. A composite variable was created for each of the factors by averaging scores across questions. The factor-loading matrix is presented in Table 2.

Youth's Achievement-related Outcomes. Youths' achievement-related outcomes were assessed using two indicators of academic achievement. The first was youths' school grade point average (GPA), based on school records, assessed at T2. Possible scores ranged from 0.0 (F) to 4.0 (A) and were analyzed on a continuous scale. The second indicator was a total standardized achievement score based on the sum of the three subscales (Letter-Word Identification, Passage Comprehension and Applied Problems) of the Woodcock–Johnson Achievement Battery-Revised (Woodcock and Johnson, 1990), assessed at T2.

Covariates

Analyses included the same set of covariates as included in Mistry et al., (2009). Family-level covariates included: experimental status (1 = New Hope program group, 0 = control group), maternal race/ethnicity (dummy variables for non-Hispanic African American; Hispanic, any race), and maternal education level (1 = high school graduate or GED, 0 = less than high school graduate). For the race/ethnicity covariates, non-Hispanic White families served as the reference

group. Youth-level covariates will include youth's gender (1 = male, 0 = female), grade in school, assessed at T1, mothers' report of whether or not the youth ever received special education services for a physical, emotional or learning problem (1 = yes, 0 = no), and whether the youth attended a public school (1 = public, 0 = private), assessed at T1 and T2.

Data Analytic Strategy

Descriptive statistics including frequencies, means, standard deviations, and outliers were first examined to determine the range and variability of responses on the main variables of interest in the study (see Table 3). Correlations between all main variables of interest were examined to assess simple associations among the variables. By looking at these base associations I was able to determine which of my mediator variables to include in the final model (see Table 4). Correlations between all main variables of interest and covariates were also examined (see Table 5).

To answer the first research question, hierarchical OLS regressions were conducted to determine the relationship between parent's T1 educational expectations and youths' T2 academic achievement indicators (GPA and Woodcock-Johnson achievement test scores, separately), adjusting for the influence of the covariates. First, T2 GPA was regressed on the full set of covariates. In the second step, parents' T1 educational expectation was added to the model to assess its degree on influence on T2 GPA above and beyond the influence of the covariates. These steps were repeated using Woodcock-Johnson scores as the dependent variable.

Next, to answer the second research question (mediation), direct associations were established between T2 Woodcock-Johnson scores and indices of parental investments assessed at T1 and between T1 parental expectations and investments, adjusting for the covariates. Then, to more formally test for mediation, T2 achievement outcomes were regressed on T1 parental

expectations and investment strategies, after accounting for the influence of the covariates. Evidence of mediation was apparent if the beta coefficient for parental expectations was reduced partially or fully to non-significance when the indicators of parental investments were included in the regression model, and if the beta coefficients for parental investment strategies attained significance.

Finally, to answer my third research question regarding the influence of the congruence/dissonance of parents' educational expectations and children's T1 academic achievement on the indicators of parental investments, I conducted an analysis of co-variance (ANCOVA). To do so, I first created groups representing four possible combinations of parental expectations and academic achievement levels, both of which were assessed at T1. Parental expectations were divided into two groups based on parents' expectation that their youth would or would not attend college. The first group was defined as parents who expected their child not to go to college (i.e., some high school, finish high school, technical school after high school), while the second group was defined as parents who expected their child to attend at least some or graduate from college (i.e., some college, finish college, graduate/professional school).

Youths' academic achievement, based on Woodcock Johnson achievement battery scores at T1, was categorized into two groups based on scores one standard deviation above and below the mean. Scores at least one standard deviation above the mean were grouped into a new variable called "above average", while scores one standard deviation below the mean were grouped into a "below average" variable. The parental expectations/achievement congruence and dissonance groups were comprised of combinations of parental expectations of no college or college attendance and above or below average achievement as follows: college expectations/above average academic achievement (C/AA), college expectations/below average

academic achievement (C/BA), no college expectations/above average academic achievement (NC/AA), and no college expectations/below average academic achievement (NC/BA). The first two groups represent congruent conditions, while the latter two represent dissonant expectations and achievement.

