



Center for Social Development

GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK



UNC
SCHOOL OF SOCIAL WORK

Parental Involvement's Effects on Academic Performance

Evidence from the YouthSave Ghana Experiment

Gina A. N. Chowa
Rainier D. Masa
Jenna Tucker

University of North Carolina at Chapel Hill

Subsequent publication: Chowa, G., Masa, R., & Tucker, J. (2013). The effects of parental involvement on academic performance of Ghanaian youth: Testing measurement and relationship using structural equation modeling. *Children and Youth Services Review*, 35(12), 2020-2030. doi:10.1016/j.childyouth.2013.09.009

2013

CSD Working Papers
No. 13-15

Campus Box 1196 One Brookings Drive St. Louis, MO 63130-9906 • (314) 935.7433 • csd.wustl.edu



Washington University in St. Louis

Acknowledgements

This study is a product of YouthSave, created in partnership with The MasterCard Foundation. The MasterCard Foundation did not take part in the design, collection, analysis, or interpretation of data in this study or in the writing or submission of this manuscript. The authors thank YouthSave research participants for their time and involvement in the project, headmasters and teachers in the project schools for allowing their institutions to be part of the research, and field interviewers at the Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana for their data collection support. The authors also thank Susan White at the University of North Carolina at Chapel Hill and Tiffany Trautwein at the Center for Social Development for their editorial assistance.

Parental Involvement's Effects on Academic Performance: Evidence from the YouthSave Ghana Experiment

Research in developed countries suggests that parental involvement is associated with youth academic success, but little is known about this relationship in developing countries. Further, it is unclear which type of parental involvement may impact the academic performance of youth from developing countries. This study examines whether (a) parental involvement at home and in school are meaningfully different constructs in a population of Ghanaian youth and their parents and (b) parental involvement predicts academic performance. Results suggest that parental involvement is a bidimensional construct consists of home and school involvement. The effect of parental involvement on youth academic performance appears to be a function of the type of involvement. Home-based parental involvement is associated positively with academic performance, while school-based parental involvement has a negative association. Parents can model positive attitudes and behaviors toward school and convey the importance of school.

Keywords: *parental involvement, youth, education, Ghana, confirmatory factor analysis, structural equation modeling*

Parental Involvement and Academic Performance

The level of parental involvement has important implications for children's academic performance. Social cognitive theory suggests that youth absorb messages about appropriate behavior and socially accepted goals by observing and talking with important people in their lives (Bandura, 1977). Based on this assumption, parents have the potential to model positive attitudes and behaviors toward school, and research in developed countries such as the United States has shown that parental involvement contributes to youth academic success (Fan & Chen, 2001; Houtenville & Conway, 2008; Jaynes, 2003, 2007). In fact, children are more likely to apply themselves and perform better in school when their parents show an interest in their school work, are willing to assist them with homework, and are willing to hold their children accountable for completion of school assignments. Youth who are not working hard at school may begin to perceive school as valuable when parents actively demonstrate that they value school through involvement.

Literature on the overall impact of parental involvement on youth academic performance in developing countries is minimal. Whether the relationship exists and which type of parental involvement has effects are important to determine in Ghana, where parents often do not have the education to engage their children in schoolwork or the resources to hire tutors. Does involvement in parent-teacher association meetings, volunteering at school, talking to their children about the importance of school matter? This study will begin to answer these questions and contribute to the literature on the relationship between parental involvement and academic performance in Ghana.

All measures of parental involvement used in studies in developing countries are based on scales that have been established in the context of developed countries, but parental involvement may be different in developed countries than in developing countries. These differences—including types and level of involvement—must be taken into account when measuring parental involvement in developing countries. Therefore, this paper focuses on the construct validity of parental involvement in a sample of Ghanaian youth and their parents.

Research on parental involvement and academic outcomes in the US suggests that parental involvement is best understood as taking multiple forms. At a minimum, parental involvement appears to differ based on the context (i.e., at home vs. in school) (Giallo, Treyvaud, Matthews, & Kienhuis, 2010; Jeynes, 2003). Research also demonstrates that parental involvement at home and in school is linked positively to a variety of academic outcomes (Jeynes, 2003, 2007). However, research on parental involvement in school is more mixed than research on involvement at home, particularly among different racial and ethnic groups (Fan, 2001; Sui-Chu & Willms, 1996).

In addition to influencing educational outcomes directly, parental involvement also might mediate the relationship between socioeconomic status (SES) and academic performance (Altschul, 2012; Lareau, 2011). While these relationships have been demonstrated in the US and other developed countries, the pathways may be different in developing countries. Therefore, we will use the validated measurement of a parental involvement scale to examine the relationships in Ghana.

This study contributes to the literature by testing an adaptation of a parental involvement scale that considers the differences in parental involvement in developed countries versus developing countries. It also investigates the relationship between at-home and in-school parental involvement and academic performance. The study addresses that issue by exploring the following research questions:

1. Are parental involvement at home and in school meaningfully different constructs in a population of Ghanaian adolescents and their families?
2. Is parental involvement related to academic performance among Ghanaian adolescents?
3. Does parental involvement mediate the relationship between SES and academic performance among Ghanaian adolescents?

We begin with a literature review of parental involvement, its different conceptualizations, and its effects on academic performance. Next, we present the data and methodology used for the investigation, including confirmatory factor analysis and general structural equation modeling. Finally, we present and discuss findings and conclude by highlighting limitations and implications for program development, policy, and future research.

What is parental involvement?

Parental involvement is defined in various ways in the literature. Epstein's (1990, 1995) typology of parental involvement includes six categories: basic parenting, facilitating learning at home, communicating with the school, volunteering at the school, participating in school decision making, and collaborating with the community. Other studies use a typology of parental involvement that is

based on either intuitive appeal or factor analysis of existing data (Izzo, Weissberg, Kasprow, & Fendrich, 1999; Sui-Chu & Willms, 1996).

Studies that do not apply a multifaceted typology of parental involvement tend to either describe it as a one-dimensional construct (McCarron & Inkelas, 2006; Oyserman, Brickman, & Rhodes, 2007) or distinguish it broadly by the context in which it takes place: at home or in school (Giallo et al., 2010; Jeynes, 2003). Home-based parental involvement includes helping students with homework, talking with them about school, expressing high expectations, encouraging school success, and providing structure conducive to learning (Altschul, 2012; Sui-Chu & Willms, 1996). School-based parental involvement includes volunteering at school, participating in school events and school organizations, and communicating with teachers and school staff (Mau, 1997; Oyserman et al., 2007).

