

Exploring Effects of Parent Involvement on Student's Achievement

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Abstract

In present study, it was examined that how parent collaboration with school and student, affect students' math achievement, and how this effect varies across schools. . (NELS) data set includes 24.599 8th grade students from 1042 high schools throughout the U.S. in 1988. In this data set some of the topics covered are school, work, parent's educational background. By using two-level HLM, an attempt was made to find the correct answers. Analyzing fully-unconditional, unconditional and conditional models in HLM software, the results were compared with each other and interpreted in the results section. According to the results found, parent collaboration with students and schools has an important role on student's math achievement, and effects of this role on math achievement vary across schools.

Keywords: *Parental involvement, student's achievement, Hierarchical Linear Modeling.*

1. Introduction

Given the role parents as a primary support system and socializing sources for children, parents influence children in many and multifaceted ways. During middle adolescence, the relationships between parents and adolescents are an essential part of adolescents' life and may have an important impact on healthy adolescent development. In other words, considering adolescence as critical developmental stage, the parental support and involvement are crucial in determining the competence with which young people establish higher achievement in this major developmental period. For instance, many scholars (Gable, 2003; McCreary & Dancy, 2004) outlined a significance relationship between family functioning and adolescent adjustment that family functioning was significantly associated with adolescents' (a) psychological well-being, (b) school adjustment, and (c) problem behavior such as smoking and drug abuse. In addition this, effective communication skills, family relations and family functioning patterns provide a support for positive child and adolescent development.

Outstanding attention in literature, there is an agreement of terminology across theoretical or empirical point of view and there is little consensus concerning just what involvement is, how to conceptualize it, how to measure it, and how to compare different people's engagement in it (Palkovitz, 1997). The terms of involvement are defined variously as participation, engagement, healthy child care, child rearing, sharing activities, and it is conceptualized and measured in a variety of ways (Doherty, Kouneski, & Erikson, 1998). Most researchers have been agreed that families are one of the most important influences on adolescents' school outcomes and a number of studies shown the importance of facilitating parental involvement in education (Jimerson, Oakland, & Farrell, 2006; Koutrouba, Antonopoulou, Tsitsas, & Zenakou, 2009). While types of parent involvement vary widely, the widespread among researchers that parent involvement contributes to successful children at school such as include attending a parent-teacher conference, volunteering at school, helping with homework, or simply encouraging student achievement. According to Gestwicki (2004) the term parent involvement consists of series of

activities, including all ways of school-parent interaction, like parent education or parent training. It is possible stated that school outcomes is related to parental involvement, conceptualized as the extent to which the parent is interested in, knowledgeable about, and takes an active part in the their children school activities.

According to Balli, Demo and Wedman (1998), parent involvement such as attending a parent-teacher conference, volunteering at school, helping with homework, or simply encouraging student achievement, provides an opportunity for children to gain more achievement, to improve school attendance and increase cooperative behavior. In the same vein, Phillips (1992) outlined the association between parental involvement and children's education, and described the parental involvement in student achievement in three main areas: (a) education at home, both directly and indirectly; (b) socialization, including discipline, parental aspirations and beliefs, and cultural influences: and (c) formal parent-school involvement.

Many studies link parent involvement with a range of positive student outcomes, including higher achievement, improved school attendance, increased cooperative behavior, enhanced school retention and lower dropout rates (Balli, Demo & Wedman, 1998; Greenwood & Hickman, 1991). Parents who are highly involved in their children's schools are more likely to be involved at home, as well. Empirical evidences revealed that elementary school children with fathers or mothers who are highly involved in their schools are more likely to have participated in educational activities with their parents than children whose parents have low levels of involvement in their schools (Nord, Brimhall & West 1997). Thus, parent who are less involved and affectionate with their children are more likely to experience many more academic and behavioral problems with those children as they grow in years (Griffith, 1996).

Most educators recognize parental involvement in school activities and positive and direct influence on student academic performance (Fehrmann, Keith & Reimers, 1987; Lee & Bowen, 2006). In other words, achieving home-school consistency and information exchange between parties can be seen as important for academic, personal, and social development of children. Thus, they have better grades, test scores, long-term academic achievement, attitudes and behaviors than those with disinterested parents (Peterson, 1989). Wanat (1997) conducted a study with parents who were actively involved with their child's education. Her study conceptualized parent involvement in school from the perspectives of parents, and parents reported that parental involvement helped to increase learning, helped to shape kid's attitudes toward school, helped to build self-esteem, and helped children to take school seriously.

Several researchers have investigated the empirical relation between parental involvement and student academic performance. In his study Reynolds (1992) collected data from parents, teachers and students regarding perceptions of parental involvement. Teacher perceptions of parental involvement had the highest correlations with student achievement; whereas parent and student perceptions had the lowest correlations with the student achievement. An earlier study showed similar relations between parental involvement and student academic achievement, and researchers found a positive relation between parental involvement and the student school performance in a sample of a high school students, parents and teachers (Stevenson, & Baker, 1987).