RESULTS

Means and standard deviations of parent expectations, youth academic achievement, and parental investment strategies included in these analyses are shown in Table 3. The descriptive statistics for parent expectations showed that on a scale of completing some high school (1) to attending graduate or professional school (6), mothers, on average, reported expecting their children to minimally attend a technical school after high school or college ($M = 3.71$, $SD = 1.34$). Standardized achievement test scores on the WJ indicated that at Time 2, youth scored within the normative range ($M = 95.4$, $SD = 14.3$). School GPA records collected at Time 2 indicate that on a scale of 0.0 (F) to 4.0 (A) youth earned a D average during that school year ($M = 1.17$, $SD = 1.10$). However, this mean score masks the variability in students' GPA; 1.2% of youth had an "A" average (3.5-4.0) whereas 32% had an "F" average (0.0-0.4).

The descriptive statistics for parental investment strategies show that, on average, mothers reported that youth accessed cognitively stimulating materials (i.e., books/magazine and computer/internet access) in the home at a minimum of once per month ($M = 3.61$, $SD = .99$) and engaged in extracurricular activities less than once per month ($M = 2.41$, $SD = .98$). Questions pertaining to parental monitoring were divided into 4 separate categories including monitoring of activities, whereabouts, friends, and television viewing. On average, mothers' reported being highly aware of child activities and whereabouts outside of the home ($M = 4.98$, $SD = 1.10$; $M =$

5.45, *SD* = 1.09, respectively), their children's friends first and last names and contact information (*M* = 4.40, *SD* = 1.25), and how much and what their children watched on television (*M* = 4.39, *SD* = 1.04).

The correlation matrix indicated that parental educational expectations assessed at Time 1 were significantly correlated with WJ achievement test scores assessed at Time 2, $r(271) = .17$, $p < .01$. However, parental educational expectations were not statistically significantly correlated with Time 2 GPA, $r(149) = .12$, $p > .01$. Furthermore, GPA was not correlated with any of the mediator variables (Table 4). For this reason, GPA scores were excluded from further analyses and youths' WJ achievement test scores were retained as the only academic achievement outcome variable in the final analyses.

Cognitive stimulation scores at Time 1 were significantly correlated with WJ achievement test scores at Time 2, $r(317) = .17$, $p < .01$. All other mediator variables were not statistically significantly correlated with achievement test scores. In addition, parental expectations and cognitive stimulation were correlated, $r(327) = .17$, $p < .01$, but none of the other mediators were significantly correlated with parents' educational expectations. Thus, based on these initial bivariate correlations I decided to retain only the cognitive stimulation variable as a mediator in the final analyses.

Linear regression was used to test if parental expectations significantly predicted GPA (see Table 6). The results of the regression indicated that parental expectations at T1 explained 12% of the variance (R^2=.12, $F(9,132) = 1.7$, $p>.05$) and did not significantly predict GPA at T2 (B=.07, $p>.05$). Results of OLS regression analyses indicated that, above and beyond the influence of the covariates, parents' educational expectations at T1 significantly predicted WJ test scores at T2 (B=1.50, $p<.05$; R^2=.18. However, results of the next stepwise regression

analysis that added cognitive stimulation to the model indicated that cognitive stimulation did not mediate the association between parental expectations and WJ test scores (B=1.07, P>.05; see Table 8). That is, cognitive stimulation as an indicator of parental investment did not account for a statistically significant portion of the variance and did not help to explain the association between parental educational expectations at T1 and Woodcock-Johnson achievement test scores at T2.

Finally, analysis of covariance (ANCOVA) was used to test if the interaction between youths' academic achievement and parents' educational expectations at T1 had a moderating influence on parents' provision of cognitive stimulation at T1. Parents' academic expectations were evaluated using scaled responses regarding the expectation that their child would attend college. A total of 129 parents selected response options indicating that they did not expect their child to attend college (i.e., some high school, finish high school, technical school), while 214 parents selected response options indicating that they did expect that their child would attend college (i.e., some college, finish college; see Table 9). Academic achievement was evaluated using scores from the Woodcock-Johnson achievement battery, assessed at T1. Above average academic performance was defined as WJ achievement test scores 1 standard deviation above the sample mean (M = 109.73; SD = 14.31), while below average performance was defined as scores that fell 1 standard deviations below the mean (M = 81.11; SD = 14.31).