These definitions have been applied in developed countries but seldom explored in developing countries, with notable exceptions for Nyarko's (2010, 2011) studies in Ghana. Nyarko uses the contextual description of parental involvement in which in-school parental involvement includes communication with teachers about school progress and school visits (Nyarko, 2011) and at-home parental involvement includes encouragement of children to succeed, monitoring of homework, and attending field trips (Nyarko, 2010). Distinguishing between involvement at home and in school can be instructive for at least two reasons. First, some studies that differentiate between home- and school-based parental involvement find contradictory effects. Namely, home-based involvement has significant positive effects, while school-based involvement has significant negative effects related to academic outcomes (Izzo et al., 1999; Sui-Chu & Willms, 1996). Second, interventions promoting parental involvement vary based on the context in which involvement occurs. Interventions that promote involvement at school might include teacher training to encourage building relationships between families and schools, while interventions to promote involvement at home might include parental workshops that build parents' educational skills and knowledge.

The relationships between at-home and in-school parental involvement, socioeconomic status (SES), and youth academic performance

Numerous studies, mostly from developed countries, have shown that parents are more likely to be involved with their children's education at home than in school (Lee & Bowen, 2006; Mau, 1997; Patrikakou & Weissberg, 2000). Research also has demonstrated that a positive relationship exists between at-home parental involvement and a range of school-related outcomes, including academic achievement, school engagement, and socioemotional adjustment (Izzo et al., 1999). At-home parental involvement activities (e.g., checking homework, communicating about school, and reading with children) are shown to be related to positive academic outcomes of minority students in the United States (Jeynes, 2003; Sui-Chu & Willms, 1996). Likewise, parental involvement at home in Ghana is associated positively with youth academic performance (Nyarko, 2010). Although Ghanaian parents often are engaged in their children's schooling in one form or another, their involvement historically has been limited to activities at home (e.g., ensuring completion of homework) (Nyarko, 2011). However, this is changing as more parents attend school meetings and recreational events.

In general, research conducted in the United States supports the positive effects of at-home parental involvement on a variety of educational outcomes, but a few studies suggest that there may be no—or perhaps even a negative—effect. For instance, a meta-analysis of parental involvement and academic outcomes for urban adolescents suggests that communicating about school and checking homework have no significant effect on academic performance after controlling for SES (Jeynes, 2007). Further, studies of nationally representative samples of high school students find a negative relationship between parental involvement at home (e.g., checking on and helping with homework) and academic achievement among immigrant and minority students (Altschul, 2012; Mau, 1997). The observed negative association suggests that the more involved parents are in their children's school work, the less likely their children are to perform well.

Studies of the effects of in-school parental involvement in the United States also have yielded mixed results. Parental involvement in school is associated positively with academic outcomes, including grades (Barnard, 2004; Hill, 2001; Marschall, 2006), classroom behavior (Hill et al., 2004; Oyserman et al., 2007), students' aspirations (Hill et al., 2004), and school completion (Barnard, 2004). However, other studies find a negative effect of contact with the school on academic achievement trajectories (Fan, 2001), school engagement and socioemotional adjustment (Izzo et al., 1999), and math and reading scores (Sui-Chu & Willms, 1996). Generally, the negative relationship suggests that increased communication between parents and schools might be an indicator of academic difficulties that might have led to the parental involvement at school in the first place (Fan, 2001; Izzo et al., 1999).

In Ghana, the effect of in-school parental involvement on students' academic performance differs based on the parent's gender (Nyarko, 2011). A mother's in-school involvement has a significant and positive influence on academic performance, but a father's in-school involvement does not have a statistically significant impact on academic performance.

Most empirical studies on parental involvement find that parents' engagement in their children's education varies by sociodemographic factors (e.g., marital status and educational level) and economic circumstances (Georgiou, 2007; Schimpl-Neimanns, 2000; Schmitt & Kleine, 2010). Lareau (1987, 2011) demonstrates that parents of lower SES in the United States are less likely to believe that it is their responsibility to manage their children's education and are less heavily involved in at-home and in-school educational activities. Lower SES parents typically are less educated, which may limit the skills and knowledge they can offer to the school and their child (Hoover-Dempsey et al., 2005). Some research also suggests that less-educated parents may have lower levels of self-efficacy regarding their involvement in children's education (Hoover-Dempsey & Sandler, 1997; Lareau, 2011). Finally, parents with lower SES tend to have jobs that require them to work long and unpredictable hours, which can interfere with their ability to be involved at home and in school (Heymann, 2000; Hoover-Dempsey et al., 2005). SES also is strongly related to students' academic outcomes (Altschul, 2012; Mau, 1997; Sui-Chu & Willms, 1996). Research suggests that observed relationship between SES and academic outcomes are mediated by parental involvement (Altschul, 2012; Sui-Chu & Willms, 1996).

We are aware of only two studies conducted in Ghana—Nyarko (2010, 2011)—that measure parental involvement at home and in school systematically and examine its effect on academic performance. While Nyarko's studies are valuable as a first step in examining the importance of parental involvement in Ghana, they have several limitations. First, Nyarko examines home- and school-based parental involvement separately in two different studies, which prevents comparisons of effects. Second, Nyarko's studies also use aggregated data from English, math, general science, and social studies scores. We use English and math continuous assessment and examination scores, which are more common measures of students' academic outcomes. Third, Nyarko's studies are based only on youth from three senior secondary schools in the Central Region of Ghana, while youth in this study were selected randomly from 100 schools in eight of Ghana's 10 provinces. Unlike Nyarko's studies, our sample is representative of low-income Ghanaian youth in public schools.

Another major difference from Nyarko's studies is our use of more sophisticated analytic techniques. For example, Nyarko's studies did not establish the validity of the parental involvement scales. We address this methodological limitation by using confirmatory factor analysis to determine if a modified parental involvement scale performs adequately and helps to establish the construct validity of the scale. Confirmation of the factor structure is critical because our scale was adapted from studies conducted in the US and has never been validated in a sample of Ghanaian youth. Before examining the relationship between parental involvement and youth academic performance, we want to demonstrate that (a) our data support the hypothesized dimensions of parental involvement and (b) the observed variables are adequate indicators of the proposed latent factors.

Method

Data and sample

This study uses baseline data from the YouthSave Ghana Experiment. YouthSave is a five-year, longitudinal study investigating the use of savings accounts as tools for youth development and financial inclusion in four developing countries. Savings accounts were created in conjunction with local financial institutions in each country, and local researchers are assessing their performance and participants' developmental outcomes. While YouthSave research is being conducted in four countries—Colombia, Ghana, Kenya, and Nepal—the data in this study are taken only from the Ghana Experiment aspect of YouthSave. The Ghana Experiment is a cluster randomized study in which 100 schools were selected randomly from eight of Ghana's 10 regions. Fifty schools were assigned to the treatment condition, and another 50 schools were assigned to the control condition. Sixty students were selected randomly from each school with oversampling to take attrition into account. The baseline sample consists of 6,252 youth and 3,083 parents.