Namely, the available research studies suggest that involved parents who are warm, supportive and consistent in their behavior and style of discipline can effectively support the child and adolescent development. Children would benefit by having a close and involved relationship with both their mother and father. In general, parental involvement is crucial in preventing achievement and educational problems as well as facilitating children's development). According to Desforges and Abouchaar (2003). when parents take an active and direct role in their children's education and parents involved in children education activities, children get better grades and test scores, graduate from high school at higher rates, have greater enrollment in higher education also has been shown to improve teacher morale and job satisfaction.

Carranza, You, Chhuon, and Hudley (2009) investigated the different effects that influence a student's achievement. The results suggested that a parent's expectation will affect their child's performance and aspirations. That is, when families expect a child to achieve well in school they will do their best so as to not disappoint their parents. However, when a parent controls their child's homework and school activities it does not have a significant effect on their GPA (Fan & Chen, 2001).

The purpose of this study is to investigate how parental collaboration with their child and their child's school can effect scholastic achievement. Generally, as noted in previous studies it is expected that parental involvement is an important fact in a child's scholastic achievement. We tend to agree with this notion. Although Ho and Willms (1996) have stated that, "The discussion of school-related activities at home had strongest relationship with academic achievement. Parents' participation at school had moderate effect on reading achievement, but negligible effect on mathematics achievement." There is not a lot of research covering a parent's influence on their child's achievement in mathematics. Since mathematics is very important for one's academic and professional life it would have been favorable to use the achievement of students in mathematics as a predictor. With that in mind, the National Educational Longitudinal Studies (NELS) data set was used. Since the NELS data set has a large sample size and a lot of results to measure student achievement in math, reading, history, etc., and many surveys about family structure, parent-student collaboration, and parent-school collaboration. This data set would provide the appropriate aim for the variables we wish to study.

Thus, in this paper, the research questions were: How does a parent's collaboration with their child and the school affect a student's achievement in math? How does this effect vary across schools? For this aim, a two-level hierarchical linear model was used in this study, because students are clustered within schools.

2. Methods

Sample

National Education Longitudinal Study of 1988 (NELS) data was used in this study. NELS data set includes 24,599 8th grade students from many different high schools throughout the U.S. in 1988. In this data set some of the topics covered are school, work, parent's educational background, neighborhood characteristics, etc. Additionally, mathematics, reading, social studies, and science achievement scores were collected. There were not sufficient numbers of students in some schools to worth to consider in level 1 and involve their schools to level 2 HLM analyses. Therefore, those schools and their 8th grade students were excluded from sample. In this study, 11,794 students, enrolled in the 8th grade, were from 1,127 schools in the USA were considered. For level-1 dataset, 11,794 students' math score were considered as a within-school variance and for level-2, 1,127 cases were considered as a between schools variances.

3. Results

In this study, a two-level hierarchical linear model (HLM) was used to analyze the sample. Within-school variance components were considered as level-1 predictors, and between-schools variance components were considered as level-2 predictors in the HLM analysis. Because of the value of 0 was not meaningful for level-1 predictors, within-school variance components were centered. Children discussing school activities/programs with their parents and parental involvement with their child's school activities/programs are the measures used for the level-1 variable in HLM. Moreover, parental attendance to school meetings, speaking with teacher/ counselor about their child, and how often a parent checks up on their child's homework were considered as the level-2 variables. Table 1 represents the mean and standard deviation of level-1 and level-2 variables in this analysis.

Table 1 Means and standard deviation scores of variables

Variables	Mean	SD
<i>Student-Level Variables</i> (N=11794)		
Discussion School program with parents	0	1.85
Discussion School activity with parents	0	1.77
Parents attend to school event	0	2.04
Standardized Math Score	49.53	20.02
<i>School-Level Variables</i> (N= 1127)		
Parents attend to school meetings	0.04	1.04
Parents speaking with teacher/counselor	0.04	1.03
Parents checking homework	0.03	1.00

Based on unconditional model, the coefficients values represent on table 2 were obtained. These values exhibit how much level1 predictors were effective to explain students' math achievement scores. According to obtained coefficient values on table 2, all coefficients values are negative, and it means that discussion school program and activity with parents and parents attend to school event have negative effect on students' math achievement. The reason of obtaining this adverse effect is that parents' collaboration might make the students to feel under pressure and that pressure might negatively affect the student math achievement.