In total, 102 youths' scores met these criteria: 52 youth were categorized in the above average academic performance group and 50 youth were categorized in the below average academic performance group. The remaining 278 youth, whose scores fell between 1 standard deviation above and below the mean, were excluded from these analyses. An additional 18 youth were excluded due to missing parental expectations data.

Based on the grouping criteria outlined above, the final sample size for the moderation analyses was 84. Specifically, there were 36 youth in the college expectations/above average academic achievement group (C/AA), 16 youth were in the college expectations/below average academic achievement group (C/BA), 5 youth were in the no college expectations/above average academic achievement (NC/AA), and 27 youth were in the no college expectations/below average academic achievement (NC/BA).

The results of the main ANOVA analysis indicate that there are mean-level differences between the four groups on cognitive stimulation scores, F (__, __) 3.29, p<.01. Next, both New Hope vs. Control group status and the type of school youth attended (i.e., public/private) were added to the model as covariates, as they were the only covariates that were shown to be significantly associated with the dependent variable, F (__, ___) 3.21, p<.01.

In order to determine which of the four groups differed significantly from each other, post hoc analysis adjusting for multiple comparisons (Bonferroni correction) were conducted (Table 10). Results indicate a statistically significant difference between the two congruent groups (i.e., college/above average and no college/below average). Specifically, parents with college-bound expectations of youth with above average academic performance provided higher levels of cognitive stimulation as compared with parents of below average performing youth who do not have college-bound expectations. Mean-level differences in cognitive stimulation between other groups were not found.

DISCUSSION

The purpose of the current study was three-fold. The first aim of this study was to replicate the well-established association between parental expectations and child academic

performance using data collected as part of the New Hope Project evaluation (see Bos et al.,1999). As hypothesized results from the analysis of my first research question indicate that parental expectations at T1 are linked to child academic performance at T2 (as measured by scores on the Woodcock-Johnson Achievement Battery) for low-income families participating in the New Hope Project. However, due to a lack of available data on youth GPA at T2, the Woodcock-Johnson Achievement Battery was the only outcome measure for which this association could be established.

Since the first step was to replicate the well-documented association between parental expectations and academic performance in this sample, the next step was to determine if the addition of parental involvement in the model helped to explain the base association between parental expectations and youths' academic performance. However, the hypothesis that parental academic expectations and parental involvement together would help to explain academic achievement outcomes was not supported by the data. Of the three indicators of parental involvement (i.e., cognitive stimulation, extracurricular activities, and monitoring) addressed in this study, only cognitive stimulation scores were found to correlate with scores on the Woodcock-Johnson at T2. As a result, cognitive stimulation was the only indicator of involvement added to the final mediation analysis model. However, the incorporation of cognitive stimulation scores as a partial mediator did not result in statistical significance of the full model.

One possibility for the lack of empirical support for cognitive stimulation as a mediator is the appropriateness and relevance of variables used to create the cognitive stimulation score (i.e., frequency with which youth read non-school related books/magazines and frequency of access to computer and Internet). We know that parental involvement is a responsive and dynamic process

such that the ways in which and degree to which parents are involved changes over time in accordance with child needs (Mistry et al., 2009; Pomerantz, Moorman, & Litwack, 2007). For instance, Chen and Gregory (2010) found that among a low-income sample of 9th graders parental involvement through expectations predicted higher GPA and classroom engagement, while other more traditional forms of parental involvement (e.g., helping with homework, attending teacher-parent conferences) did not predict these outcomes. Similarly, while number of books in the home has traditionally been used to measure level of in-home academic enrichment for younger children, it is possible this is not as relevant an indicator of parental involvement in an older sample as other indicators might be.

