A MULTILEVEL ANALYSIS OF STUDENT, FAMILY, AND SCHOOL FACTORS ASSOCIATED WITH LATINO/A PARENTAL INVOLVEMENT IN THE MIDDLE SCHOOL LEARNING ENVIRONMENT

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Title: A Multilevel Analysis of Student, Family, and School Factors Associated with Latino/a Parental Involvement in the Middle School Learning Environment

Research suggests parental home and school involvement improves multiple outcomes for middle school students, including academic achievement, school engagement, motivation, self-efficacy, and prosocial behaviors. Little is known, however, about multilevel factors associated with Latino/a parental involvement in the middle school learning environment. In the current study, multilevel analysis was used to explore student, family, and school factors associated with Latino/a parental involvement. Results from the hierarchical linear modeling analyses found (a) Latino/a parental home and school involvement varied within schools and between schools, (b) student gender, prosocial behavior, and academic achievement were positively associated with parental home involvement, and (c) student gender, problem behavior, prosocial behavior, academic achievement, and family socioeconomic status were positively associated with parental school involvement. Percentages of Latino/a students and low-income students in schools did not significantly moderate the average parental home or school involvement across students and across schools. The results of this study have implications for educators and policy makers to promote Latino/a parent-teacher collaboration in the middle school learning environment.

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DEDICATION

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TABLE OF CONTENTS

Chapter Page

Chapter Page

LIST OF FIGURES

Figure Page

LIST OF TABLES

Table Page

CHAPTER I

INTRODUCTION

Parental involvement is an important protective factor that promotes middle school students' success (Chen & Gregory, 2009; Henry, Cavanagh, & Oetting, 2011; Hill & Tyson, 2009; McGill, Hughes, Alicea, & Way, 2012; Seginer, 2006; Wilder, 2014). Research suggests parental involvement improves multiple outcomes for middle school students, including academic achievement (Jeynes, 2007; Karbach, Gottschling, Spengler, Hegewald, & Spinath, 2013; Sy, Gottfried & Gottfried, 2013), school engagement (Fan & Williams, 2009), motivation (Harackiewicz, Rozek, Hulleman, & Hyde, 2012), determination (Suizzo et al., 2012), self-efficacy (Toren, 2013), and prosocial behaviors (Houltberg, Morris, Cui, Henry, & Criss, 2014). During the middle school developmental period, families remain the primary environment in which students grow and learn (Dishion & Stormshak, 2007). Middle school is a time of rapid changes in biology, cognition, relationships, and academic demands (Smetana, Campione-Barr, & Metzger, 2006; Steinberg & Morris, 2001; Wigfield, Lutz, & Wagner, 2005). Therefore, parents must adapt parenting practices to meet the changing needs of middle school students (Hill & Tyson, 2009). According to the ecological (Figure 1; see Appendix B for all figures) and social interaction learning models, parental involvement is influenced by the contexts in which parents and students reside and parent-child interactions (Bronfenbrenner, 1979, 1986; Reid, Patterson, & Snyder, 2002). As such, environmental and individual factors may impact middle school students' development indirectly by affecting parents' capacity to engage in the education of their children (Bronfenbrenner, 1986).

Latino/as are among the fastest growing minority groups in the United States (Pew Research Center, 2011), yet limited research exists on Latino/a parental involvement (Hill & Torres, 2010). In order to support educators' efforts to collaborate with Latino/a parents in culturally responsive ways, more research is needed to understand factors positively or negatively associated with Latino/a parental involvement (Hill & Torres, 2010). The purpose of this study is to fill the gap in the literature by exploring student, family, and school factors associated with Latino/a parental involvement.

This chapter includes seven sections. First, I define parental home and school involvement. Second, I provide an overview of current research on parental involvement during middle school in the general population. Third, I discuss experiences of Latino/a parents and students in the United States school system and address within-group heterogeneity of Latino/a communities. Fourth, I provide evidence for cultural differences in parental involvement. This section will include theories and research on Latino/a cultural values that may impact parental involvement. Fifth, I provide an overview of existing research on each of the student, family, and school variables of interest in this study. Finally, I provide a summary of the chapter and end with the purpose of the study and research questions that will guide the analysis.

Parental Involvement Definitions and Dimensions

Parental involvement has been defined and measured by a variety of constructs, typologies, dimensions, and qualities (Epstein, 1987; Grolnick & Slowiaczek, 1994; Hickman, Greenwood, & Miller, 1995; Pomerantz, Moorman, & Litwack, 2007; Ritblatt, Beatty, Cronan, & Ochoa, 2002). A distinction exists between parenting styles and

parenting practices (Darling & Steinberg, 1993). Parenting styles are emotional climates that parents create for their children, often characterized by dimensions of support and demand; parenting practices are specific goal-oriented behaviors used to socialize children (Darling & Steinberg, 1993) and are robust predictors of academic achievement and positive developmental outcomes (Spera, 2005). In this study, parental involvement is defined as education-oriented parenting practices in the contexts of home and school.

Parental involvement is a multidimensional construct that includes practices such as parental engagement, monitoring, and communication of values and aspirations (Hill & Tyson, 2009; Spera, 2005). Existing parental involvement frameworks distinguish between parental home and school involvement, which can be further divided into dimensions of parenting practices. For example, Epstein's (1987) framework included six dimensions of parental involvement: (a) parenting at home, (b) school-home communication, (c) involvement in school, (d) involvement in home learning, (e) advocacy, and (f) community involvement. In contrast, Grolnick and Slowaiczek (1994) divided parental home and school involvement into dimensions of behavioral, cognitive-intellectual, and personal involvement in each context. In this study, student perceived parental involvement is divided into two dimensions by the contexts in which parenting practices occur: home and school. The parenting practices that comprise parental home involvement include monitoring of activities related to school, homework help, and parent-child communication. The parenting practices that comprise parental school involvement include communication with teachers, attendance at school events, and attendance at parent-teacher conferences.

Research suggests a multidimensional conceptualization of parental involvement best captures a complex set of parenting practices (Fantuzzo, McWayne, & Perry, 2004). The set of complex practices can vary across socioeconomic status, culture, child development, and school environments (Garbacz & Sheridan, 2011; García Coll et al., 2002), while individual practices may vary in frequency and quantity (Epstein & Lee, 1995). In the next section, I summarize the literature on parental involvement during middle school in the general population.

Parental Involvement during Middle School

The middle school years require a significant transition for both students and parents (Eccles & Harold, 1996; Epstein & Dauber, 1991; Hill & Chao, 2009). Academic performance, a key indicator of educational outcome for educators and policy makers, often declines during middle school (Alspaugh, 1998; Barber & Olsen, 2004; Eccles & Harold, 1993). In addition to the academic decline, middle school students' problem behaviors increase and prosocial behaviors decrease across time (Wang, Dishion, Stormshak, & Willett, 2011). During this pivotal time, parental involvement also decreases (Epstein & Dauber, 1991). Although parental involvement declines during this period, it continues to be significantly related to student achievement and other developmental outcomes (Fan & Chen, 2001; Jeynes, 2007; Sui-Chu & Willms, 1996).

In a meta-analysis, Hill and Tyson (2009) found significant relationships between parental involvement and academic achievement during middle school. Fifty studies published between 1986 and 2006 were included in the meta-analysis. The correlations between parental involvement and student achievement ranged from -.49 to .73 with an average weighted correlation of .18. When dimensions of parental involvement were

analyzed separately, academic socialization (r = .39), parental school involvement (r = .19), and parental home involvement (r = .12) were positively related to academic achievement. In contrast, helping with homework was negatively related to achievement. The authors concluded that parental involvement in middle school is crucial to students' educational and vocational attainment.

In addition to the relationship between parental involvement and academic outcomes, it is important to consider frequency and types of parental involvement in middle school. Epstein and Lee (1995) used the National Education Longitudinal Study of 1988 (NELS:88) data to describe national patterns of parental involvement in middle school. The NELS:88 is one of the most comprehensive longitudinal studies of middle school students to date. Many of the studies included in the literature review used the NELS:88 dataset. The sample included more than 24,000 eighth grade students from diverse backgrounds in over 1,000 public and private middle schools. The surveys included a range of topics related to education; student achievement tests were administered in addition to the survey (Ingels et al., 1990).

Epstein and Lee (1995) provided the following descriptive statistics on parental involvement: more than one fourth of parents reported they did not hold their children to high standards of academic achievement; most parents never contacted schools about students' academic achievement (48%), academic programs (65%), or students' behavior (71%); most parents (80%) reported they never served as volunteers at school; most parents (80%) reported they talked regularly about school with their children; most parents (91%) believed homework was valuable but 56% reported they never, seldom, or infrequently helped students with homework. Only 45% of parents endorsed they

checked homework often. Student reports of parental involvement corresponded with parent reports: 19% of students indicated their parents were actively involved in school, 54% indicated their parents were involved in limited ways, and 27% indicated their parents were not involved. The authors suggested the majority of parents have relatively little contact with middle schools regarding their students' progress and achievement because most schools lack effective policies and practices to invite and guide parental involvement.

Patterns of decline in parental involvement from elementary school to middle school are supported by recent data from National Center for Education Statistics (Noel, Stark & Redford, 2013). Noel and colleagues (2013) provided descriptive statistics of parental involvement from kindergarten through 12th grade from the National Household Education Surveys Program of 2012. This dataset included 17,563 parents who completed surveys on 54.3 million students enrolled during the 2011-2012 school year in all 50 states and the District of Columbia. The results showed that from elementary school to middle school, the percentage of parents who attended a general school or PTO/PTA meeting decreased from 92% to 87%; attendance at parent-teacher conferences decreased from 89% to 71%; attendance at a school or class event decreased from 82% to 70%; volunteering or serving on school committees decreased from 51% to 32%; and checking homework decreased from 85% to 58%. In sum, research suggests that parental involvement is associated with positive academic and developmental outcomes for middle school students but the frequency and types of parental involvement shift from elementary school to middle school. Two theoretical models provide possible

explanations to account for the changes in parental involvement in the middle school learning environment – the ecological and social interaction learning models.

The ecological and social interaction learning models provide theoretical frameworks for understanding complex relationships between student, family, and school factors that are associated with parental involvement. The ecological model (Bronfenbrenner, 1979) posits that child development is a reciprocal process between child's biology, cognitions, emotions, and behaviors as well as the environment (Figure 1; see Appendix B for all figures). Aligned with the ecological model, the social interaction learning model (Reid et al. 2002) provides specificity about the bidirectional process by which parents and children influence each other's behaviors. In addition, the model assumes that environmental factors affect student outcomes indirectly by impacting parents' abilities to be involved with their children's education (Martinez, DeGarmo, & Eddy, 2004). This section has focused on parental involvement in middle school for the general population. In the following section, I will provide an overview of unique experiences of Latino/a parents and students in the school system.

Latino/a Parents and Students in the School System

Latino/as are among the fastest growing minority groups in the United States (Pew Research Center, 2011), yet limited research exists on Latino/a parents' and students' experiences in the school system. In particular, there is a dearth of research about factors associated with Latino/a parental involvement that could inform educators' efforts to engage Latino/a parents (Hill & Torres, 2010). Latino/a parents and students face many challenges in their pursuit of education and upward mobility (Espinoza, Gonzales, & Fuligni, 2012; Guyll, Madon, Prieto, & Scherr, 2010; McWhirter, Valdez, &

Caban, 2013; Moreno, & Gaytán, 2013; Perreira, Fuligni & Potochnick, 2010). Latino/a students are more likely than White students to attend racially segregated (DeBlassie & DeBlassie, 1996) and impoverished schools (Orfield & Lee, 2006; Peske & Haycock, 2006) with inadequate educational resources and inexperienced teachers (Conchas, 2001; Valenzuela, 1999). Latino/a students are less likely than their classmates to be placed in a college preparatory class (Baker & Velez, 1996) and teachers hold lower expectations for Latino/a students' success (Tenenbaum & Ruck, 2007; Weinstein, 2002). Even when risk factors such as poverty, language fluency, and immigration status are held constant, Latino/a students still have higher dropout rates than their peers (Rumberger, 1995; Secada et al., 1998).