Baseline data were collected in May and June 2011, and follow-up data collection is scheduled for 2014. Data collected include (a) youth's educational, health, psychosocial, and financial characteristics, (b) youth's and parents' demographics and socioeconomic characteristics, including involvement of parents in their children's education, and (c) youth's school records, including math and English examination and continuous assessment scores.

Because we hypothesize that parental involvement influences youth academic performance, we include in our analysis only youth whose parents were interviewed at baseline. Thus, the final study sample is 3,083 pairs of youth and parents. Bivariate tests show that youth whose parents were interviewed at baseline do not differ significantly ($p > .05$) from youth whose parents were not interviewed in terms of gender ($p = .505$) and all four measures of academic performance: math examination score ($p = .117$), English examination score ($p = .526$), math continuous assessment score ($p = .244$), and English continuous assessment score ($p = .300$). However, there are significant differences in age and educational aspirations and expectations ($p < .05$). A slightly higher percentage of youth whose parents were interviewed report higher educational aspirations and expectations contrasted with their peers whose parents were not interviewed. Significant socioeconomic differences also were observed between youth whose parents were interviewed and those whose parents were not interviewed ($p \leq .05$). On average, youth whose parents were not interviewed come from households that have better living conditions ($p < .001$) and more assets ($p < .01$) contrasted with youth whose parents were interviewed.

Measures

Our parental involvement scale is derived from prior studies in the US (Ames, Tanaka, Khoju, & Watkins, 1993; Zhan, 2006) but has been adapted to reflect the ways that Ghanaian parents are involved in their children's education. The scale is an adaptation of the parental involvement scale used in the National Longitudinal Survey of Youth (NLSY) cited in Zhan (2006). We modified the response scale in NLSY from 0 (*never*) to 4 (*once a week or more*) to 1 (*never*) to 5 (*very often*) and the recall period from "during first half of the school year" to "in the last academic year." We also changed the wording from "parents attended school meeting" to "parents attended parent-teacher association (PTA) meetings." We added two items from the scale used by Ames et al. (1993). Using the scale of 1 (*never*) to 5 (*very often*), parents were asked to determine how often in the last academic year they (a) attended PTA meetings, (b) spoke to teachers and counselors, (c) attended school events, (d) volunteered at school, (f) checked on youth's homework, (g) helped with youth's homework, (h) talked about expectations for youth's school work; and (i) talked about what youth learned in school.

We also used four indicators of youth academic performance—math examination scores, English examination scores, math continuous assessment scores, and English continuous assessment scores—and two indicators of socioeconomic status—household monthly income and number of dependents younger than 15 years old in the household. Continuous assessment (i.e., quiz and assignment) scores for math and English each have a maximum of 50 points, and examination scores for math and English each have a maximum of 50 points. In other words, the total possible math and English scores are 100 points, with continuous assessment and examination scores each accounting for 50%. Monthly household income, measured in Ghanaian cedi (GHS), is the parent's self-report of typical income based on different sources, including employment, productive assets, and remittances. Parents also self-reported the number of dependents in the household based on the number of youth younger than 15 years old who rely on the parent for food, shelter, clothing, and other basic needs.

As in earlier studies on parental involvement, we use monthly household income and number of dependents as SES indicators (Altschul, 2012; Desimone, 1999; Lareau, 1987). An extensive literature review suggests that a relationship exists between SES and academic performance (Brooks-Gunn & Duncan, 1997; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Haveman & Wolfe, 1995). Parents with more dependents may have less time to devote to their individual children's education. Lower incomes may mean fewer resources for obtaining materials not only to enhance children's education but also to aid parents in getting involved in their children's education. Research has shown that the number of children in the household influences educational outcomes (Downey, 1995; Lu, 2009) and may have negative effects on youth development (Blake, 1981; Zajonc & Markus, 1975). Regarding parental involvement, research has shown a negative relationship between the number of siblings and parental involvement (Houtenville & Conway, 2008), which may suggest that parental involvement is constrained by the limited amount of time available for each child.

Data analysis

The study relied on the analytical method structural equation modeling (SEM). *Mplus* 6.1 software was used to perform data analysis because of its ability to appropriately handle characteristics of our data, including clustering of students in schools, missing data, and ordinal-level variables (Muthén & Muthén, 2010). SEM was used instead of other conventional regression models (e.g., ordinary least squares [OLS]) because of the nature of study variables and the complex and specific study hypotheses. Unlike OLS, SEM has the capacity to estimate and test relationships between latent variables. Because SEM—particularly the factor analysis component—allows isolation of concepts from uniqueness and unreliability of observed indicators, it increases our likelihood of detecting associations and obtaining free parameters close to their population values (Hoyle, 1995). Second—unlike OLS, which permits specification only of direct effects on a single outcome—SEM offers no default model specification and places few limits on the types of relations that can be specified (Hoyle, 1995). Also, SEM—particularly the structural analysis part—can analyze hypothesized relationships among latent and observed variables, which can serve as independent, control, mediator, or dependent variables in the same model.

Because SEM combines simultaneous regression equations and factor analysis, our analysis was conducted in two phases. First, we conducted confirmatory factor analysis (CFA) to confirm the factor structure of the adapted scale, determine if the adapted scale performs adequately in a sample consisting of Ghanaian parents, and determine whether the hypothesized factor structure adequately represents the relationships that exist in the data before estimating the general SEM model. Establishing measurement model adequacy prior to analyzing the structural model is considered a best practice (Anderson & Gerbing, 1988; Bollen, 2000; Bowen & Guo, 2012). We chose mean- and variance-adjusted weighted least squares (WLSMV) as the estimation procedure because data were ordinal (Bollen, 1989; Muthén & Muthén, 2010). The fit indices we used to evaluate goodness of model fit include chi-square (Bollen, 1989; Kline, 2011), root mean square error of approximation (RMSEA) (Browne & Cudeck, 1993), comparative fit index (CFI) (Hu & Bentler, 1999), and Tucker-Lewis index (TLI) (Hu & Bentler, 1999).

We specified two competing measurement models. In the primary model, the items were hypothesized to load on two dimensions, or latent factors: at-home parental involvement and in-school parental involvement. These latent factors were defined on the basis of theoretically and empirically salient aspects of parental involvement in youth education (Comer, 1995; Giallo et al., 2010; Jaynes, 2003). We measured at-home involvement using four items that assessed how often parents and youth communicated about school and learning and in-school involvement using a four-item subscale that assessed how often parents attended and participated in school events. In the alternative measurement model, we hypothesized a 1-factor model in which all items loaded on a single parental involvement construct (McCarron & Inkelas, 2006; Oyserman et al., 2007).