Table 2: Unconditional Model

	Coefficient	Standard Error	t Statistics	p-Value
Discussion School program with parents	-0.496	0.191	-2.602	0.010
Discussion School activity with parents	-1.232	0.187	-6.577	0.000
Parents attend to school event	-5.336	0.164	-32.593	0.000

Moreover, based on conditional model, it is seen that some of chosen level-2 variables had a significant effect to explain some of level-1 variables when some of them did not have. When parents speaking with teacher/counselor had a significant effect to reduce variance on children discussing school activities with his/her parent, it did not have any significant effect on other variables. Likewise, parental attendance to school meetings only had a significant effect on parental involvement with their child's school activities/programs. However, when parents attend to school meetings and parents checking homework, level-2 variables, had significant effects to explain the variance of intercept at level-1, parents speaking with teacher/counselor, level-2 variable did not have any effect to explain the variance of intercept at level-1. Table 3 represents the conditional model which shows the effect of level-2 predictors on level-1 predictors.

Table 3. Conditional Model

	Coefficient	Standard Error	t Statistics	p-Value
<i>Discussion School program with parents</i>	-0.496	0.191	-2.602	0.010
<i>Discussion School activity with parents</i>	-1.232	0.187	-6.577	0.000
Parents speaking with teacher/counselor	-1.117	0.183	-6.105	0.000
Parents attend to school event	-5.336	0.164	-32.593	0.000
Parents attend to school meetings	0.436	0.164	2.656	0.008

Overall the analysis confirm that children discussing school activities/programs with their parents and parental involvement with their child's school activities/programs tend to have significant negative effect on student math achievement at grade 8. There net impact of children discussing school activities/programs with their parents and parental involvement with their child's school activities/programs variables on children math achievement scores to reduce the total variance at level-1 by 57.4%. After adding these three predictors on level-2, 0.2% of the level-1 residual variances were explained. It means that 0.2% of 8th-grade children's math achievement scores are explained by operating the predictors at level-2 (the school level). This was the expected value for conditional value, since adding predictor on level-2 has low effect on σ^2 value of level-1.

After examining the contribution of the several variables of parents' collaboration with their children and the schools, it has seen that parents have an important role to explain their children's math achievement at school. In this case, the way which is followed by parents to collaborate with their children and their school obtain more value. It is expected to see children's math achievement scores increase when parents follow an appropriate way to deal with their children.

4. Discussion

In this study, answers were sought for how parent collaboration with school and student, affect students' math achievement, and how this effect varies across schools. By using two-level HLM, an attempt was made to find the correct answers. Analyzing fully-unconditional, unconditional and conditional models in HLM software, the results were compared with each other and interpreted in the results section. According to the results found, parent collaboration with students and schools has an important role on student's math achievement, and effects of this role on math achievement vary across schools.

In considering the results of the study, schools may provide an environment where families feel welcome and valued. School programs that encourage greater parental involvement are more important than any other factor in determining whether or not parents actually do get involved. In the same vein Colbert (1996) pointed out that some schools make a special effort to help low-income families get involved because many of these families may have some difficulties (economical, extraversion or introversion personality...etc). Similarly, Hogue, Liddle, Becker and Johnson-Leckron, (2002) outlined that parental involvement can take many forms, including getting involved in school activities by discussing children's progress with teachers on a regular basis; checking homework every night; reading to preschoolers; encouraging students to take the challenging courses.

It is clear that one of the most crucial issues of the literature relating parental involvement is to assist children in becoming more successful in the school by increasing family involvement in addressing specific barriers to learning. In other words, parents involved with their children's learning have important consequences for how children approach and engage in learning (Ames, Khoju & Watkins, 1993). Facilitating this involvement requires a good communication and collaboration between school and families. Schools might also encourage parents, teachers, and students to meet at the beginning of the school year to agree on goals and develop a common understanding. In fact, it can make a difference in student's achievement at school and in their healthy development when school sponsors family involvement initiatives and activities and to improve student learning and to support effective school performance through family-school partnership.

Finally, supportive links between families and school are facilitated by frequent parental involvement in the child's program and communication with teachers (Vasta, Haith, & Miller, 1999). There are potentially many ways in which positive school-family linkages could lead to successful child outcomes. For instance, Balli, Demo, and Wedman (1998) suggest that when teachers and parents invest time and resources to help the students succeed in school, students perceive a caring about themselves and this partnership between parents and teachers enhance academic achievement in school. Staff members and

other parents may provide support and information about parenting and child development (Hogue, et al., 2002). Staff members may serve as models of effective communication and involvement with young children.

Although the conclusion above is important, there were some limitations in this study. These limitations might have caused the results to indicate different scores than expected. For example, there were some schools, which have only one or two students who participated in this study. Therefore, all reliability values of fully unconditional, unconditional and conditional were lower than expected even though these types of schools were found and deleted from the data.

For future studies, these schools should be deleted from the data completely thereby increasing reliability values. In addition, just three variables were used as the predictors to explain math achievement in level-1, and only three different variables were used as the predictors to explain level-1 slopes variables and math achievement via slopes. By using more related variables on level-1 and level-2, additional explanations could be found for student's math achievement in future studies.

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