Many Latino/a students still thrive academically despite adversities (Valenzuela, 1999). In this context of risk, parental involvement is one of the main protective factors that promote Latino/a student achievement (McGill et al., 2012; Suárez-Orozco, Onaga, & Lardemelle, 2010). Parental involvement may be crucial to Latino/a students' success due to collectivist and family-oriented cultural values (Olivos, 2006, 2009).

Diversity within Latino/a communities. "Latino/a" is a pan-ethnic category that includes communities of people who are diverse in race, class, culture, countries of origin, immigration status, immigration generation, immigration purpose, language, ability, age, education, and geographical location (Sue & Sue, 2003). There are 42 countries in Latin America. Languages spoken in this region include Spanish, Portuguese, French, English, Jamaican Creole, Mayan, Dutch, and Quechua (Latin American Network Information Center, 2014). Latino/as come from countries with distinct political, economic, and immigration histories (Santiago-Rivera, Arredondo, & Gallardo-

Cooper, 2002; Sue & Sue, 2003). Latino/a families live in American communities with varying degrees of multicultural understanding, resources, and support (Suárez-Orozco et al., 2010a). Next, I provide demographic information for Latino/a communities in Oregon to highlight heterogeneity within the population of interest.

In Oregon, Latino/as makes up 12% of the state's total population (Pew Research Center, 2011). According to the Pew Research Center, 37% of the Latino/a population in Oregon are immigrants. Median age of American-born Latino/as is 15 and median age of foreign-born Latino/as is 36. Eighty five percent of Latino/as in Oregon identify as Mexican. Median annual personal income is $18,000. Thirty six percent of Latino/a children and 25% of Latino/a adults live below the poverty level. Latino/a children comprise of 20% of kindergarten to 12th grade students. A total of 122,000 Latino/a students are enrolled in the Oregon school system. Seventy percent of Latino/as speak a language other than English at home.

Given the diversity within Latino/a communities, using this pan-ethnic category in research has limitations. Caution is needed when interpreting results of studies that mask important intra-group differences and may lead to oversimplification and stereotypes of individuals who identify as Latino/a. Despite limitations, I chose to use "Latino/a" in this study because the term captures some shared cultural values and experiences of oppression for a group of people. With heterogeneity of Latino/a communities in mind, I now turn to literature on cultural differences in parental involvement.

Cultural Differences in Parental Involvement

Dimensions of parental involvement may be similar across cultures but vary by definition and degree (Garbacz & Sheridan, 2011). Much of existing research on parental involvement includes predominantly White, middle class families. Less is known about parental involvement in middle school for ethnic minority and low-income families (Hill & Taylor, 2004). Research suggests differences in parental involvement based on race, ethnicity, culture, language, and immigration status (García Coll et al., 2002; Hong & Ho, 2005). In some studies, parents from low-income and ethnic minority backgrounds, when compared to high-income White parents, were less involved in their children's education (Chavkin & Williams, 1993; Delgado-Gaitan, 1991; Kohl, Lengua, & McMahon, 2000). However, other research indicates ethnic minority families are more involved in their children's education when compared to White parents (Catsambis & Garland, 1997; Keith et al., 1993). For example, using NELS:88 database of middle school students, Sui-Chu and Willms (1996) found Latino/a parents are more likely to provide home supervision compared to White parents. Although research disagrees on whether ethnic minority parents are more or less involved compared to White parents, most research agree that there are significant cultural differences in parental involvement.

Latino/a cultural values. The pursuit of better education opportunities for children may be one of the reasons Latino/a families immigrate to the United States. Therefore, a strong sense of family obligation is related to academic motivation for Latino/a students (Suárez-Orozo & M. Suárez-Orozco, 1995). Academic achievement and prosocial behavior may be ways for students to contribute back to the family (Ceballo, Maurizi, Suarez, & Aretakis, 2014; Suizzo et al., 2012). Research suggests

parents who endorse higher colectivismo and familismo values are more involved in their children's education, thereby leading to better academic performance and other developmental outcomes (Dumka, Gonzales, Bonds, & Millsap, 2009; Germán, Gonzales, & Dumka, 2009).

Respeto refers to unquestioned respect for authority figures such as teachers (Andres-Hyman, Ortiz, Anez, Paris, & Davidson, 2006; Leidy, Guerra, & Toro, 2012; Marín & Marín, 1991; Simoni & Perez, 1995). Personalismo is defined as the preference for deep interpersonal relationships (Garz, Kinsworthy, & Watts, 2009; Garza & Watts, 2010). Misalignment between Latino/a cultural values and schools may undermine parent-teacher collaboration (Hill & Torres, 2010). In the American cultural context, Latino/a parents' demonstration of respeto toward teachers (i.e., not intruding in school) may be perceived as detachment or lack of commitment to their children's education (Delgado-Gaitan, 2004; Suárez-Orozco et al., 2010a; Walker, Ice, Hoover-Dempsey, & Sandler, 2011). Furthermore, Latino/a parents who attempt to establish deep personal relationships with school personnel may be met with professional distance, which is likely to disuade Latino/a parents from further school involvement (Hill & Torres, 2010).

Taken together, this body of research on Latino/a cultural values suggests Latino/a parental involvement is essential to students' academic success and positive developmental outcomes (Carranza, You, Chhoun, & Hudley, 2009; McGill et al., 2012). However, cultural misalignments between parents and schools may serve as barriers for Latino/a parental involvement (Villalba, Brunelli, Lewis, & Orfanedes, 2007). The following section highlights the research on student, family, and school factors of interest in this study.

Variables of Interest

Student factors.

Gender. Limited research exists on the moderating effect of Latino/a students' gender on parental involvement. In general, Latina girls do better academically and engage in fewer externalizing problem behaviors than Latino boys (Santiago, Gudiño, Baweja, & Nadeem, 2014; Suárez-Orozco et al., 2010a; Umaña-Taylor, Wong, Gonzales, & Dumka, 2011). Some studies suggest that Latino/a parents are more involved with girls than with boys (Keith & Lichtman, 1994; Lac et al., 2013; Santiago et al., 2014) and parental involvement has more positive impact on girls' academic motivation, aspiration, and performance than for boys (Alfaro, Umaña-Taylor, & Bámaca, 2006; Santiago et al., 2014). In Latino/a communities, girls are socialized to be involved with the family while boys are socialized to be more autonomous; as a result, parents may be more involved with girls than boys, giving boys more opportunities to be independent (Dumka, Gonzales, McClain, & Millsap, 2013; Lac et al., 2013).

Problem and prosocial behaviors. Problem and prosocial behaviors have often been examined as a dependent variable rather than as an independent variable of parental involvement (e.g., Calderón-Tena, Knight, & Carols, 2011; Carlo, Knight, McGinley, Zamboanga, & Jarvis, 2010; Forster, Grigsby, Soto, Schwartz, & Unger, 2015; Hill et al., 2004; McNeal, 2014; Prelow & Loukas, 2003). Ecological and social interaction learning models assume student factors such as prosocial and problem behaviors has reciprocal relationships with parental involvement. However, limited research has examined the association of Latino/a student behaviors with parental involvement.

As the literature on the relationship between Latino/a student behaviors and parental involvement is scarce, I draw upon research on the general population to inform the hypothesis of this study. Prior research suggests parents react to increasing problem behaviors by disengaging from their children (McNeal, 2012). Grolnick, Weiss, McKenzie, and Wightman (1996) found parents who perceived their children as more difficult (i.e. temperamental) tended to feel less efficacious in their parenting and therefore were less involved in their children's education. Wang and colleagues (2011) found increased problem behaviors were associated with decreased parental involvement over time. Problem behaviors may become a barrier for parental involvement by increasing the difficulties and time commitments of involvement (Marshall, Tilton-Weaver, & Bosdet, 2005). Problem behaviors may also increase negative parent-child interactions, which may lead to parents withdrawing from their children to avoid conflicts (Dishion, Nelson, & Bullock, 2004).

Studies from the general population suggest a similar reciprocal relationship between prosocial behaviors and parental involvement (Miklikowska, Duriez & Soenens, 2011). Just as problem behaviors may increase distance between parents and children and lead to decreased parental involvement, prosocial behaviors may increase closeness of the parent-child relationship and encourage further parental involvement (Lewis, 2014). In a longitudinal study, Padilla-Walker, Carlo, Christensen, and Yorgason (2012) found children's prosocial behaviors had a positive effect on parenting practices. Research suggests the connection between prosocial behaviors and parental involvement is stronger in Latino/a families who endorse cultural values of colectivismo and familismo when

compared to families who endorse individualistic values (Cauce & Domenech-Rodriguez, 2002; Carlo, Knight, Basilio, & Davis, 2014).

Academic achievement. Similar to problem and prosocial behaviors, most research has focused on academic achievement as a dependent variable rather than as an independent variable of parental involvement. A small body of research supports a positive reciprocal relationship between academic achievement and parental involvement (Delgado-Gaitan, 2004; Goldenberg, Gallimore, Reese & Garnier, 2001; Shumow & Miller, 2001). Keith and Lichtman (1994) conducted a path analysis using NELS:88 data of 8th grade Mexican American students and found parental home involvement was most strongly predicted by students' previous academic achievement. Research with the general population of parents and students suggests that lower academic performance leads to increased parent-child conflict, which in turn, discourages further parental involvement (Dotterer, Hoffman, Crouter, & McHale, 2008; Dumont et al., 2012). In addition, parents of children who showed academic promise, compared to parents of children who struggled academically, are likely to hold higher expectations and be more involved in school (Englund, Luckner, Whaley, & Egeland, 2004).

Family factor.

Family socioeconomic status. Research suggests that Latino/a parental involvement may be impacted by family socioeconomic status (Altschul, 2012; Durand, 2011). Martinez and colleagues (2004) conducted a cross sectional analysis and found that higher family income was associated with increased Latino/a parental involvement at school and parental monitoring at home. Latino/a family socioeconomic status can indirectly impact students' achievement and development by limiting the amount of

material resources (e.g., financial resources for extracurricular activities) as well as immaterial resources (e.g., amount of time and attention) parents can contribute to students' education (Altschul, 2012).

Socioeconomic status may impact parental involvement through several pathways (Altschul, 2012). First, the family-stress model (Conger, Ge, Elder, Lorenz, & Simons, 1994) suggests family financial stress leads to decreased parental wellbeing and reduced positive parenting strategies that require time and attention, such as attending school events and contacting teachers. Second, the family-investment model (Mayer, 1997) posits that parents' abilities to invest financial and social resources to children's education increase with family's socioeconomic status. Research suggests that parents who have multiple jobs and whose employment is characterized by inflexible schedules, heavy work load, and instability are less involved than parents with more stable and flexible jobs (Pena, 2000). Latino/a parents are more likely than White parents to have low paying jobs that are both time and physically demanding and are therefore less likely to be able to take time off work to participate in school functions and to provide their children with supplemental learning opportunities (Hoover-Dempsey et al., 2005, Olivos, 2006). Lastly, according to Lareau's (1987, 1989) theory of parental involvement, middle class families have additional cultural capital (e.g., similar cultural values and communication styles) that match the middle class environment of schools. Thus, middle class Latino/a parents may feel more empowered than working class Latino/a parents to be involved in their children's education.

While some theories suggest that socioeconomic status impact parental home and school involvement similarly, another theory suggests that socioeconomic status impact

home and school involvement differently. Parents from low income backgrounds may have less time to participate in school activities, but they may hold the same level of interests and knowledge about their children's education. Parents from low-income backgrounds may be just as involved at home as parents from economically privileged backgrounds because home involvement poses fewer class-based barriers (i.e. transportation, childcare, flexible work schedules) than school involvement (Grolnick, Benjet, Kurowski, & Apostoleris, 1997; Robinson & Harris, 2014).

School factors. The middle school context can pose extra challenges for parents from low-income backgrounds and ethnic minority groups (Becker & Epstein, 1982; Lareau, 1987; Lightfoot, 1978). Educators may not have the awareness, knowledge, or skills to engage with increasingly culturally and linguistically pluralistic families; school policies may privilege certain groups of parents while systematically disadvantaging others (Hoover-Dempsey et al., 2005; Lareau, 1987; Ogbu, 1978; Olivos, 2006). As a result of experiences of discrimination and resistance in the education system, ethnic minority and low-income parents may become less trusting of school personnel and policies (Lareau, 1987; Ogbu, 1978; Robinson & Harris, 2014). In an ethnographic study of Latino/a parents, Olivos (2006) found that Latino/a parents hold strong interests and desires to participate in school. However, Latino/a parents often experienced resistance from schools when they begin to advocate for their children's education (Ramirez, 2003).