After evaluating the measurement model as adequate, we specified four competing general SEMs—from parental involvement factors to four observed academic performance indicators—which included directional relationships based on theory and prior research. The structural model allowed for testing of the study hypotheses. Because multiple models may have adequate fit, demonstrating that one structural model not only fits the data well but also has superior fit over an alternative model increases confidence in the findings (Bowen & Guo, 2012). The chi-square difference test was used to determine which of the competing models had better fit. Because we used WLSMV as the estimator, we performed the chi-square difference testing using the DIFFTEST option in Mplus.

After establishing the measurement model that best fit our data, we specified and tested four competing structural models. In the primary general SEM model, we hypothesized that all indicators of youth academic performance were predicted by both at-home and in-school parental involvement (Epstein et al., 2002; Hoge, Smit, & Crist, 1997; Jaynes, 2003, 2005). The first alternative model hypothesized that academic performance is predicted by in-school involvement only (Oyserman et al., 2007), and the second alternative model specified that academic performance is predicted by at-home parental involvement only (Mau, 1997; Sui-Chu & Willms, 1996; Van Voorhis, 2003). The third alternative model included two indicators of socioeconomic status—monthly household income and number of household dependents—as predictors of parental involvement (Altschul, 2012; Lareau, 1987; Moles, 1993) and hypothesized that parental involvement mediates the relationship between SES and academic performance (Altschul, 2012, Kim & Sherraden, 2011).

Results

Descriptive statistics

The study sample of youth includes an equal percentage of boys and girls. Nearly four in 10 are in grade level six, three in 10 are in junior high school (JHS) levels one and two, and the average age is 16. Table 1 presents the descriptive statistics of the sample and the average English and math scores by all youth and also by demographic and economic characteristics. In general, youth have higher continuous assessment scores than examination scores. Math continuous assessment scores are slightly higher than English continuous assessment scores. English examination scores are slightly higher than math examination scores. On average, boys have slightly higher examination and continuous assessment scores than girls. The greatest difference in academic scores is in math examination scores by gender: boys score two points higher than girls. Nearly seven of 10 parents

interviewed are female, and nearly eight in 10 are married. Twenty-six percent of parents have no formal education, and only 12% of parents are formally employed. The average number of household dependents younger than 15 years old is three. Average monthly household income is GHS 198 or approximately 131 U.S. dollars (USD). Youth whose parents are employed in the formal sector have higher math and English scores than youth whose parents are employed in the informal sector.

Parental Involvement's Effects on Academic Performance:
Evidence from the YouthSave Ghana Experiment

Table 1. Descriptive Statistics and Math and English Scores of Youth in the Ghana YouthSave Experiment

Variable	% or <i>M (SD)</i>	Math ^a		English ^a	
		Exam	CAS	Exam	CAS
Youth characteristics					
Gender of youth					
Boys	50%	23.60 (9.49)	30.94 (10.01)	23.65 (9.56)	30.46 (10.00)
Girls	50%	21.61 (9.30)	30.24 (10.27)	22.88 (9.71)	30.14 (10.21)
Grade level					
Level 6	37%	23.75 (9.63)	30.34 (10.31)	24.55 (9.86)	30.15 (10.45)
JHS 1	32%	22.06 (9.49)	31.27 (10.12)	22.33 (9.68)	30.64 (9.78)
JHS 2	31%	21.78 (9.04)	30.18 (9.97)	22.70 (9.19)	30.12 (10.02)
Age of youth (in years)	16.14 (1.93)	-	-	-	-
<i>All youth</i>	-	22.59 (9.44)	30.58 (10.15)	23.26 (9.64)	30.29 (10.10)
Parent and household characteristics					
Gender of parent					
Male	31%	23.35 (9.67)	31.19 (9.82)	23.95 (9.70)	30.89 (9.79)
Female	69%	22.26 (9.32)	30.31 (10.29)	22.95 (9.60)	30.03 (10.23)
Age of parent (in years)	44.78 (9.57)	-	-	-	-
Education level					
No formal education	26%	22.83 (9.31)	31.30 (9.40)	23.17 (9.51)	30.52 (9.47)
Some formal education	74%	22.52 (9.49)	30.35 (10.39)	23.30 (9.69)	30.23 (10.31)
Marital status					
Not married	22%	23.20 (9.27)	29.94 (10.36)	23.68 (9.53)	30.10 (10.59)
Married	78%	22.42 (9.49)	30.77 (10.08)	23.14 (9.67)	30.35 (9.96)
Employment status					
Employed in the formal sector	12%	23.96 (10.05)	31.37 (10.49)	24.37 (10.06)	30.74 (10.48)
Employed in the informal sector	88%	22.41 (9.34)	30.48 (10.10)	23.11 (9.58)	30.23 (10.05)
Income (in USD) ^b	130.68 (199.67)	-	-	-	-
Number of economic dependents	2.62 (1.90)	-	-	-	-

^a Mean and standard deviation (in parenthesis) are presented.

^b Exchange rate used is GHC 1 = USD 0.66, approximately the rate when baseline survey was conducted.

CFA results

We specified and tested two competing measurement models. In the primary model, we hypothesized that eight parental involvement indicators would reflect two latent factors: at-home and in-school parental involvement. Each latent factor included four items. All hypothesized factor loadings, except for one loading per factor, were freed. All paths from latent error terms to observed indicators were fixed at 1.0. The latent factors were allowed to correlate freely. The primary measurement model met one of the four predefined fit criteria (CFI).

Table 2 presents the fit statistics for all measurement and structural models. Results suggest that the relationships hypothesized by the model exist in our data. Figure 1 depicts the primary measurement model, including standardized factor loadings. In the primary measurement model, all factor loadings are statistically significant ($p < .001$). All standardized factor loadings are above .60. All percentages of variance (or R^2 values) in each observed indicator explained by the primary measurement model are greater than .40. Although there are no generally agreed upon R^2 cutoff values, higher values denote that more of an indicator's variance is associated with the latent variable the indicator is hypothesized to measure (Bowen & Guo, 2012). However, the alternative measurement model did not meet any of the four predefined fit criteria (see Table 2), which indicates that the relationships hypothesized by a 1-factor CFA model do not exist in our data.