Furthermore, while Lareau's parental involvement strategies have been found to be associated with academic achievement in both low-income and middle class samples (Bodovski & Farkas, 2008; Gutman and McLoyd, 2000), perhaps access to a computer and Internet is not the most appropriate measure of cognitive stimulation in a low-income sample. That is, while the use of a computer and Internet might be a more developmentally appropriate measure of cognitive stimulation, it could also be that computer and Internet access was not widely available due to income. Indeed, approximately one-third (37%) of parents in this sample reported youth using a computer and Internet as infrequently as once per month or less. Interestingly, as computer and Internet access increases, frequency of computer and Internet use may continue to be a less than ideal indicator of cognitive stimulation. According to 2010 U.S. census data, more than two-thirds (69%) of people living in the lowest income quartile have access to a computer and more than half (50%) have access to the Internet at home.

The third aim was to determine whether the congruence or dissonance between parental expectations and children's academic achievement differentiated the levels of parents' cognitive

stimulation. As predicted, in line with work by Mistry and colleagues (2009), results suggest that parental involvement is responsive to child's academic achievement. That is, mean level differences in parent report of cognitive stimulation were found among the two expectation/ achievement congruent groups (i.e., college expectations/above average achievement, no college expectations/below average expectations). This means that parents with college-bound expectations of their above average performing children showed, on average, higher levels of involvement than did parents without college-bound expectations of their below average performing children. These results provide further support for responsive and dynamic relationship exists between children's needs and parental involvement strategies. Unfortunately, a statistically significant difference in cognitive stimulation between the no college/high performance and other expectation/achievement groups was not found. This is likely due to small sample size. Likewise, a statistically significant difference in cognitive stimulation between the college/below average performance and other expectation/achievement groups was not found. It is possible that this was due to sample size as well.

The results of this short-term longitudinal study provide additional support for the well-documented finding that parental expectations are associated with youth academic performance. This is true for families involved in the New Hope evaluation project as well as other low-income samples. While prior research has found that indicators of parental involvement, like parental expectation, contribute to youth academic outcomes, the data do not provide support for partial mediation of cognitive stimulation. However, results suggest that level of cognitive stimulation provided by parents is differentiated by congruence of parental expectation and youth academic performance.

Table 1

Factor loadings based on a principal axis, exploratory factor analysis with promax rotation for eleven questions pertaining to parental monitoring of youth activities

	Parental Monitoring: Activities	Parental Monitoring: Whereabouts	Parental Monitoring: Friends	Parental Monitoring: TV
Knows where child is when not at home	**.92**	.35	.17	.47
Knows when to expect child home	**.84**	.38	.27	.42
Knows who child is with when not at home	**.82**	.36	.20	.43
Knows what child is doing after school	**.72**	.40	.38	.47
Knows when child goes out weekend night	.40	**.97**	.23	.18
Knows when child goes out school night	.38	**.91**	.22	.18
Knows when child is late getting home	.33	**.62**	.11	.27
Knows child's friends' first and last name	.23	.20	**.85**	.26
Knows contact information for childs' friends	.22	.17	**.84**	.16
Knows how much TV child watches	.43	.21	.21	**.87**
Knows what TV programs child watches	.49	.22	.24	**.83**

Table 2

Factor loadings based on a principal axis, exploratory factor analysis with promax rotation for six questions pertaining to youth involvement in extracurricular activities

	Extracurricular Activities: Structured Academic	Extracurricular Activities: Structured Non-Academic
Child goes to community center with adult supervision	**.81**	.32
Child belongs to club/youth group	**.63**	.48
Child goes to a program for help with school/home work	**.55**	.24
Child takes lessons: dance/music/art/crafts	.25	**.68**
Child plays sports/takes lessons with coach	.38	**.46**

Table 3

Sample descriptive statistics

	n	%	*M*	*SD*
Outcome Variables				
Woodcock-Johnson	381		95.42	14.31
School GPA	181		1.17	1.10
Predictor Variables				
Mothers' expectations	343		3.71	1.34
Cognitive Stimulation	406		3.61	.99
Extracurricular Activities	413		2.41	.98
Parental Monitor Activities	395		4.98	1.10
Parental Monitor Whereabouts	200		5.45	1.09
Parental Monitor Friends	395		4.40	1.25
Parental Monitor TV	396		4.39	1.04
Covariates				
Youth Gender				
Male	228	53.50		
Female	198	46.50		
Special education status, T1				
Yes	127	29.80		
No	296	69.50		
Missing	3	0.70		
Special education status, T2				
Yes	150	35.30		
No	243	57.00		
Missing	33	7.70		
Type of school attended, T1				
Public	364	85.40		
Private	47	11.00		
Missing	15	3.50		
Type of school attended, T2				
Public	337	79.10		
Private	34	8.00		
Missing	55	12.90		
Youth's grade in school, T1				
African American	186	60.20		
Hispanic	76	24.60		
Non-Hispanic White	47	15.20		
Maternal education level				
Less than HS graduate	125	40.50		
High school grad/GED	184	59.50		