Racial and linguistic diversity of the school. Since the landmark United States Supreme Court decision in Brown v. Board of Education (1954) that mandated desegregation of schools, researchers, educators, and policy makers have emphasized that a critical mass of underrepresented students provide educational benefits to all students

and educators (Malcom & Malcom-Piqueux, 2013). The critical mass theory of diversity suggests that once a minority population has reached a certain percentage of the total population, the school enviornment must adapt to become more culturally responsive in order to function successfully (Granovetter, 1978; Kanter, 1977). While controlling for socioeconomic status, schools that have a diverse student body may have more educators who are culturally competent and multilingual. Ethnic minority parents and middle school students may feel more welcomed and invited in a school with a critical mass of students who share their linguistic and cultural backgrounds. In contrast, underrepresentation and tokenism can create feelings of isolation and self-doubt in parents and students and in turn, affect involvement (Kanter, 1977).

Critical mass may also impact Latino/a parental involvement through increase in social capital and parents' satisfaction with school. Studies have found that connections between Latino/a parents are positively associated with home and school involvement (Durand, 2011). For Latino/a parents who value collectivism and deep interpersonal relationships, opportunties to connect with other Latino/a parents is critical to their involvement at home and at school. With increased representation of Latino/a students in school, opportunities to establish social networks between parents may also increase. The increase in social capital may then empower Latino/a parents to be more involved in school and advocate for the needs of their children (Durand, 2011; Martinez & Ulanoff, 2012; Noguera, 2002; Olivos, 2006). The increase in Latino/a student representation may also increase the representation of Latino/as in leadership positions. Marschall (2005) found that Latino/a parents are more satisfied with their local schools when there are

more Latino/a leaders on the school board. Satisfaction with school, in turn, is postively associated with increased parental involvement (Schneider, Teske, & Marshall, 2000).

Language fluency is often cited as a barrier to Latino/a parental involvement (Gregg, Rugg, & Stoneman, 2012; McWhirter, Luginbuhl, & Brown, 2014; Menken, 2009; Solano-Flores, 2008). A large percentage of Latino/a children and families in Oregon speak a language other than English at home (Pew Research Center, 2011). Research suggests speaking Spanish as the primary language is negatively associated with parental school involvement (Durand, 2011; Pena, 2000; Wong & Hughes, 2006). Despite language as a major barrier for parental involvement, limited research has examined the impact of the representation of English language learners in schools on parental involvement. According to the critcal mass theory, Latino/a parents may be more involved in schools with a critical mass of English language learners, where multilingualism may be normalized and valued.

Socioeconomic status of the school. Socioeconomic status is the most frequently examined school factor (Hoover-Dempsey, Bassler, & Brissie, 1987). However, research often focuses on academic achievement as an outcome of school socioeconomic status. Research has not yet examined the moderating effect of school socioeconomic status on Latino/a parental involvement. Studies on the general population have found that parental involvement efforts can vary by school socioeconomic status (Gonzáles & Jackson, 2012). Average socioeconomic status of schools can impact parental involvement over and above family socioeconomic status (Hoover-Dempsey et al., 1987). Hoover-Dempsey et al. (1987) found that average socioeconomic status of school accounted for significant variances in parent-teacher conference attendance, parent volunteering, and

teacher perceived parental support. Additional research is needed to distinguish between impact of school racial, linguistic, and socioeconomic diversity on Latino/a parental involvement. In the next section, I provide a brief summary of the literature review.

Summary

Latino/as are among the fastest growing minority groups in the United States (Pew Research Center, 2011). Compared to privileged peers, Latino/a middle school students face many challenges in the pursuit of education (Hill & Torres, 2010). Parental home and school involvement serve as important protective factors for Latino/a students during middle school, a critical period of development. According to the ecological and social interaction learning models, student, family, and school factors are associated with parental involvement, which in turn shape student outcomes. Limited research has utilized an ecological approach to study Latino/a parental involvement. The current study attempts to fill this gap in the literature by examining the student, family, and school factors that may be associated with student reported Latino/a parental involvement in the middle school learning environment. A better understanding of factors associated with Latino/a parental involvement may inform culturally responsive collaborations with Latino/a parents in the interest of their children.

Study Purpose and Research Questions

The purpose of this study is to examine student, family, and school factors associated with Latino/a parental home and school involvement. I will use the following research questions to guide the study:

Parental home involvement.

1. Does parental home involvement vary within schools and between schools? It is anticipated parental home involvement will not vary between schools but will vary within schools, which will suggest only student and family factors are associated with parental home involvement. Previous studies indicate school environments have limited moderating effects on parental involvement at home (Grolnick et al., 1997).

2. Are student and family factors (i.e., student gender, problem behavior, prosocial behavior, academic achievement, and family socioeconomic status) associated with parental home involvement? It is expected student and family factors are significantly associated with parental home involvement. Parents may be more involved with girls than boys (Keith & Lichtman, 1994; Lac et al., 2013; Santiago et al., 2014). Parents of students with prosocial behavior and academic achievement may be more involved at home (Englund et al., 2004; Keith & Lichtman, 1994; Miklikowska et al, 2011; Padilla-Walker et al., 2012); parents of students with problem behavior may be less involved at home, because parents may withdraw from children who exhibit problem behavior (Dishion et al., 2004; Marshall et al., 2005; Rogers, Wiener, Marton, & Tannock, 2009). It is predicted that family socioeconomic status will not be significantly associated with parental home involvement. Research suggests that parents from economically disadvantaged backgrounds may be just as involved at home as parents from economically privileged backgrounds (Grolnick et al., 1997).

Parental school involvement.

3. Does parental school involvement vary within schools and between schools? It is anticipated that parental school involvement will vary both between schools and within schools, which will suggest student, family, and school factors are associated with parental school involvement. Unlike parental home involvement, research suggests that parental school involvement is related to the school environment (Durand, 2011; Pena, 2000; Wong & Hughes, 2006).

4. Are student and family factors (i.e., student gender, problem behavior, prosocial behavior, academic achievement, and family socioeconomic status) associated with parental school involvement? It is expected student and family factors are significantly associated with parental school involvement. Parents may be more involved with girls than boys (Keith & Lichtman, 1994; Lac et al., 2013; Santiago et al., 2014). Parents of students with prosocial behavior and academic achievement may be more involved at school (Englund et al., 2004; Keith & Lichtman, 1994; Miklikowska et al, 2011; Padilla-Walker et al., 2012); parents of students with problem behavior may be less involved at school (Dishion et al., 2004; Marshall et al., 2005; Rogers et al., 2009). It is predicted that family socioeconomic status will have a negative association with parental school involvement (Altschul, 2012; Hoover-Dempsey et al., 2005; Olivos, 2006).

5. Are school factors (i.e., percentage of Latino/a students, percentage of English language learners, and percentage of low-income students) associated with parental school involvement? It is hypothesized that school factors will be a significant moderator of the average parental school involvement across students

and across schools. Research indicates school socioeconomic status is negatively associated with parental school involvement (Gonzáles & Jackson, 2012). The critical mass theory suggests while controlling for school socioeconomic status, Latino/a parents are more likely to be involved in schools that have a higher percentage of Latino/a students and English language learners as increased demographic representation may be indicative of a school environment that is more culturally and linguistically responsive. (Granovetter, 1978; Kanter, 1977; Malcom & Malcom-Piqueux, 2013).

CHAPTER II

METHODS

Participants

The sample was drawn from the effectiveness study of the Positive Family Support program funded by the United States Department of Education (Seeley, Dishion, Stormshak, & Smolkowski). Forty-one schools participated in the effectiveness study and were randomly assigned to intervention and control groups. All data in this study were collected at baseline from both intervention and control schools before the intervention was implemented. The sample included 1,884 self-identified Latino/a 6th grade students. One school did not have any Latino/a student participants and was therefore excluded from further analysis. Students attended Oregon middle schools in rural, suburban, and urban settings. Latino/a student participants in each school ranged from 5 to 238. Mean age of students was 11.6 years (SD = 1.02). Participants identified as both monoracial (71%) and multiracial (29%) Latino/a.

Procedure

Students and parents from participating schools were recruited by project staff in 6th grade. Student assent was gathered before data collection. Parents were mailed a letter with the description of the study and the opportunity to exclude their children from the study by returning a paid and preaddressed postcard. In each school, program staff scheduled time to collect data, obtained consent from parents, and administered surveys to students in the classroom. In the classrooms, project assistants handed out surveys, provided opportunities for students to ask questions and decline participation, and

collected surveys. Teachers remained in the classroom during survey completion but did not assist in data collection to maintain confidentiality. Students completed surveys during regular class time. Each school's demographic information was gathered from Oregon Department of Education online Report Cards for the year in which students completed the survey. De-identified data were used that did not require additional parental consent for the ethical protection of human subjects.

Measures

A summary of variables and measures used in the present study are provided in Table 1 (see Appendix B for all tables). Copies of survey items can be found in the appendix.

Level 1. Level 1 data were gathered from student reports. Research suggests middle school students' report of their experiences, behaviors, family socioeconomic status, and parents' parenting practices can be valid sources of information (Goodman et al., 2001; Metzler, Biglan, Ary, & Li, 1998).

Race/ethnicity. Race/ethnicity information was gathered by the following question: "Which best describes your race/ethnicity? (Check all that apply)." Answer choices included: "American Indian or Native American," "White or Caucasian," "Asian," "Hispanic or Latino," "Native Hawaiian or Pacific Islander," "Black or African American," and "Other." Students were given space to write in their race/ethnicity in the "Other" category. Only students who indicated "Hispanic or Latino" were included in the study.

Gender. Gender information was gathered by the question: "What is your gender?" The answer choices were "Female" and "Male."

Problem behavior. Problem behavior was measured using the conduct problems subscale from the Strength and Difficulties Questionnaire (SDQ; Goodman, Meltzer, & Baily, 1998). The Strengths and Difficulties Questionnaire is a brief measure of prosocial behavior and psychopathology that can be completed by children from 3 to 16 years of age. The SDQ has been found to have good internal consistency ($\alpha = 73$), retest validity after 4 to 6 months, and predictive validity of DSM-IV diagnosis (Goodman, 2001). All items were measured on a 3-point scale, ranging from 1 (*not true*) to 3 (*certainly true*). The conduct problems subscale included 5 items. Items were averaged to create a mean score of problem behavior, if 3 out of 5 (60%) item responses were present.

Prosocial behavior. Prosocial behavior was measured using the prosocial behaviors subscale from the Strength and Difficulties Questionnaire (SDQ; Goodman, Meltzer, & Baily, 1998). The prosocial behaviors subscale included 5 items. Items were averaged to create a mean score of prosocial behavior, if 3 out of 5 (60%) item responses were present.

Academic achievement. Academic achievement was assessed by the question: "During the most recent grading period how were your grades?" Answer choices ranged from "Mostly As" to "Mostly Fs." Students who reported they were "Not in school" in the last grading period were indicated as missing.

Family socioeconomic status. Family socioeconomic status was assessed by the question: "How much money does your family have?" The answer choices included "Not

enough to get by," "Just enough to get by," "We only have to worry about money for fun and extras," and "We never have to worry about money."

Parental home involvement. Students' perception of parental home involvement was measured by the adapted Caretaking and Family Routines Scale (Metzler, Biglan, Ary, & Li, 1998). Seven items assessed monitoring of activities related to school, homework help, and parent-child communication. Items were measured on a 4-point scale, ranging from 1 (*never or almost never*) to 4 (*always or almost always*). Items were averaged to create a mean score of parental home involvement, if 5 out of 7 (71%) item responses were present.

Parental school involvement. Students' perception of parental school involvement was assessed by the Parent School Involvement items created for the Positive Family Support study. Six items assessed communication with teachers, attendance at school events, and attendance at parent-teacher conferences. All items were measured on a 5-point scale, ranging from 1 (*not at all*) to 5 (*weekly or more*). Items were averaged to create a mean score of parental school involvement, if 4 out of 6 (67%) item responses were present.