Table 2. Fit Statistics for All Measurement and Structural Models

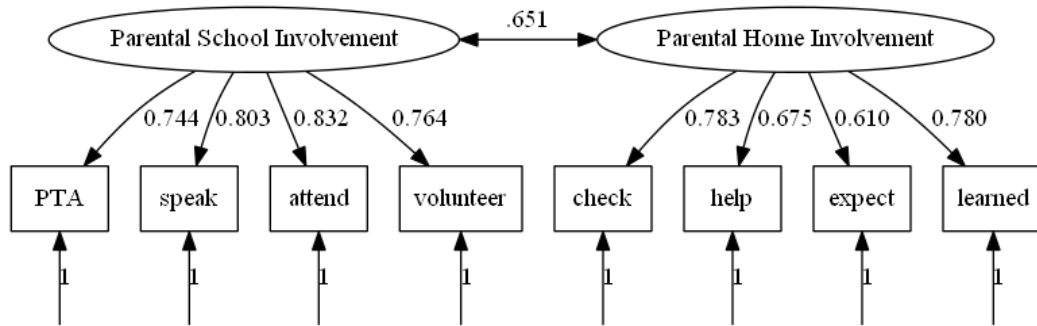
Model	N	df	Fit Index			
			χ^2	RMSEA (90% C.I.) ^a	CFI ^b	TLI ^b
Primary Measurement	3,078	19	290.60	0.07 (0.06–0.08)	0.96	0.94
Alternative Measurement	3,078	20	1115.40	0.13 (0.13–0.14)	0.84	0.78
Primary Structural	3,083	43	252.68	0.04 (0.03–0.04)	0.97	0.95
Alternative Structural 1	3,083	47	262.55	0.04 (0.03–0.04)	0.97	0.96
Alternative Structural 2	3,083	47	223.79	0.03 (0.30–0.04)	0.97	0.96
Alternative Structural 3	3,083	64	3332.99	0.13 (0.12–0.13)	0.49	0.28

All χ^2 values have p values ≤ 0.001 .

^a RMSEA values ≤ 0.05 indicate close fit, and values between 0.05 and 0.08 indicate reasonable fit (Browne & Cudeck, 1993).

^b For the CFI and the TLI, values ≥ 0.95 indicates good fit (Hu & Bentler, 1999).

Figure 1. Primary Measurement Model: Two-Factor Parental Involvement Scale



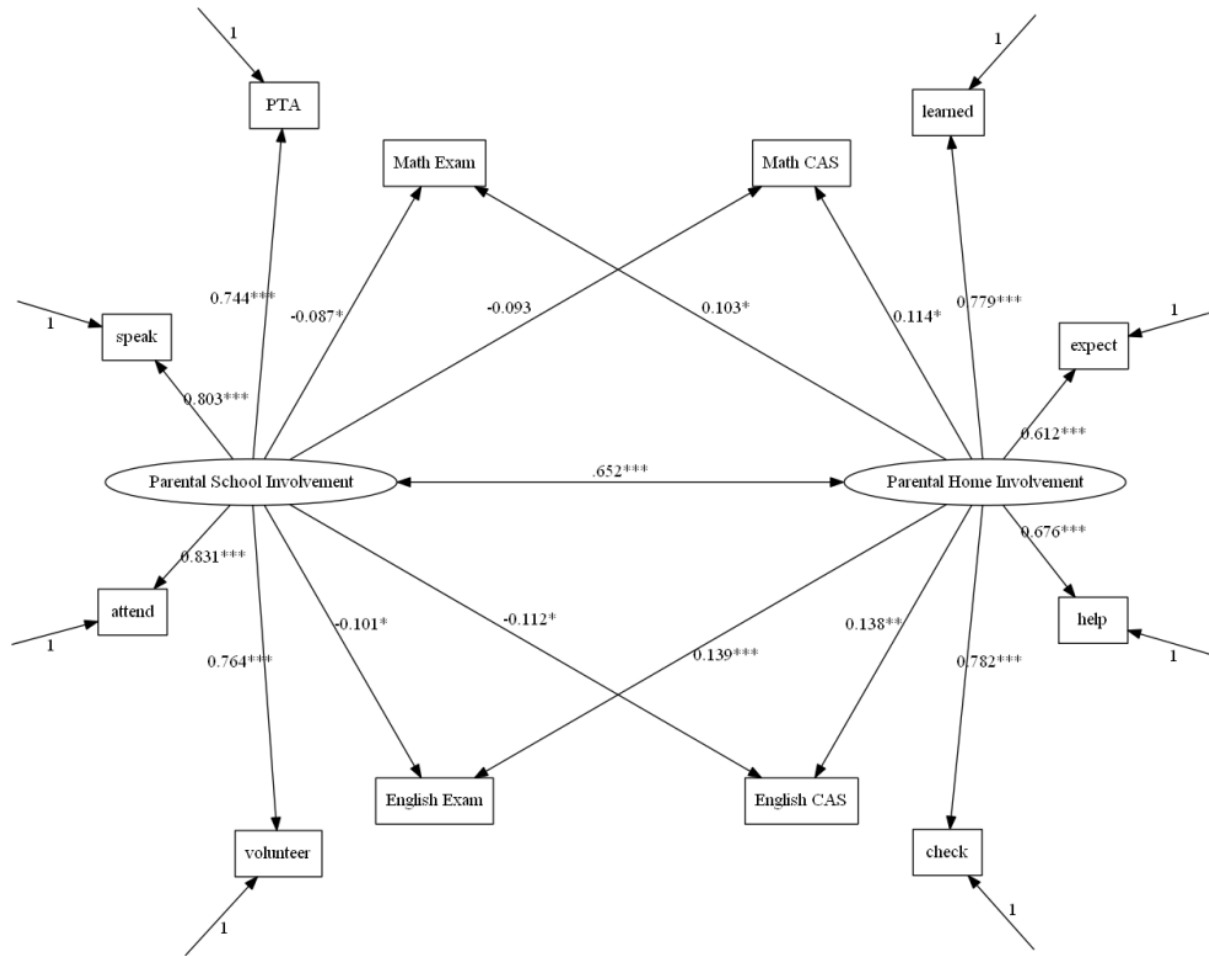
All factors' loadings were significant at $p < .001$.

General SEM results

The primary structural or general SEM model included directional relationships from each latent factor to all four indicators of academic performance. The primary structural model met three of the four fit criteria (RMSEA, CFI, and TLI) (see Table 2). Results indicate that parental involvement activities at home and in school are statistically significant predictors of youth academic performance. However, the direction of the relationships differs between the two factors. At-home involvement is associated positively with academic performance, while in-school involvement is associated negatively with academic performance. The negative relationship between in-school involvement and academic performance are statistically significant ($p < .05$) except in the case of math continuous assessment scores. The positive relationship between at-home involvement and academic performance are all statistically significant ($p < .05$).

Figure 2 illustrates the primary structural model, including the standardized path estimates. After examining all direct effects, at-home involvement has the largest significant positive effect size on English examination scores ($\gamma = .139, p < .001$). The effect size of at-home involvement on English continuous assessment scores was similar ($\gamma = .138, p < .01$). Further, in-school involvement had the largest significant negative effect size on English continuous assessment score ($\gamma = -.112, p < .05$), followed by English examination score ($\gamma = -.101, p < .05$). On average, the absolute value of effect sizes of at-home parental involvement on academic performance is slightly higher than the absolute value of effect sizes of in-school parental involvement.