Table 4

Correlation matrix of factors predicting GPA and Woodcock-Johnson scores

	Variables	1	2	3	4	5	6	7	8	9	GPA	WCJ
1	Education Expectations	1									.12	.17**
2	Cognitive Stimulation	.17**	1								-0.04	.17**
3	Parental Monitoring: Activities	0.06	0.06	1							0.06	0.07
4	Parental Monitoring: Whereabouts	-0.06	0.05	.40**	1						-0.02	-0.02
5	Parental Monitoring: Friends	-0.01	.15**	.17**	.16*	1					-0.01	-0.06
6	Parental Monitoring: TV	0.04	0.02	.49**	.21**	0.09	1				.12	0.09
7	Extracurricular Academic	.11*	.21**	-0.08	-0.06	.21**	-0.08	1			0.06	-0.00
8	Extracurricular Non-Academic	0.06	.22**	0.01	-0.01	.18**	-0.01	.35**	1		0.03	0.02
9	Extracurricular activities combined	.10	.26**	-0.05	-0.04	.24**	-0.06	.89**	.73**	1	0.06	0.01

Note. * $p < .05$; ** $p < .01$; Pearson product correlations were used.

Table 5

Correlation matrix of covariates predicting GPA and WCJ scores

	Variables	Exp	CogSti	PMA	PMW	PMF	PMTV	ExSAc	ExNSAc	AllEx	GPA	WCJ
1	Experimental Status	0.02	-.10*	0.04	-0.06	-0.02	-0.08	0.05	-0.01	0.03	-0.04	-0.03
2	Child Gender	-0.07	-.12*	-0.02	0.02	-0.06	0.04	-0.07	-0.06	-0.08	-.15*	0.009
3	Parental HS Diploma or GED	.10	0.03	0.06	-0.01	-0.02	-0.05	-0.04	-0.07	-0.07	0.07	.15**
4	Race - Black	.10	-0.02	-.14**	-0.06	-0.09	-0.08	.11*	0.02	0.09	0.03	0.02
5	Race - Hispanic	-0.03	-0.02	.13*	.11	0.04	.10*	-0.07	0.001	-0.06	-0.03	-0.05
6	Grade Completed, T2	-.16**	0.02	-.11*	0.07	.11*	-.13**	0.03	.13**	0.09	.28**	-.20**
7	Special Ed, T1	-0.08	-.15**	-0.02	-0.02	-0.01	-0.04	-0.01	-0.06	-0.03	-.11	-.29**
8	Spec Ed, T2	-.11	-.17**	-0.05	0.01	0.01	0.01	-0.09	-.14**	-.13*	-0.08	-.24**
9	Type of School, T1	-0.03	-.17**	-0.07	-0.04	-.14**	-0.03	-.14**	-.11*	-.16**	-0.01	0.006
10	Type of School, T2	-0.03	0.04	-0.02	0.07	0.01	-0.01	0.04	-0.05	0.006	-.11	.11

Note. * $p < .05$; ** $p < .01$; Pearson product correlations were used.

Table 6

Summary of Regression Analyses Predicting Youths' GPA and Achievement Test Scores at T2