Level 2. Level 2 variables included the following school factors: percentage of Latino/a students, percentage of English language learners, and percentage of students on free and reduced lunch as a proxy for low-income students. The level 2 variables were collected from Oregon Department of Education online Report Card.

Data Analysis Plan

Hierarchical linear modeling. All hypotheses were tested using HLM 7 (Scientific Software International). Hierarchical linear modeling (HLM) is ideal for analysis of student data nested within schools (Raudenbush& Bryk, 2002) and allows for examination of within group and between group variances (Hox, 2010). Research indicates that HLM can provide unbiased regression coefficients with sample sizes as small as 10 groups with 5 units (Mass & Hox, 2005). However, the standard error estimates may be too small when the level 2 sample size is less than 100 (Mass & Hox, 2005). With this limitation in mind, HLM analyses were conducted to examine parental home and school involvement separately. Although the model building processes are similar, the dependent variables are different. Three models were tested in each analysis: the null model, the level 1 model, and the level 2 model. In the first analysis, the dependent variable was parental home involvement. The first step was to run a null model, exploring variance of parental home involvement within and between schools. If there was both variance within and between schools, I then went on to test the level 1 and level 2 models. The level 1 model included student gender, problem behavior, prosocial behavior, academic achievement, and family socioeconomic status. The level 2 model added percentage of Latino/a students, percentage of English language learners, and percentage of low-income students. The level 2 model explored how school level factors moderated average parental home involvement across students and across schools. The same steps were repeated with parental school involvement as the dependent variable.

Parental home involvement

Null model

Parental Home Involvement $_{ij} = \beta_{0j} + r_{ij}$

$\beta_{0j} = \gamma_{00} + u_{0j}$

Level-1 model

Parental Home Involvement$_{ij} = \beta_{0j} + \beta_{1j}$(Gender$_{ij}$) + β_{2j}(Problem Behavior$_{ij}$) + β_{3j}(Prosocial Behavior$_{ij}$) + β_{4j}(Academic Achievement$_{ij}$) + β_{5j}(Family SES$_{ij}$) + e_{ij}

Level-2 model

$\beta_{0j} = \gamma_{00} + \gamma_{01}$(Latino/a$_j$) + γ_{02}(ELL$_j$) + γ_{03}(Low-Income$_j$) + u_{0j}

$\beta_{1j} = \gamma_{10} + u_{1j}$

$\beta_{2j} = \gamma_{20} + u_{2j}$

$\beta_{3j} = \gamma_{30} + u_{3j}$

$\beta_{4j} = \gamma_{40} + u_{4j}$

$\beta_{5j} = \gamma_{50} + u_{5j}$

Parental school involvement

Null model

Parental School Involvement$_{ij} = \beta_{0j} + r_{ij}$

$\beta_{0j} = \gamma_{00} + u_{0j}$

Level-1 model

$$\text{Parental School Involvement}_{ij} = \beta_{0j} + \beta_{1j}(\text{Gender}_{ij}) + \beta_{2j}(\text{Problem Behavior}_{ij}) + \beta_{3j}(\text{Prosocial Behavior}_{ij}) + \beta_{4j}(\text{Academic Achievement}_{ij}) + \beta_{5j}(\text{Family SES}_{ij}) + e_{ij}$$

Level-2 model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Latino/a}_j) + \gamma_{02}(\text{ELL}_j) + \gamma_{03}(\text{Low-Income}_j) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + u_{1j}$$

$$\beta_{2j} = \gamma_{20} + u_{2j}$$

$$\beta_{3j} = \gamma_{30} + u_{3j}$$

$$\beta_{4j} = \gamma_{40} + u_{4j}$$

$$\beta_{5j} = \gamma_{50} + u_{5j}$$

CHAPTER III

RESULTS

Missing Data

Missing data analysis was conducted in SPSS. Research suggests that statistical analysis may be biased if more than 10% of the data are missing (Bennett, 2001). The percentage of missing data for each level 1 variable was less than 10% (Table 2; see Appendix B for all tables). No data were missing at level 2. Little's MCAR test indicated that level 1 data were missing completely at random, χ^2 (77) = 78.95, p = .41. Listwise deletion was used to account for missing data at level 1 when running the analysis. Listwise deletion was implemented on the variables that are included in the specified models. Given the sample size, the minimally detectable effect size is 0.25 with an intra-class correlation of 0.05. This sample size is powered to detect small effects.

Descriptive Statistics

Descriptive statistics for all study variables were examined, including mean, standard deviation, skew, and kurtosis (see Table 3; see Appendix B for all tables).

Level 1 variables.

Gender. Gender was evenly divided between female (50.2%, N = 946) and male (49.1 %, N = 925) students. A small percentage of students did not indicate their gender (0.7%, N = 13).

Problem behavior. The average problem behavior ranged from 1 to 3, with a mean of 1.54 (SD = 0.29). One hundred forty-four students (7.6%) provided fewer than 3 item responses and were indicated as missing.

Prosocial behavior. The average prosocial behavior ranged from 1 to 3, with a mean of 2.42 (*SD* = 0.41). One hundred thirty eight students (7.3%) provided fewer than 3 item responses and were indicated as missing.

Academic achievement. Students indicated that they received "mostly As" (38.2%, *N* = 720), "mostly Bs" (31.6%, *N* = 595), "mostly Cs" (17.7%, *N* = 333), "mostly Ds" (6.4%, *N* = 120), mostly Fs (3.7%, *N* = 69), or did not indicate their grade (2.5%, *N* = 47). Academic achievement ranged from 1 to 5, with a mean of 3.97 (*SD* = 1.08).

Family socioeconomic status. Majority of students (50.4%, *N* = 950) indicated their family had "Just enough to get by." Of the remaining students, 7.8% (*N* = 147) indicated "Not enough to get by," 21.1% (*N* = 398) indicated "Only have to worry about money for fun and extras," 12.0% (*N* = 227) indicated "Never have to worry about money," and 8.6 % (*N* = 162) did not indicate their family socioeconomic status. Socioeconomic status ranged between 1 and 5, with a mean of 2.41 (*SD* = 0.82).

Parental home involvement. Average student perceived parental home involvement ranged between 1 and 4 with a mean of 2.86 (*SD* = 0.75). Seventy-two students (3.8%) provided fewer than 5 item responses and were indicated as missing. Parental home involvement items were significantly correlated with each other (Table 4; see Appendix B for all tables). Frequency of parental home involvement activities are provided in Table 5 (see Appendix B for all tables). Most students reported that their parents engage in at least one form of home involvement. Only 0.8% (*N* = 15) of students reported that their parents never engage in any form of home involvement.

Parental school involvement. Average student perceived parental school involvement ranged between 1 and 5 with a mean of 1.75 (*SD* = 0.59). Parental school

involvement items were significantly correlated with each other (Table 6; see Appendix B for all tables). The skew (1.02) and kurtosis (1.21) values were beyond the acceptable limits between -1.0 and +1.0. A natural log transformation was conducted. Natural log of a variable is directly interpretable as percentage changes (Gelman & Hill, 2007). The transformed variable was within the acceptable skew (0.30) and kurtosis values (-0.51). Frequency of parental school involvement activities are provided in Table 7 (see Appendix B for all tables). Most students reported that their parents engaged in at least one form of school involvement. Ten percent (N = 184) of students reported that their parents never engage in any form of school involvement.

Level 2 variables. Total student population in the 40 schools ranged from 185 to 978, with a mean of 511.80 (SD = 220.48). Percentage of all Latino/a students in the schools ranged from 4% to 76%, with a mean of 17.51% (SD = 0.14). Number of Latino/a students from each school who participated in the study ranged from 5 to 238, with a mean of 47.10 (SD = 45.96). The response rate of Latino/a students ranged from 23% to 86%. Percentage of English language learners ranged from 0% to 64%, with a mean of 10.42% (SD = 0.12). Percentage of low-income students in schools ranged from 24% to 100%, with a mean of 57.61% (SD = 0.17).

Model Assumptions

Assumptions of linearity, normality, independence, multicollinearity, and homogeneity of variance were tested (Hox, 2010; Raudenbush & Bryk, 2002; Stevens, 2009; Tabachnick & Fidell, 2007). Box plots were examined and no extreme outliers were identified. Extreme skew and kurtosis values were examined. Both parental home involvement and the transformed parental school involvement variables were within the

recommended limits of -1.0 and +1.0 for skew and kurtosis values. All independent variables were within the acceptable limits of -2.0 and +2.0 for skew values and -10.0 and +10.0 for kurtosis values. HLM model assumptions of linearity and normality were tested by examining level 1 and level 2 residuals. Distribution of level 1 residuals was independently and normally distributed. Standardized residuals were plotted against normal scores (Hox, 2010). Graphs indicated conformity to normality and no extreme outliers. Residuals were also plotted against predicted values of the dependent variables. Scatter plots showed evenly distributed points above and below the mean value of zero, which suggested that assumptions of normality, linearity, and homoscedasticity were reasonably met. Bivariate correlation analyses were conducted to examine multicollinearity. Pearson correlation coefficients of level 1 variables ranged from small to moderate (Cohen, 1988), indicating that multicollinearity was present but may not cause estimation problems (Table 8; see Appendix B for all tables). However, correlations of level 2 variables were moderate to large (Table 9; see Appendix B for all tables). An almost perfect collinearity existed between percentage of Latino/a students and percentage of English language learners ($r = 0.91$). As a result, percentage of English language learners was excluded from further analysis. Test of homogeneity of level 1 variance for parental home involvement in the final model was not significant, χ^2 (39) = 43.21, $p = 0.30$. Test of homogeneity of level 1 variance for parental school involvement in the final model was not significant, χ^2 (31) = 41.95, $p = 0.09$.

Pearson correlation coefficient indicated there was a small but positive correlation between parental home and school involvement ($r = .21$, $p < .01$). This small correlation suggests that the proportion of variation in parental home and school involvement can be

predicted by the relationships between the two constructs. This finding is aligned with previous research suggesting that home involvement and school involvement are related but separate constructs (i.e., Garbacz, & Sheridan, 2011)

A one-way analysis of variance (ANOVA) was conducted to test the relationships between gender, a dichotomous variable, and other level 1 variables. Results suggested that there were significant gender differences in problem behavior F (1, 1725) = 14.37, p < 0.001, prosocial behavior F (1, 1732) = 60.27, p < 0.001, and academic achievement F (1, 1823) = 60.19, p < 0.001. Boys are more likely to have higher problem behavior (*Mean* = 1.57) than girls (*Mean* = 1.52). Girls are more likely to have higher prosocial behavior (*Mean* = 2.49) than boys (*Mean* = 2.34). Girls receive significantly better grades (*Mean* = 4.16 "Mostly B") than boys (*Mean* = 3.77 "Mostly C"). No significant gender differences were found in parental home involvement or parental school involvement.

Hierarchical Linear Modeling

Parental home involvement.

Hypothesis 1: Parental home involvement will vary within schools but not between schools. Full maximum likelihood estimation was used in the analysis to estimate model parameters as it allows for the comparison of models with both fixed effects and variance components (Garson, 2013). With full maximum likelihood, nested models can be compared using the likelihood ratio test (i.e. deviance difference test; Hox, 2010). Grand mean centering was applied to all continuous independent level 1 variables. Three HLM models were applied. The unconditional model showed significant differences between schools in average parental home involvement, τ (39) = 0.01, *SD* = 0.10, p < 0.001 (Figure 2; see Appendix B for all figures). Intraclass correlation (ICC) is

significant, which indicates a multilevel model is appropriate and needed (Garson, 2013). The ICC was 0.02, which indicates 2% of the variance of parental home involvement was between schools and the remaining 98% of the variance was within schools (Table 10; see Appendix B for all tables). Although the ICC value was small, the value should not rule out the use of HLM because the addition of predictors can increase the dependence on higher-level groupings (Anderson, 2012).