Figure 2. Primary Structural Model: Relationships between Parental Home and School Involvement and Academic Performance



Standardized estimates were presented.
* $p < .05$, ** $p < .01$, *** $p < .001$, two-tailed test.

Alternative general SEM models

Nested models

We compared the results of the primary model with the hypothesized alternative models. Alternative structural models 1 and 2 are nested in the primary model. Consistent with the primary model, alternative models 1 and 2 meet three of the four predefined fit criteria (RMSEA, CFI, and TLI) (see Table 2). However, results of the χ^2 test for difference testing show statistically significant p values. When we compare the primary model and alternative model 1, results of χ^2 test for difference testing show a value of 25.76 and four degrees of freedom. This change in χ^2 , given the corresponding

change in degrees of freedom, is statistically significant ($p < .001$). When we compare the primary model and alternative model 2, results of the χ^2 test for difference testing show a value of 13.74 and four degrees of freedom. This change in χ^2 , given the corresponding change in degrees of freedom, also is statistically significant ($p < .01$). Because both χ^2 tests for difference testing have significant p values, the model fit is statistically significantly worse. In this case, we retained the less parsimonious and restrictive primary model because it is better than the two nested alternative models. The statistically better fit of the primary model outweighs the improvement in parsimony of alternative models 1 and 2.

Non-nested model

Based on prior research, we added two measures of socioeconomic status— monthly household income and number of household dependents who are younger than 15 years old—as direct predictors of parental home and school involvement and indirect predictors of academic performance. Because alternative model 3 included two more observed variables than the primary structural model, model 3 is non-nested. Alternative structural model 3 did not meet any of the predefined fit criteria (see Table 2). Compared to the other structural models, model 3 had the worst fit to our data.

Discussion

Parental involvement is multidimensional in the Ghana YouthSave baseline data

Evidence suggests that general parental involvement is important for children's academic performance in Ghana (Nyarko, 2010, 2011), but the individual activities involved have not been studied. Established dimensions of parental involvement from studies conducted in developed countries provide a framework for understanding parental involvement in developing countries. In the current study, we test the validity of a parental involvement scale adapted from studies conducted in the United States and find that the scale performs adequately for a sample of Ghanaian youth. We find that a multidimensional parental involvement construct exists in our sample.

The CFA for the parental involvement construct has eight—four in-school and four at-home—indicators, including how often parents attended PTA meetings, spoke to teachers and counselors, attended school events, volunteered at school, checked their children's homework, helped with their children's homework, talked about expectations for school work, and talked about what youth learned in school. These indicators show a clear demarcation between at-home and in-school dimensions, which is consistent with prior studies in developed countries.

We modified some items to ensure relevance, and our results suggest that (a) the adapted scale performed adequately in a sample of Ghanaian youth and their parents and (b) the hypothesized factor structure of parental involvement consisting of home and school exists in our data. Having valid measures of parental involvement in Ghana allows us to test how the construct of parental involvement affects youth academic performance. This will increase confidence in results and

provide evidence that may guide policymakers to develop appropriate interventions to increase academic performance in Ghana and other resource-constrained developing countries.

A strength of this study is its tailoring of questions to low-income youth and their parents. Because a majority of parents in the study have little formal education, their ability to help their children with homework may be limited. Nevertheless, they can be involved in their children's education in other ways, such as monitoring whether they have done their homework, monitoring their performance at school, and discussing academic goals with them. With the exception of helping with homework, indicators that measure at-home parental involvement do not require literacy or a specific level of education.

Parental involvement improves academic performance

We examine the relationship between parental involvement and youth academic performance and the mediating effects of parental involvement in the relationship between SES and academic performance, and findings suggest a complex relationship. The effect of parental involvement on academic performance in Ghana seems to be a function of the type of involvement. Parents whose children perform well academically appear to be more involved at home with their children's school work, whereas parents whose children do not perform well academically appear to be more involved at school. However, our results do not support a mediating effect of parental involvement in the relationship between SES and academic performance.

According to our findings, at-home parental involvement is associated positively with academic performance, while in-school parental involvement is associated negatively. Except for math continuous assessment scores, the negative relationships between in-school parental involvement and academic performance are statistically significant, and all positive relationships between at-home parental involvement and academic performance are statistically significant. Our results are consistent with Nyarko's (2010) findings that at-home parental involvement is significantly and positively associated with academic performance of Ghanaian students. However, the negative relationship between in-school parental involvement and academic performance contradicts Nyarko's (2011) finding of a statistically significant positive relationship between a mother's involvement and academic performance.

The size of the relationship between at-home parental involvement and English examination scores and English continuous assessment scores is larger than math examination and continuous scores. This finding is consistent with previous studies in developed countries. For example, Izzo et al. (1999) find that the effect of at-home parental involvement on reading achievement is slightly larger than the effect on math achievement. Zhan (2006) also finds that at-home parental supervision of homework is significantly related to reading scores but not math scores. Further, in the current study, in-school parental involvement has the largest significant negative effect size on English continuous assessment scores followed by English examination scores.

In this study, we use two measures of academic performance and separate academic performance into two components: continuous assessment and examination scores. Although prior studies

(Nyarko, 2010, 2011) use aggregated scores, we separate the scores to identify the subjects (i.e., math and English) and the components of each subject that are influenced by parental involvement. This enables us to examine whether parental involvement influences student performances in an entire subject or a component of that subject. In a separate analysis, we used the total math and English scores as outcomes. Although the results are consistent with the findings based on individual scores, it is impossible to see the non-significant relationship between math continuous assessment scores and in-school involvement.

The positive finding of at-home parental involvement suggests that checking to ensure homework is completed, talking with children about expectations for school work, and talking with children about what they learned in school—even if they are unable to assist with homework—have an impact on academic outcomes. Our findings have implications for the importance of engaging parents in lower levels of education. Oyserman, Bybee, Terry, and Hart-Johnson (2004) posit that children are successful when they have a goal and can visualize a pathway to that goal. Having concrete steps to take (e.g., completing homework and assignments and understanding class material so they can do well on assignments and quizzes) will help youth perform well academically. Thus, parents who regularly check in with their children to ensure that they remain focused on their goals are likely to help youth stay on track or align their efforts with their goals.

Increased in-school parental involvement—whether it is initiated by parents or requested by school officials—may be caused by children's poor academic performance or disruptive classroom behaviors (Izzo et al., 1999). This is one of many potential explanations, and we do not believe that all of the parents who reported frequent in-school involvement in our study have children with academic or behavioral problems. Conversely, parents—who often have low levels of education—may be intimidated by school authorities, causing them to withdraw from in-school involvement and engage in more at-home involvement to influence their children's behavior. Further research is needed to examine factors that influence parental involvement.