	GPA			Woodcock Johnson scores		
	B	SE	Sig	B	SE	Sig
Constant	0.29	0.65	0.67	98.80	5.63	0.00
Experimental Status	-0.29	0.18	0.12	-0.51	1.62	0.75
Child Gender	-0.30	0.19	0.12	0.64	1.61	0.69
Race - Black	0.32	0.31	0.30	-4.88*	2.41	0.04
Race - Hispanic	0.04	0.35	0.92	-4.77	2.75	.08
Grade just completed	0.14	0.05	0.10	-1.17***	0.40	0.00
Child Received Spec Ed, T1	-0.13	0.27	0.63	-7.28***	2.05	0.00
Child Received Special Ed, T2	0.17	0.25	0.51	-3.45	1.99	0.09
Type of School, T1	-0.00	0.00	0.58	0.00	0.03	0.99
Type of School, T2	-0.13	0.24	0.60	0.80	1.99	0.69
Expectations T1	0.07	0.07	0.36	1.48*	0.61	0.02
R^2		0.12			0.18	
F		1.7			5.09	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 7

Summary of Regression Analyses Predicting Cognitive Stimulation at Time 2

	Cognitive Stimulation		
	B	SE	Sig
Constant	4.22	0.42	0.00
Experimental Status	-0.23	0.12	0.06
Child Gender	-0.07	0.12	0.53
Race - Black	-0.34	0.18	0.06
Race - Hispanic	-0.33	0.21	0.12
Grade just completed	0.00	0.03	0.98
Child Received Spec Ed, T1	-0.16	0.15	0.28
Child Received Special Ed, T2	-0.28	0.15	0.06
Type of School, T1	-0.00*	0.00	0.03
Type of School, T2	-0.03	0.15	0.85
Expectations T1	0.11*	0.04	0.02
R^2		0.10	
F		3.00	

Note. * $p < .05$

Table 8

Summary of Regression Analyses Predicting Youths' Achievement Test Scores at Time 2

	Model 1			Model 2			Model 3		
	B	SE	Sig	B	SE	Sig	B	SE	Sig
Constant	105.23	5.03	0.00	98.80	5.63	0.00	94.33	6.58	0.00
Experimental Status	-0.51	1.64	0.75	-0.51	1.62	0.75	-0.26	1.63	0.88
Child Gender	0.47	1.62	0.78	0.64	1.61	0.69	0.73	1.61	0.65
Race - Black	-4.43	2.42	0.07	-4.88*	2.41	0.04	-4.62	2.41	0.06
Race - Hispanic	-4.63	2.78	0.10	-4.77	2.75	.08	-4.47	2.76	0.11
Grade just completed	-1.28***	.41	0.00	-1.17***	0.40	0.00	-1.16***	0.40	0.00
Child Received Spec Ed, T1	-7.04***	2.07	0.00	-7.28***	2.05	0.00	-7.14***	2.05	0.00
Child Received Special Ed, T2	-3.99*	2.00	0.05	-3.45	1.99	0.09	-3.13	2.00	0.12
Type of School, T1	-0.00	0.03	0.97	0.00	0.03	0.99	0.01	0.03	0.86
Type of School, T2	0.64	2.01	0.75	0.80	1.99	0.69	0.89	1.99	0.66
Expectations T1				1.48*	0.61	0.02	1.35*	0.62	0.03
Cognitive Stimulation, T1							1.07	.82	.19
R^2		0.16			0.18			0.19	
F		4.89			5.09			4.80	
R^2 Change					0.02			0.01	
F Change					0.2			-0.3	

Note. *** $p < .001$

Table 9

Descriptive Statistics of Parental Expectations and Youth Woodcock-Johnson Scores

	n	%	*M*	*SD*
Parent academic expectations	343			
No college	129	38.00		
Some high school	13	0.40		
Finish high school	90	26.00		
Technical school	26	0.70		
College	214	62.4		
Some college	70	20.00		
Finish college	144	42.00		
Grad/professional school	--	--	--	--
Woodcock Johnson Scores T1	381		95.42	14.31
1 SD below average	50	13.2		
1 SD above average	52	13.6		
Between 1 SD below/above	278	73.2		
Expectations/achievement groups	84			
College/Above average	36	43.00		
No college/Below average	27	32.00		
College/Below average	16	19.00		
No college/Above average	5	6.00		

Table 10

Summary of ANCOVA Post hoc analysis

	n	%	*M*	*SD*
Moderation analysis sample	79			
College/Above average	33	42.0	4.00[a]	0.80
No college/Above average	5	6.0	3.80	1.04
College/Below average	15	19.0	3.30	1.00
No college/Below average	26	33.0	3.13[a]	0.94

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