Hypothesis 2: Level 1 variables will be significantly associated with parental home involvement. The level 1 model showed that prosocial behavior and academic achievement were significantly associated with parental home involvement. Gender, problem behavior, and family socioeconomic status did not reach significance. Deviance statistics are a measure of lack of fit between model and data. Larger deviance indicates a poorer fit to the data. Deviance dropped from 4060.61 in the null model to 3265.01 in the level 1 model. Model comparison test showed that this model significantly reduced the error variance from the null model, χ^2 (26) = 795.59, $p < 0.001$. Although there was no direct measure of variances accounted for by HLM models, a pseudo R^2 was calculated by comparing the variance component in the null model to the variance component in the level 1 model (Anderson, 2012). Proportional reduction in unexplained variance accounted for by predictor variables in the level 1 model was 13%. Estimation of variance components showed that none of the predictor random effects was significant. In the next step of the analysis, slopes were fixed to increase model fit.

The level 2 model showed that after controlling for percentage of Latino/a students and low-income students as well as fixing the slopes, gender, prosocial behavior, and academic achievement were significantly associated with parental home

involvement. None of the level 2 variables reached significance. Model comparison test showed this model did not significantly reduce error variance from the null model, χ^2 (18) = 5.12, $p > 0.5$. As a result, school level variables were removed from the final model (Table 11; see Appendix B for all tables).

The final model indicate that controlling for all other factors, boys were more likely to report higher parental home involvement than girls, $\beta = 0.08$, $p = 0.02$ (Figure 3; see Appendix B for all figures). Students who reported higher prosocial behavior were likely to report higher parental home involvement, $\beta = 0.57$, $p < 0.001$ (Figure 4; see Appendix B for all figures). The beta coefficient indicated for the average student, with each unit increase in prosocial behavior, there is a corresponding 0.57 unit increase in parental home involvement. Students who reported higher academic achievement were likely to report higher parental home involvement, $\beta = 0.07$, $p < 0.001$ (Figure 5; see Appendix B for all figures). With each unit increase in academic achievement, there was a corresponding 0.07 unit increase in parental home involvement.

Parental school involvement.

Hypothesis 3: Parental school involvement will vary within schools and between schools. Full maximum likelihood estimation was used in the analysis as it allows for the comparison of models with both fixed effects and variance components (Garson, 2013). Grand mean centering was applied to all continuous independent level 1 variables. Three HLM models were applied. The unconditional model showed significant differences between schools in average parental school involvement, $\tau(39) = 0.00$, $SD = 0.04$, $p < 0.001$ (Figure 6; see Appendix B for all figures). Intraclass correlation (ICC) was significant, which indicates a multilevel model is appropriate and needed (Garson, 2013).

The ICC was 0.02, which indicates 2% of the variance of parental school involvement was between schools and the remaining 98% of the variance was within schools (Table 12; see Appendix B for all tables).

Hypothesis 4: Level 1 variables will be significantly associated with parental school involvement. Level 1 model showed that all level 1 predictors are significant. The deviance dropped from 978.49 in the null model to 744.56 in the level 1 model. Model comparison test showed that this model significantly reduced the error variance from the null model, χ^2 (25) = 233.93, $p < 0.001$. Proportional reduction in unexplained variance accounted for by predictor variables in the level 1 model was 6%. The estimation of variance components showed that none of the predictor random effects was significant. In the next step of the analysis, slopes were fixed to increase model fit.

Hypothesis 5: Level 2 variables will be significantly associated with parental

Latino/a students and low-income students as well as fixing the slopes, all level 1 predictors were significant. Contrary to the hypothesis, none of the level 2 variables reached significance. Model comparison test showed this model did not significantly reduce the error variance from the null model, $\chi 2$ (18) = 2.03, $p > 0.5$. As a result, school level variables were removed from the final model (Table 13; see Appendix B for all tables).

The final model indicate that controlling for all other factors, boys were more likely to report higher parental school involvement than girls, $\beta = 0.04$, $p = 0.01$ (Figure 7; see Appendix B for all figures). Students who reported higher problem behavior were likely to report higher parental school involvement, $\beta = 0.09$, $p = 0.001$ (Figure 8; see Appendix B for all figures). The beta coefficient indicated for the average student, with

each unit increase in problem behavior, there was a corresponding 0.09% increase in parental school involvement. Students who reported higher prosocial behavior were likely to report higher parental school involvement, $\beta = 0.11$, $p < 0.001$ (Figure 9; see Appendix B for all figures). With each unit increase in prosocial behavior, there was a corresponding 0.11% increase in parental school involvement. Parental school involvement was likely to increase with academic achievement, $\beta = 0.02$, $p = 0.04$ (Figure 10; see Appendix B for all figures). With each unit increase in academic achievement, there was a corresponding 0.02% increase in parental school involvement. Parental school involvement was likely to increase with family socioeconomic status, $\beta = 0.02$, $p = 0.02$ (Figure 11; see Appendix B for all figures). With each unit increase in family socioeconomic status, there was a corresponding 0.02% increase in parental school involvement.

Summary

In sum, the HLM results indicated that Latino/a parental home and school involvement varied within schools and between schools. Parental home involvement was positively associated with student gender, prosocial behavior, and academic achievement. Parental school involvement was positively associated with student gender, problem behavior, prosocial behavior, academic achievement, and family socioeconomic status. Neither school percentages of Latino/a students nor low-income students were significant moderators of parental home or school involvement. In the next chapter, I will interpret the results and discuss the implications of the findings for educators and policy makers.

CHAPTER IV

DISCUSSION

Research suggests that parental involvement is an important protective factor during middle school, a developmental period characterized by rapid changes in biology, cognition, relationships, and contexts (Smetana et al., 2006; Steinberg & Morris, 2001; Wigfield, Lutz, & Wagner, 2005). Although parental involvement is related to middle school students' academic achievement and other positive outcomes, parental involvement generally declines during this developmental period (Jeynes, 2007). At the same time, middle school students' problem behavior increases while academic achievement and prosocial behavior decrease (Wang et al., 2011). Ecological and social interaction learning models posit that parents and students influence each other's behaviors in a bidirectional process. In addition, environmental factors can indirectly impact student outcomes by affecting parents' capacities to be involved in their children's education (Martinez et al., 2004; Reid et al., 2002). Latino/as are among the fastest growing minority groups in the United States, yet limited research has focused on factors associated with Latino/a parental involvement. The purpose of this study is to examine student, family, and school factors associated with Latino/a parental involvement in the middle school learning environment.

Data were drawn from the effectiveness study of the Positive Family Support program. The sample consisted of 1,884 Latino/a 6th grade students from 40 middle schools in Oregon. HLM analyses were conducted to examine parental home and school involvement separately. Three HLM models were applied to (a) explore the variance of parental involvement within and between schools, (b) examine the association of level 1

variables with parental involvement, and (c) explore whether school level variables moderate the average parental involvement across students and across schools. This chapter will focus on the results of the multilevel analysis of Latino/a parental involvement. I will discuss the contribution of the findings to the ecological model, the social interaction learning model, and the critical mass theory of diversity. I will end this chapter by discussing the strengths and limitations of the study and implications for educators and policy makers.

Frequency of Parental Involvement

Descriptive statistics provide some insight into the frequency of Latino/a parental involvement. The results show that most Latino/a parents are involved at home and at school. The majority of students reported their parents engaged in at least one form of parental home involvement (99%) and parental school involvement (90%) during the school year. The frequency of Latino/a parental home involvement found in this study is in some cases, more than or equal to the national average of middle school parental home involvement. For example, the national study found that 80% of parents indicated that they talk regularly about school with their children and 45% of parents indicated that they check homework often (Epstein & Lee, 1995). In this study, Latino/a students reported that 82.5% of parents made time to talk about their children's day and 68.9% of parents check homework often, always, or almost always. The frequency of Latino/a parental home involvement may be related to cultural values of colectivismo and familismo, which emphasize family cohesion, mutual support, and interconnectedness between family members (Lugo Steidel & Contreras, 2003). The frequency of Latino/a parental school involvement is also similar to the national average of middle school parental

school involvement. For example, the national study found that 71% of parents reported that they attended a parent teacher conference (Noel et al., 2013). In this study, Latino/a students reported that 74.2% of parents attended a parent teacher conference or open house. This finding challenges previous research that found Latino/a parents are less involved at school compared to White parents (e.g., Delgado-Gaitan, 1991).

Parental Home Involvement

Contrary to the hypothesis, the results show that parental home involvement varies both between and within schools. However, the variance between schools, although significant, is small (2%). The remaining 98% of the variance is within schools. Although significant variances exist between schools in Latino/a parental home involvement, school factors examined in this study were not significant moderators of the average parental home involvement across students and across schools. This finding aligns with previous research indicating that school factors have limited impact on parental involvement at home (Feuerstein, 2000; Grolnick et al., 1997).

Results from the HLM models partially supported the hypothesis that student and family factors are associated with student perceived parental home involvement. Gender, prosocial behavior, and academic achievement are significantly associated with student perceived parental home involvement. Controlling for all other factors, Latino/a parents are more involved with boys than girls. Students who report higher prosocial behavior and academic achievement are likely to report higher parental home involvement. Gender role socialization in the Latino/a culture may explain the gender differences in parental home involvement. Qualitative research suggests that Latino/a parents expect Latina girls to remain in the home. Therefore, parents are reluctant to support girls to pursue

education that may take them away from the family (McWhirter et al., 2013). In contrast, Latino/a parents may expect boys to take on the future financial burden of the family and are more supportive of boys' pursuit of education.

Although limited research focused on Latino/a families have examined the association between student prosocial behaviors and academic achievement on parental home involvement, research on the general population has found similar patterns (Keith & Lichtman, 1994; Miklikowska et al., 2011; Padilla-Walker et al., 2012). Research suggests that students' prosocial behavior and academic achievement may increase closeness of the parent-child relationship, decrease levels of conflict, increase parents' expectations, and encourage further parental involvement (Dotterer, et al., 2008; Englund et al., 2004; Lewis, 2014). Findings from this study suggest that the positive connections between student prosocial behavior, academic achievement, and student perceived parental involvement are also present in Latino/a families. This connection between student behaviors and parental home involvement may be related to the cultural values of colectivismo and familismo (Carlo et al., 2014; Ceballo et al., 2014; Dumka et al., 2009).

Problem behavior and family socioeconomic status were not found to be significantly associated with student perceived parental home involvement. Although research on the general population suggests that parents respond to increased problem behavior by pulling away from their children (Dishion et al., 2004; Grolnick et al., 1996; Marshall et al., 2005), the findings from this study indicate that problem behavior is not associated with student perceived Latino/a parental home involvement. The lack of relationship between problem behavior and parental home involvement may reflect the Latino/a cultural values of familismo. In Latino/a families that value close relationships

with each other and perceive family members as extensions of the self, parents may react to increased problem behavior with attention and care rather than withdrawal (Keefe & Padilla, 1987; Sabogal et al., 1987).

The finding that family socioeconomic status is not significantly associated with student perceived parental home involvement has been supported by previous research suggesting that parents from low-income backgrounds are just as involved at home as parents from economically privileged backgrounds (Grolnick et al., 1997). Latino/a parents may be able to engage with their children's education at home regardless of socioeconomic status because home involvement poses fewer class-based barriers than school involvement. This may be an encouraging finding given that Latino/a families are disproportionally represented among the working poor (Pew Research Center, 2011) and points to the resilience of Latino/a families despite socioeconomic adversity.

Parental School Involvement

Results from this study support the hypothesis that student perceived parental school involvement varies both between and within schools. Although the average parental school involvement varies significantly between schools, the variance is small (2%). This suggests that Latino/a parental school involvement may be largely explained by student and family factors. Although significant variances exist between schools in parental school involvement, school factors examined in this study are not significant moderators of the average parental school involvement across students and across schools. Results from HLM models support the hypothesis that student and family factors are associated with student perceived parental school involvement. Student gender,

problem behavior, prosocial behavior, academic achievement, and family socioeconomic status are significantly associated with student perceived Latino/a parental involvement.

Controlling for all other factors, parents are more likely to be involved in school with boys than girls. While the original hypothesis was that parents are more involved at school with girls than boys, the result showed that parents are more involved with boys than girls. Similar to parental home involvement, gender role socialization may explain the gender differences found in student perceived parental school involvement.