Social capital theory posits that a family's potential to develop human capital can benefit from relationships with other members of the community, particularly when members of the family's social network have access to special knowledge or resources (Coleman, 1988). From this viewpoint, regular interactions with teachers and other members of the community may enable parents to gather crucial information that may affect their child's academic success (e.g., how well the student needs to perform to graduate to the next grade, how the child is currently performing, and to which high schools the child can apply given their current performance). In a developing country, this type of interaction might be the only way for parents to gather information.

Study limitations

The limitations of this study must be considered as we interpret findings. First, we examine the effects of parental involvement on only two measures of academic performance, math and English scores. Other relevant measures of academic outcomes (e.g., class attendance rates, classroom behavior, and scores in other academic subjects) also may be important. Therefore, our findings are biased toward factors included in our study. Second, we included only biological or adoptive parents

and excluded guardians because it was unclear from the baseline data if those guardians were involved in the youth's education. Finally, our data are cross-sectional, and the direction of the relationships or causality is unknown. More research should be conducted to examine the complex relationships between parental involvement and youth academic performance, particularly to address issues of reverse causality and potential confounding that may undermine results of cross-sectional studies. Longitudinal studies that track parental involvement and youth academic performance over time may provide a more accurate picture of the relationship.

Conclusions

Results indicate that at-home and in-school parental involvement are statistically significant predictors of youth academic performance but in different directions. At-home involvement is associated positively with academic performance, while in-school involvement is associated negatively. Our results may indicate that parental monitoring of homework and encouragement of goals at home should be encouraged because they impact youth academic performance positively. However, the cause of the negative finding of in-school involvement is still unclear. Because our data are cross-sectional and observational, our findings do not suggest that in-school parental involvement has a negative impact on academic performance but rather that poor academic performance may result in increased in-school parental involvement. As shown in previous research, parental involvement in general benefits students' academic performance, but further investigation in other developing countries using longitudinal research is necessary.

Overall, our study supports and contradicts Nyarko's (2010, 2011) findings on parental involvement in Ghana but presents more rigorously obtained data. We used a more rigorous methodology for answering our research questions. CFA enabled us to confirm the factor structure of the adapted scale, determine if the adapted scale performs adequately in a sample consisting of Ghanaian parents, and determine whether the hypothesized factor structure adequately represents the relationships in our data. General SEM allowed us to test several structural models and determine which one fit our data best, which increases confidence in our findings. With SEM, we also were able to test whether parental involvement mediates the relationship between SES and academic performance.

References

- Altschul, I. (2012). Linking socioeconomic status to the academic achievement of Mexican American youth through parent involvement in education. *Journal of the Society for Social Work and Research, 3*, 13–30. doi:10.5243/jsswr.2012.2
- Ames, C., Tanaka, J., Khoju, M., & Watkins, T. (1993). *Effects of parent involvement: Strategies on parent perceptions and development of children's motivation*. Atlanta: American Educational Research Association.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411–423. doi.org/10.1037/0033-2909.103.3.411
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215. doi.org/10.1037/0033-295X.84.2.191
- Barnard, W. M. (2004). Parent involvement in elementary school and education attainment. *Children and Youth Services Review, 26*(1), 39–62. doi.org/10.1016/j.childyouth.2003.11.002
- Blake, J. (1981). Family size and the quality of children. *Demography, 18*, 421–442. doi.org/10.2307/2060941
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: John Wiley & Sons.
- Bollen, K. A. (2000). Modeling strategies: In search of the Holy Grail. *Structural Equation Modeling, 7*, 74–81. doi.org/10.1207/S15328007SEM0701_03
- Bowen, N. K., & Guo, S. (2012). *Structural equation modeling*. New York, NY: Oxford University Press.
- Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *Children and Poverty, 7*(2), 55–71.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95–S120. doi.org/10.1086/228943
- Comer, J. P. (1995). *School power: Implications of an intervention project*. New York, NY: Free Press.

- Desimone, L. (1999). Linking parent involvement with student achievement: Do race and income matter? *Journal of Educational Research*, 93(1), 11–30. doi.org/10.1080/00220679909597625
- Downey, D. B. (1995). When bigger is not better: Family size, parental resources, and children's education performance. *American Sociological Review*, 60, 746–761. doi.org/10.2307/2096320
- Duncan, G. J., Yeung, W. J., Brooks-Gunn, J., & Smith, J. R. (1998). How much does childhood poverty affect the life chances of children? *American Sociological Review*, 63, 406–423. doi.org/10.2307/2657556
- Epstein, J. L. (1990). School and family connections: Theory, research and implications for integrating sociologies of education and family. *Marriage and Family Review*, 15, 99–126. doi.org/10.1300/J002v15n01_06
- Epstein, J. L. (1995). School/family/community partnerships: Caring for the children we share. *Phi Delta Kappan*, 76(9), 701–712.
- Epstein, J. L., Sanders, M. G., Simon, B. S., Salinas, K. C., Jansorn, N. R., & Van Voorhis, F. L. (2002). *School, family, and community partnerships: Your handbook for action* (2nd ed.). Thousand Oaks, CA: Corwin Press.
- Fan, X. (2001). Parental involvement and students' academic achievement: A growth modeling analysis. *Journal of Experimental Education*, 70, 27–61. doi.org/10.1080/00220970109599497
- Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, 13(1), 1–23. doi.org/10.1023/A:1009048817385
- Georgiou, S. N. (2007). Parental involvement: Beyond demographics. *International Journal about Parents in Education*, 1, 59–62.
- Giallo, R., Treyvaud, K., Matthews, J., & Kienhuis, M. (2010). Making the transition to primary school: An evaluation of a transition program for parents. *Australian Journal of Educational and Developmental Psychology*, 10, 1–17.
- Haveman, R., & Wolfe, B. (1995). The determinants of children's attainments: A review of methods and findings. *Journal of Economic Literature*, 33(3), 1829–1878.
- Heymann, J. (2000). What happens during and after school: Conditions faced by working parents living in poverty and their school-aged children. *Journal of Children and Poverty*, 6(1), 5–20. doi.org/10.1080/713675956

- Hill, N. E. (2001). Parenting and academic socialization as they relate to school readiness: The roles of ethnicity and family income. *Journal of Educational Psychology, 93*(4), 686–697. doi.org/10.1037/0022-0663.93.4.686
- Hill, N. E., Castellino, D. R., Lansford, J. E., Nowlin, P., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2004). Parent academic involvement as related to school behavior, achievement, and aspirations: Demographic variations across adolescence. *Child Development, 75*(5), 1491–1509. doi.org/10.1111/j.1467-8624.2004.00753.x
- Hoge, D. R., Smit, E., & Crist, J. T. (1997). Four family process factors predicting academic achievement for sixth and seventh grade. *Educational Research Quarterly, 21*(2), 27–42.
- Hoover-Dempsey, K. V., & Sandler, H. M. (1997). Why do parents become involved in their children's education? *Review of Educational Research, 67*(1), 3–42.
- Hoover-Dempsey, K. V., Walker, J. M. T., Sandler, H. M., Whetsel, D., Green, C. L., Wilkins, A. S., & Closson, K. (2005). Why do parents become involved? Research findings and implications. *Elementary School Journal, 106*(2), 105–130. doi.org/10.1086/499194
- Houtenville, A., & Conway, K. S. (2008). Parental effort, school resources, and student achievement. *Journal of Human Resources, 43*(2), 437–453. doi.org/10.1353/jhr.2008.0027
- Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 1–15). Thousand Oaks, CA: Sage Publications.
- Hu, L., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55. doi.org/10.1080/10705519909540118
- Izzo, C. V., Weissberg, R. P., Kasprow, W. J., & Fendrich, M. (1999). A longitudinal assessment of teacher perceptions of parent involvement in children's education and school performance. *American Journal of Community Psychology, 27*, 817–839. doi.org/10.1023/A:1022262625984
- Jeynes, W. H. (2003). A meta-analysis: The effects of parental involvement on minority children's academic achievement. *Education and Urban Society, 35*, 202–218. doi.org/10.1177/0013124502239392
- Jeynes, W. H. (2005). Effects of parental involvement and family structure on the academic achievement of adolescents. *Marriage & Family Review, 37*(3), 99–116. doi.org/10.1300/J002v37n03_06
- Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. *Urban Education, 42*(1), 82–110. doi.org/10.1177/0042085906293818

- Kim, Y., & Sherraden, M. (2011). Do parental assets matter for children's educational attainment? Evidence from mediation tests. *Children and Youth Services Review, 33*(6), 969–979. doi.org/10.1016/j.childyouth.2011.01.003
- Kline, R. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: Guilford Press.
- Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education, 60*, 73–85. doi.org/10.2307/2112583
- Lareau, A. (2011). *Unequal childhoods: Class, race, and family life* (2nd ed.). Berkeley, CA: University of California Press.
- Lee, J. S., & Bowen, N. (2006). Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal, 43*(2), 193–218. doi.org/10.3102/00028312043002193
- Lu, Y. (2009). Sibship size and education in South Africa: Black-White variations. *Research in Social Stratification and Mobility, 27*(2), 110–125. doi.org/10.1016/j.rssm.2009.04.002
- Marschall, M. (2006). Parent involvement and educational outcomes for Latino students. *Review of Policy Research, 23*(5), 1053–1076. doi.org/10.1111/j.1541-1338.2006.00249.x
- Mau, W. (1997). Parental influences on the high school student's academic achievement: A comparison of Asian immigrants, Asian Americans, and White Americans. *Psychology in the Schools, 34*(3), 267–277. doi.org/10.1002/(SICI)1520-6807(199707)34:3<267::AID-PITS9>3.0.CO;2-L
- McCarron, G., & Inkelas, K. (2006). The gap between educational aspirations and attainment for first-generation college students and the role of parental involvement. *Journal of College Student Development, 47*(5), 534–549. doi.org/10.1353/csd.2006.0059
- Moles, O. C. (1993). Collaboration between schools and disadvantaged parents: Obstacles and openings. In N. F. Chavkin (Ed.), *Families and schools in a pluralistic society* (pp. 21–49). Albany: State University of New York Press.
- Muthén, L. K., Muthén, B. O. (2010). *Mplus user's guide*, 6th ed. Los Angeles, CA: Muthén & Muthén.
- Nyarko, K. (2010). Parental home involvement: The missing link in adolescents' academic achievement. *Educational Research, 1*(9), 340–344.
- Nyarko, K. (2011). Parental school involvement: The case of Ghana. *Journal of Emerging Trends in Education Research and Policy Studies, 2*(5), 378–381.

- Oyserman, D., Brickman, D., & Rhodes, M. (2007). School success, possible selves, and parent school involvement. *Family Relations*, *56*, 479–489. doi.org/10.1111/j.1741-3729.2007.00475.x
- Oyserman, D., Bybee, D., Terry, K., & Hart-Johnson, T. (2004). Possible selves as roadmaps. *Journal of Research in Personality*, *38*, 130–149. doi.org/10.1016/S0092-6566(03)00057-6
- Patrikakou, E., & Weissberg, R. (2000). Parents' perceptions of teacher outreach and parent involvement in children's education. *Journal of Prevention and Intervention in the Community*, *20*(1/2), 103-119. doi.org/10.1300/J005v20n01_08
- Schimpl-Neimanns, B. (2000). Social origins and educational participation: Empirical analysis of relationship between educational inequality between 1950 and 1989. *Cologne Journal of Sociology and Social Psychology*, *52*(4), 636–669.
- Schmitt, M., & Kleine, L. (2010). The influence of family school relations on academic success. *Journal for Educational Research Online*, *2*(1), 145–167.
- Sui-Chu, E. H., & Willms, J. D. (1996). Effects of parental involvement on eighth-grade achievement. *The Sociological Quarterly*, *69*, 126–141.
- Van Voorhis, F. L. (2003). Interactive homework in middle school: Effects on family involvement and science achievement. *Journal of Educational Research*, *96*, 323–339. doi.org/10.1080/00220670309596616
- Zajonc, R. B., & Markus, G. B. (1975). Birth order and intellectual development. *Psychological Review*, *82*(1), 74–88. doi.org/10.1037/h0076229
- Zhan, M. (2006). Assets, parental expectations and involvement, and children's educational performance. *Children and Youth Services Review*, *28*(8), 961–975. doi.org/10.1016/j.childyouth.2005.10.008

Contact Us

Gina A.N. Chowa, PhD, MSW
University of North Carolina in Chapel Hill
325 Pittsboro Street, CB #3550, Chapel Hill, North Carolina, USA 27599
Email: chowa@email.unc.edu, Phone: (919) 845-8453, Fax: (919) 962-1698

Rainier D. Masa, MSW
University of North Carolina in Chapel Hill
325 Pittsboro Street, CB #3550, Chapel Hill, North Carolina, USA 27599
Email: rmasa@email.unc.edu, Phone: (919) 962-6531, Fax: (919) 962-1698

Jenna Tucker, MSW
University of North Carolina in Chapel Hill
325 Pittsboro Street, CB #3550, Chapel Hill, North Carolina, USA 27599
Email: jntucker@email.unc.edu