The finding that problem behavior was positively associated with student perceived parental school involvement was unexpected. Research with the general population suggests that student problem behavior can negatively impact parental involvement (Dishion et al., 2004; Grolnick et al., 1996; Marshall et al., 2005). One possible reason for the positive relationship between problem behavior and parental school involvement for Latino/a families may be that Latino/a students, compared to their White peers, are disproportionately punished in school for their misbehavior (Peguero & Shekarkhar, 2011). Consequently, compared to White parents, Latino/a parents may be contacted more often by schools regarding their children's problem behavior and are therefore more likely to be involved at school. Another possible explanation may be that Latino/a parents, rather than withdrawing from their children with problem behavior, react to problem behavior with increased attention and involvement in school (McNeal, 2012).

The finding that prosocial behavior and academic achievement are significantly associated with student perceived parental school involvement is consistent with previous research (Miklikowska, et al., 2011; Padilla-Walker et al., 2012). Similar to the

relationship with parental home involvement, research suggests that students' prosocial behavior and academic achievement have a positive reciprocal relationship with parenting practices (Shumow & Miller, 2001) and may be related to Latino/a cultural values of colectivismo and familismo (Carlo et al., 2014; Ceballo et al., 2014; Dumka et al., 2009).

Results show that family socioeconomic status is significantly associated with student perceived Latino/a parental school involvement. This finding aligns with previous research suggesting low-income status can be a significant barrier to parental school involvement (Altschul, 2012; Hoover-Dempsey et al., 2005; Olivos, 2006). The family-stress model (Conger et al., 1994) and the family-investment model (Mayer, 1997) posit that parents' wellbeing, time, attention, positive parenting strategies, and financial resources increase with family socioeconomic status. Latino/a parents from low-income backgrounds may be less able to take time off work to be involved during school hours (Hoover-Dempsey et al., 2005; Olivos, 2006) and may have fewer cultural capital to navigate the school system (Lareau, 1987, 1989). In the next two sections, I will discuss the contribution of this study to the ecological model, social interaction learning model, and the critical mass theory of diversity.

Ecological and Social Interaction Learning Models

Findings from this study offer support for the ecological and social interaction learning models of child development. In this study, student and family factors are found to be significantly associated with Latino/a parental home and school involvement. Together with previous research, this suggests that parents and children influence each other's behaviors, perhaps in a bidirectional process (Grolnick et al., 1997; Reid et al.

2002; Rogers et al., 2009). Family socioeconomic status, an environmental factor, can also impact parents' abilities to be involved in their children's education (Martinez et al., 2004). Future research can expand upon this study to examine other family and school factors that impact Latino/a parental involvement.

Critical Mass Theory of Diversity

At first glance, findings from this study cast doubt on the theory that a critical mass of Latino/a students can positively impact Latino/a parental involvement. However, a deeper look at the critical mass theory may suggest an alternative explanation. The concept of critical mass in diversity is borrowed from nuclear physics (Elam, Stratton, Hafferty, & Haidet, 2009). Critical mass in nuclear physics is defined as the numerical measurement of a fissile material that can create and sustain a chain reaction. The calculation of critical mass includes a variety of interdependent variables. Drawing a parallel to the critical mass theory of diversity, educators need to take into consideration the number of minority students that is necessary to create substantive change in schools and other complex interdependent variables (e.g., acculturation, ethnic identity development, perceived discrimination, stereotype threat, minority stress, social networks, cross-racial interactions, teacher multicultural and bilingual competencies, multicultural pedagogy, representation in leadership, support of administrators, positive racial climate, etc.). Instead of focusing on critical mass as a demographic number, Garces and Jayakumar (2014) suggest using *dynamic diversity* to capture both the representation of minority students and a welcoming school climate that addresses tokenism, engagement, and positive learning experiences. Applying the concept of dynamic diversity to the current study of Latino/a parental involvement in middle school,

the percentages of Latino/a students may be one of many indicators of a diverse and inclusive environment.

The middle school context provides a unique opportunity to examine the theory of dynamic diversity. The Oregon middle schools in this sample are diverse in the demographic representation of Latino/a students. One possible reason for the non-significance of these school demographic factors may be that schools with large percentages of minority students have varying levels of inclusive environments and practices. Some schools that have a large number of Latino/a students may be very well prepared to address the diverse needs of its student body and may have implemented effective strategies to collaborate with parents. In contrast, other schools that have similar demographic make-up may not be prepared to serve diverse families, which may then result in the alienation of parents from schools. Varying levels of inclusive climate and methods of collaborating with Latino/a parents may explain the fact that Latino/a student and low-income student representation by themselves are not significant moderators of parental involvement between schools. Future studies can apply the theory of dynamic diversity to Latino/a parental involvement in the middle school context and include multidimensional assessments of student representation, school climate, and initiatives to collaborate with and empower parents. A deeper understanding of the dynamic diversity of the middle school context may help educators maximize the benefits of diverse representation of minority families.

Strengths and Limitations

One of the strengths of this study is the focus on Latino/a middle school students and parents from the state of Oregon. Studies that examine parental involvement for

Latino/a parents in the middle school learning environment are scarce, and research that includes Oregon Latino/a families is even more rare. The current study fills the gap in the literature on Oregon Latino/a middle school parents and students. In addition, this study went beyond the White-Latino/a comparison (Fuller & García Coll, 2010) to provide evidence that both supported and challenged previous research findings about Latino/a parental involvement.

Another strength of this study is the examination of multilevel ecological factors of parental involvement from the person-process-context perspective (Bronfenbrenner, 1986). Specifically, this study tested multiplicative effects of student characteristics and behavior, family socioeconomic status, and school representation of minority populations on Latino/a parental involvement. A multilevel analysis can provide rich information on the interactions at the individual, micro-, and meso-systemic levels of the ecology that is often neglected in research that use a social address perspective (Bronfenbrenner, 1986).

A number of limitations to the study are present. First, the final HLM models for parental home and school involvement explain only 13% and 6% of the variance, respectively. This indicates that a number of other ecological factors may be significantly associated with Latino/a parental involvement, such as immigration status, immigration generation, national origin, language ability of parents and students, acculturation, stages of ethnic identity development, family structure, gender of parents, teacher attitudes, school invitations and opportunities for involvement, parent vs. school initiated contact, school climate, parental involvement interventions, school policy, etc. (Dumka et al., 2009; Hoover-Dempsey & Sandler, 1997; Plunkett & Bámaca-Gómez, 2003; Rogers et

al., 2009). Future research can examine these factors and their impact on Latino/a parental involvement.

Second, a number of factors limited the generalizability of the findings to all Latino/a students and parents. As mentioned in the Introduction, the use of the term "Latino/a" as a pan-ethnic category precludes the examination of intra-group differences. Previous studies show that parental involvement can vary across countries of origin (De Von Figueroa-Moseley, Ramey, Keltner & Lanzi, 2006) and acculturation stress (Santiago et al., 2014). In addition, the surveys were provided only in English, which excluded students who have limited English proficiency. Moreover, the sample from this study is a subsample of the effectiveness study of the Positive Family Support program. As such, the results of this study have limited generalizability to all Latino/a students and parents in middle school. Future research can utilize random selection in sampling to maximize external validity, employ translated measures to include a more representative sample of Latino/a students and families, and examine intra-group differences of parental involvement within Latino/a communities.

Third, this study measured parental involvement through student reports. On the one hand, student report of parental involvement can be valid sources of information. Previous research suggests that student report of parental involvement matches data from parent and administrator reports (Epstein & Lee, 1995). Student reports may be less biased than parent reports because students are less likely to respond in socially desirable ways (Cottrell et al., 2003). In addition, student reports take into consideration the student perspectives of their parents' involvement (Carranza et al., 2009) and may be more predicative of student reported outcomes (West et al., 2011). On the other hand, students

may over- or under-report their parent's involvement, perhaps due to the quality of the parent-child relationship, parent-child communication, gender role expectations, and contextual variations. Future research can use a multi-informant approach to provide an accurate assessment of Latino/a parental involvement.

Fourth, parental home and school involvement were analyzed separately in this study. Research suggests that parental involvement is a multidimensional construct (Fantuzzo et al., 2004; Hill & Tyson, 2009; Spera, 2005). Future research can use a multidimensional measure of parental involvement and apply multivariate linear mixed modeling to analyze multiple indicators of parental involvement concurrently (Garson, 2013). In addition, parenting practices such as academic socialization, expectations, aspirations, and encouragement were not included in this study. Future research can include additional parenting practices in the measure of parental involvement (Keith & Lichtman, 1994).

Related to the multidimensional conceptualization of parental involvement, the conceptualization of Latino/a parental involvement in this study is centered upon schools' goals and agendas, which are based on White and middle class values (Baquedano-López, Alexander, & Hernandez, 2013; Lareau, 1987, 1989). In contrast, empowerment approaches conceptualize parental involvement from a strengths-based perspective and include cultural wealth and knowledge from parents and communities (Larrotta & Yamamura, 2011). Latino/a parental involvement can be expanded to include school-based parent organizing, community organizing, critical consciousness, and transformative actions (Baquedano-López et al., 2013; Freire, 1970; Olivos, 2004).

Additional research is needed to examine Latino/a parental involvement from decolonial and empowerment approaches (Baquedano-López et al., 2013).

Fifth, the percentage of English language learners is excluded from both HLM analyses due to the almost perfect correlation of this variable with the percentage of Latino/a students. This indicates that schools that have a high percentage of Latino/a students are likely to have a high percentage of English language learners. The unique impact of English language learner and minority student population can be teased out in future research.

Finally, due to the cross sectional design of this study, causal claims cannot be made based on the findings. Past research provided evidence that student behaviors can impact parenting practices. However, the reciprocal influence between students and parents remains less understood. Future research may use a longitudinal design to examine the reciprocal influence of student, family, and school factors on Latino/a parental involvement across time and development.

Implications

Results of this study may have important implications for educators and policy makers. Descriptive statistics show that Latino/a families are just as involved, and maybe more so in some areas, when compared to national patterns of parental involvement during middle school. This finding challenges the assumption that Latino/a parents are detached or lack commitment to their children's education (Delgado-Gaitan, 2004; Suárez-Orozco et al., 2010a; Walker et al., 2011). Educators may consider switching their focus from increasing the quantity of Latino/a parental involvement to increasing the

quality of teacher-parent collaborations (Froiland & Davison, 2014; Pomerantz et al., 2007; Rafter, Grolnick, & Flamm, 2012).

The results from the HLM analyses indicate that much of the contributing factors to Latino/a parental involvement reside with the students and parents. However, educators and policy makers can do much to influence parental involvement at the school and policy level (Park & Holloway, 2013). The responsibility for promoting Latino/a parental involvement need to be shared between school and home (Hoover-Dempsey et al., 1987). Qualtitative studies have indicated divergent perceptions and expectations of parental involvement between Latino/a parents and educators (Zarate, 2007). As mentioned previously, the dominant conceptualization of parental involvement does not take into consideration alternative forms of parental involvement that may be more aligned with the cultural values of Latino/a families (Baquedano-López et al., 2013; Olivos, 2006). Expanding the definition of Latino/a parental involvement may bolster the opportunities for Latino/a parents to be involved.

Finally, the finding that student factors are associated with Latino/a parental involement indicates the need to tailor school-wide parental involvement interventions to the unique student characteristics and strengths of each family. Interventions that are created for the general school population may reach the majority of families but miss the students and parents most underserved and in need of support (Walker, Shenker, & Hoover-Dempsey, 2010). Most student factors that influence Latino/a parental involvement are within teachers' and schools' spheres of influence. Most research on parental involvement focus on the influence of parenting practices on student outcomes. As a result, interventions to increase Latino/a parental involvement have predominantly

targeted parenting practices (e.g., Greenwood & Hickman, 1991; Olvera & Olvera, 2012; Walker et al., 2010). However, the results of this study indicate that an indirect approach to promoting parental involvement may be through targeting students' behaviors and performances with the aim of stimulating a positive cycle of parent-child bahavioral change.

Conclusion

In conclusion, this study provides evidence for multiple ecological factors associated with Latino/a parental involvement in the middle school learning environment. Results demonstrate that Latino/a parents are involved in their children's education at similar rates as national patterns of parental involvement in middle school. Latino/a parental home and school involvement varies within schools and between schools. Latino/a parents are more likely to be involved at home and at school with boys than with girls. Student reported parental home involvement increases with student prosocial behavior and academic achievement. Student reported parental school involvement increases with problem behavior, prosocial behavior, academic achievement, and family socioeconomic status. Percentages of Latino/a students and low-income students in schools are not significant moderators of average parental home or school involvement.

Overall, results suggest that Latino/a families could benefit from school-based family interventions tailored to students and parents to increase parental involvement. Family interventions may stimulate a positive cycle of behavioral change for students and parents. Given the critical role of parents in Latino/a student success, more research is needed to understand factors that promote or hinder Latino/a parental involvement in the middle school learning environment.

APPENDIX A

MEASURES

Student Measures

Gender

1. What is your gender? O Female O Male

Race/Ethnicity

3. Which best describes your race/ethnicity? (Check all that apply)

O American Indian or Native American O White or Caucasian O Asian

O Hispanic or Latino O Native Hawaiian or Pacific Islander

O Black or African American O Other: _____

Family socioeconomic status

6. How much money does your family have?

O Not enough to get by O We only have to worry about money for fun and extras

O Just enough to get by O We never have to worry about money

Academic achievement

37. During the most recent grading period how were your grades?

O Mostly As O Mostly Bs O Mostly Cs O Mostly Ds O Mostly Fs O Not in school

Problem behavior (Strengths and Difficulties Scale; Goodman, Melzer, & Bailey, 1988)

How true are each of the following statements, based on how things have been for you over the past six months?

81. I get very angry and often lose my temper.	O Not true O Somewhat true O Certainly true
82. I usually do as I am told.	O Not true O Somewhat true O Certainly true
83. I worry a lot.	O Not true O Somewhat true O Certainly true
85. I fight a lot. I can make other people do what I want.	O Not true O Somewhat true O Certainly true
89. I am often accused of lying or cheating.	O Not true O Somewhat true O Certainly true
91. I take things that are not mine from home, school, or elsewhere.	O Not true O Somewhat true O Certainly true

Prosocial behavior (Strengths and Difficulties Scale; Goodman, Melzer, & Bailey, 1988)

How true are each of the following statements, based on how things have been for you over the past six months?

78. I try to be nice to people; I care about their feelings.	O Not true O Somewhat true O Certainly true
80. I usually share with others (for example, CDs, games, or food).	O Not true O Somewhat true O Certainly true
84. I am helpful if someone is hurt, upset, or feeling ill.	O Not true O Somewhat true O Certainly true
88. I am kind to younger children.	O Not true O Somewhat true O Certainly true
90. I often offer to help others (for example, parents, teachers, or children).	O Not true O Somewhat true O Certainly true

Parental home involvement (modified Caretaking and Family Routines from CASEY; Metzler, Biglan, Ary, & Li, 1998)

How often does at least one of your parents…

55. make sure that you get up on time for school?	O Never or almost never O Sometimes O Often O Always or almost always
56. check that you have everything you need for school?	O Never or almost never O Sometimes O Often O Always or almost always
57. check in with you after school?	O Never or almost never O Sometimes O Often O Always or almost always
58. check to see if you have homework?	O Never or almost never O Sometimes O Often O Always or almost always
59. make time to talk with you about your day?	O Never or almost never O Sometimes O Often O Always or almost always
60. help you with your school work?	O Never or almost never O Sometimes O Often O Always or almost always
61. make sure that you are in bed on time?	O Never or almost never O Sometimes O Often O Always or almost always

Parental school involvement

During this school year, how often have your parents done the following?

43. Called your teacher.	O Not at all O Once O 2-3 times O Monthly O Weekly or more
44. Written a note or e-mail to a teacher.	O Not at all O Once O 2-3 times O Monthly O Weekly or more
45. Stopped by to talk to a teacher at your school.	O Not at all O Once O 2-3 times O Monthly O Weekly or more
46. Attended a special event at your school.	O Not at all O Once O 2-3 times O Monthly O Weekly or more
47. Attended or organized an activity or sporting event with you.	O Not at all O Once O 2-3 times O Monthly O Weekly or more
48. Attended a parent-teacher conference or open house.	O Not at all O Once O 2-3 times O Monthly O Weekly or more

APPENDIX B

FIGURES AND TABLES

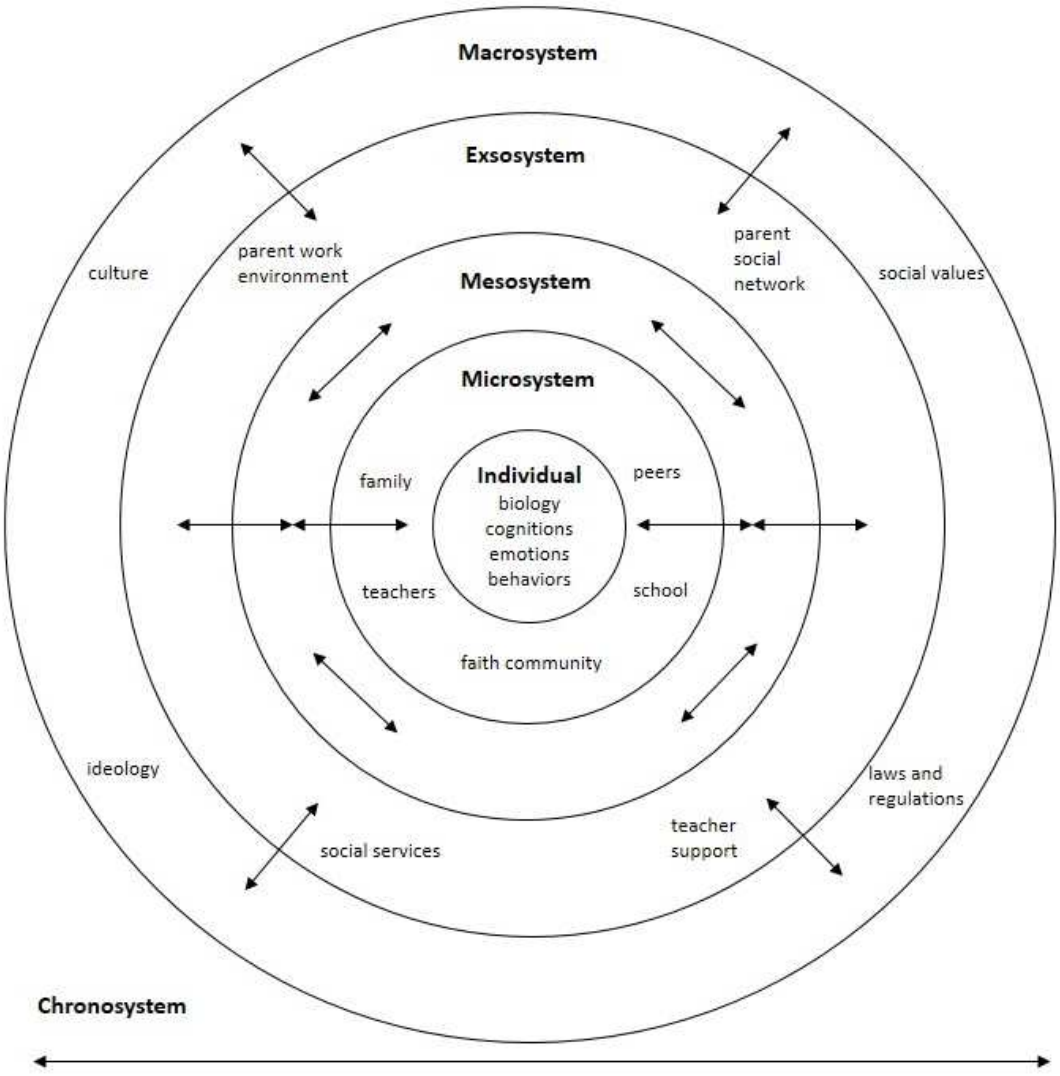

Figure 1. Ecological model. This figure illustrates the elements in and relationships between ecological systems.

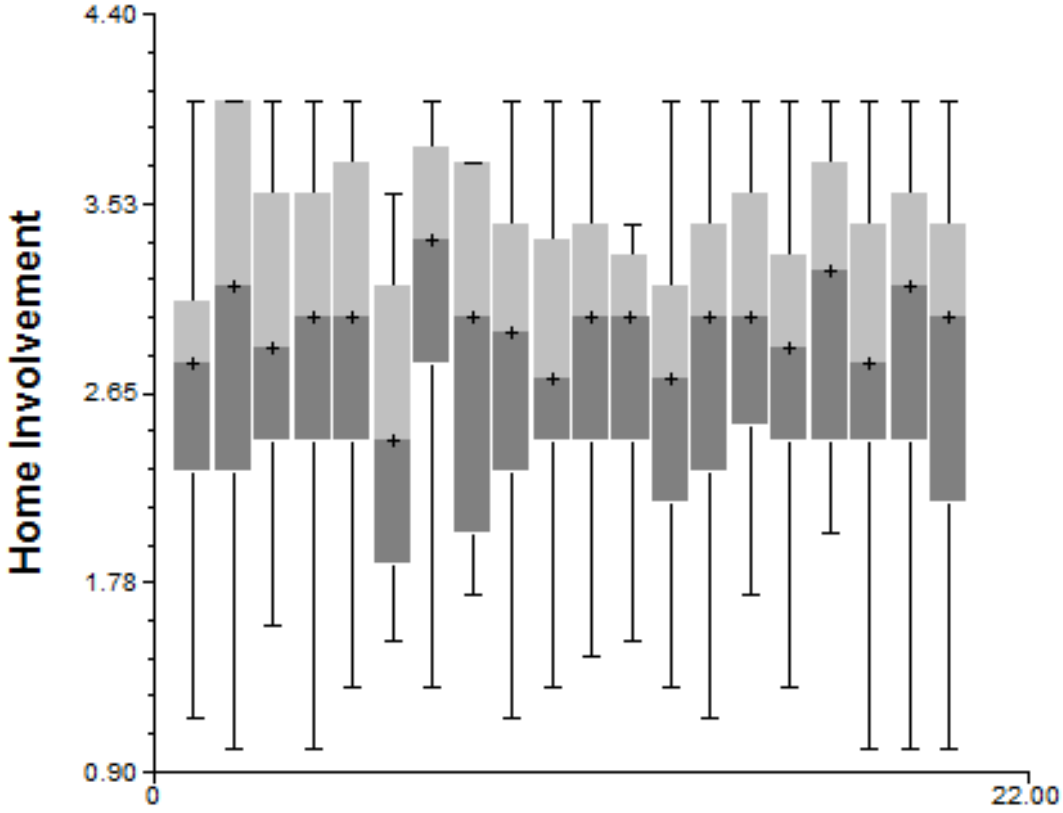

Figure 2. Box-whisker plot of parental home involvement in a random sample of 20 schools.

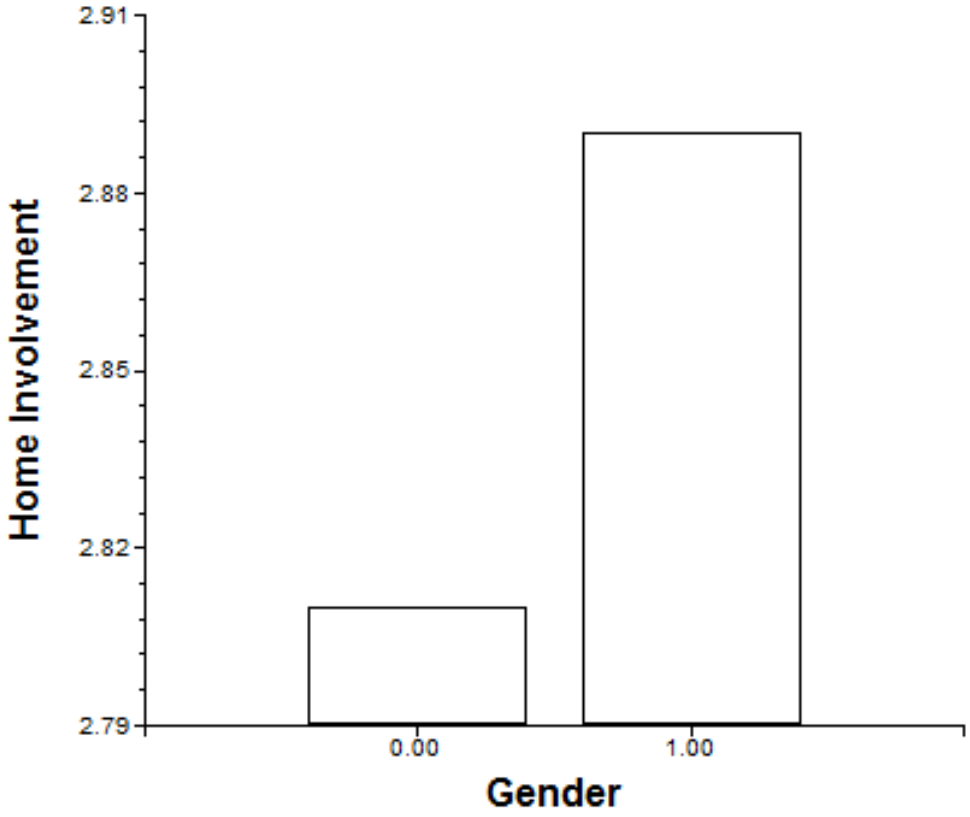

Figure 3. Level 1 bar graph of the relationship between parental home involvement and gender, where 0 = girls and 1 = boys.

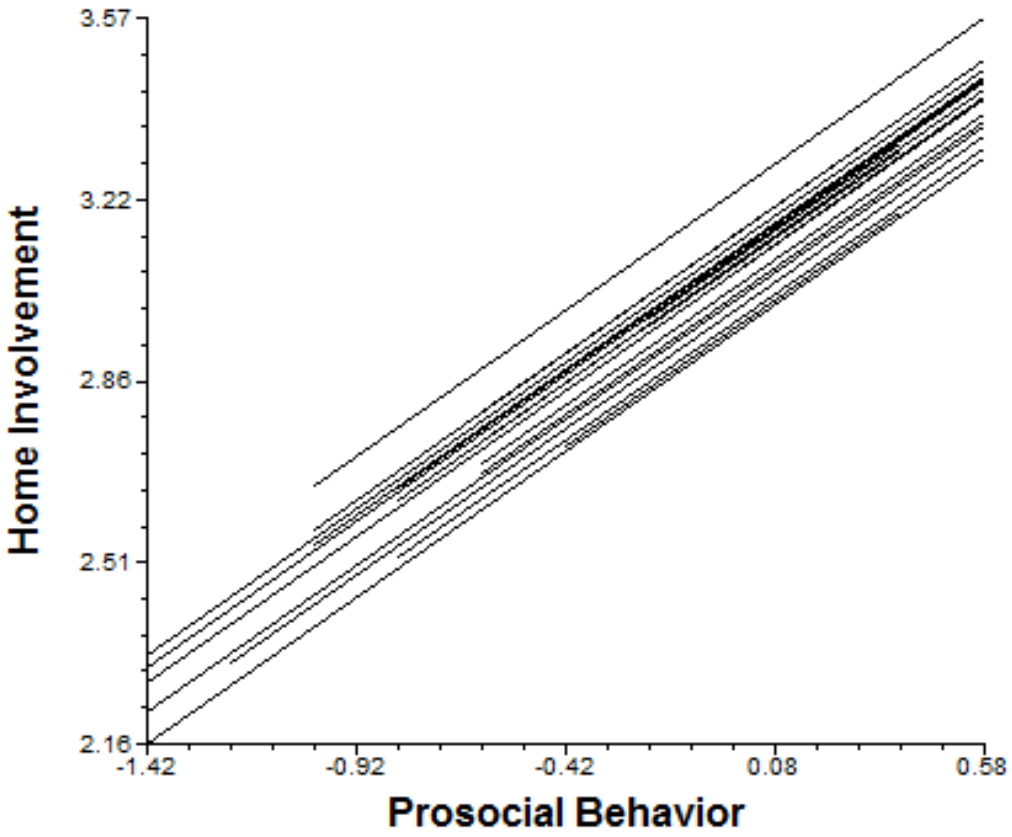

Figure 4. Level 1 equation graph of the relationship between parental home involvement and prosocial behavior in a random sample of 20 schools.

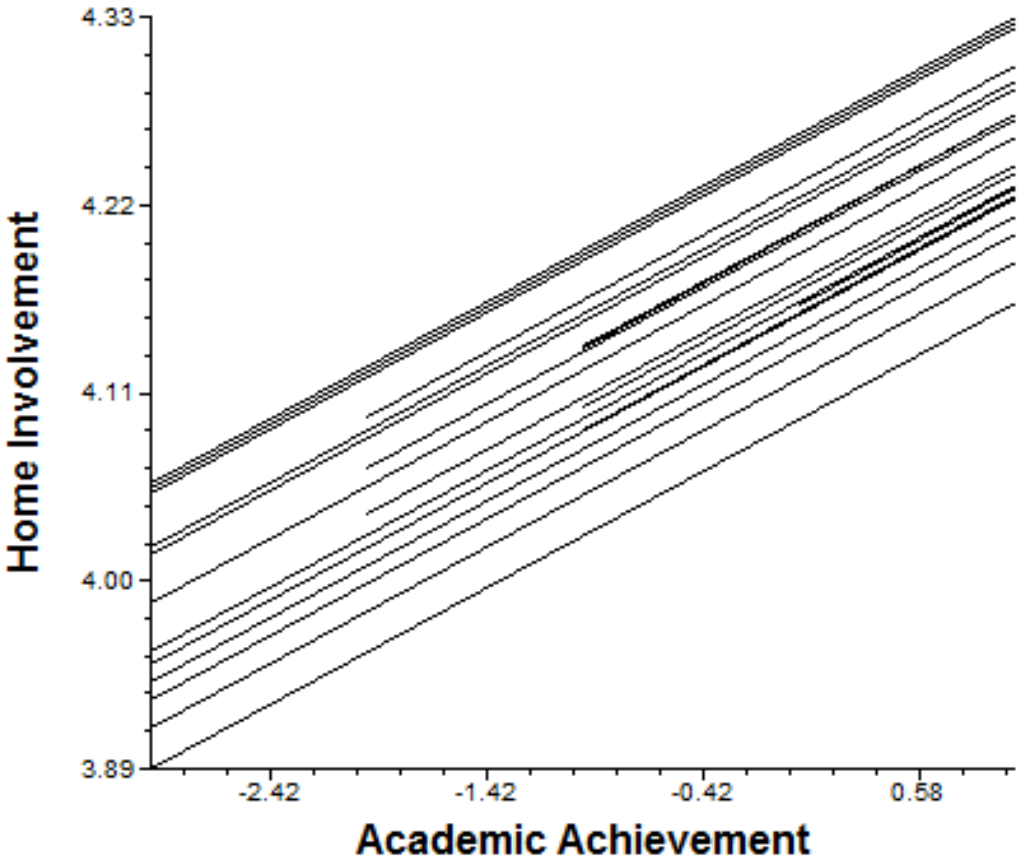

Figure 5. Level 1 equation graph of the relationship between parental home involvement and academic achievement in a random sample of 20 schools.

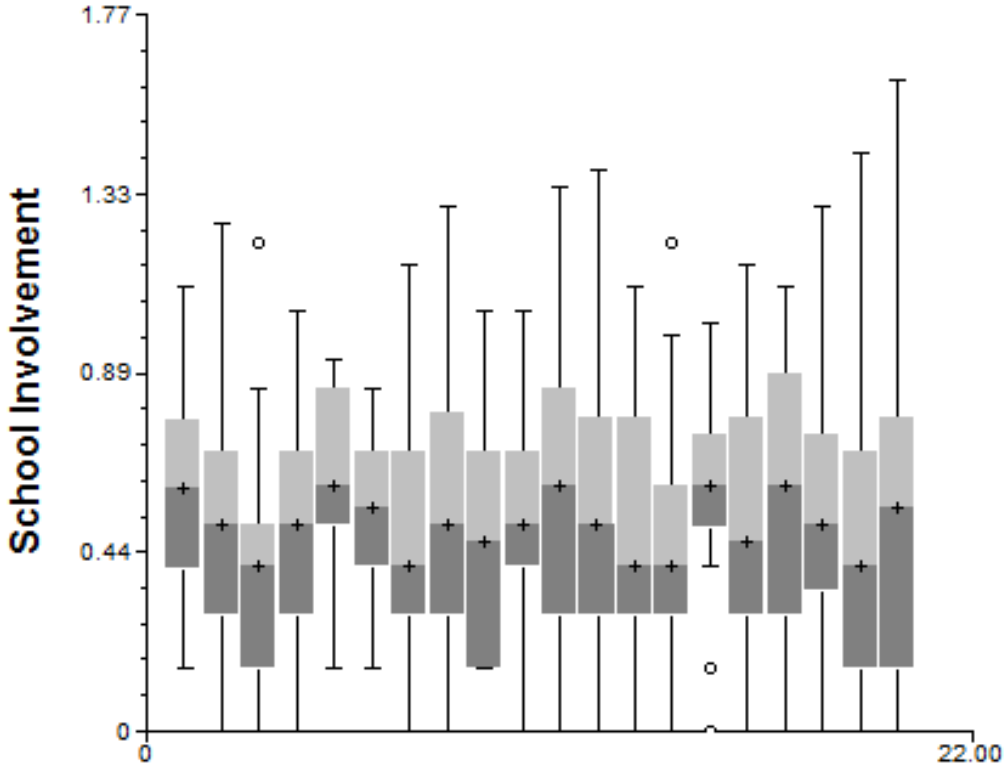

Figure 6. Box-whisker plot of parental school involvement in a random sample of 20 schools.

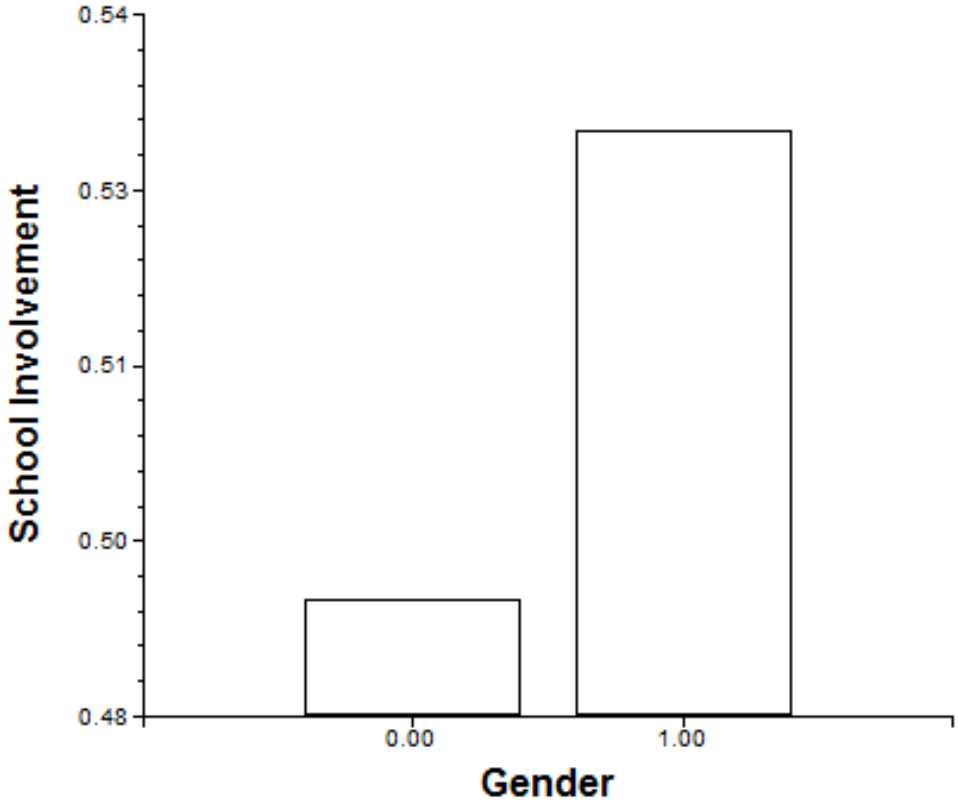

Figure 7. Level 1 bar graph of the relationship between parental school involvement and gender, where 0 = girls and 1 = boys.

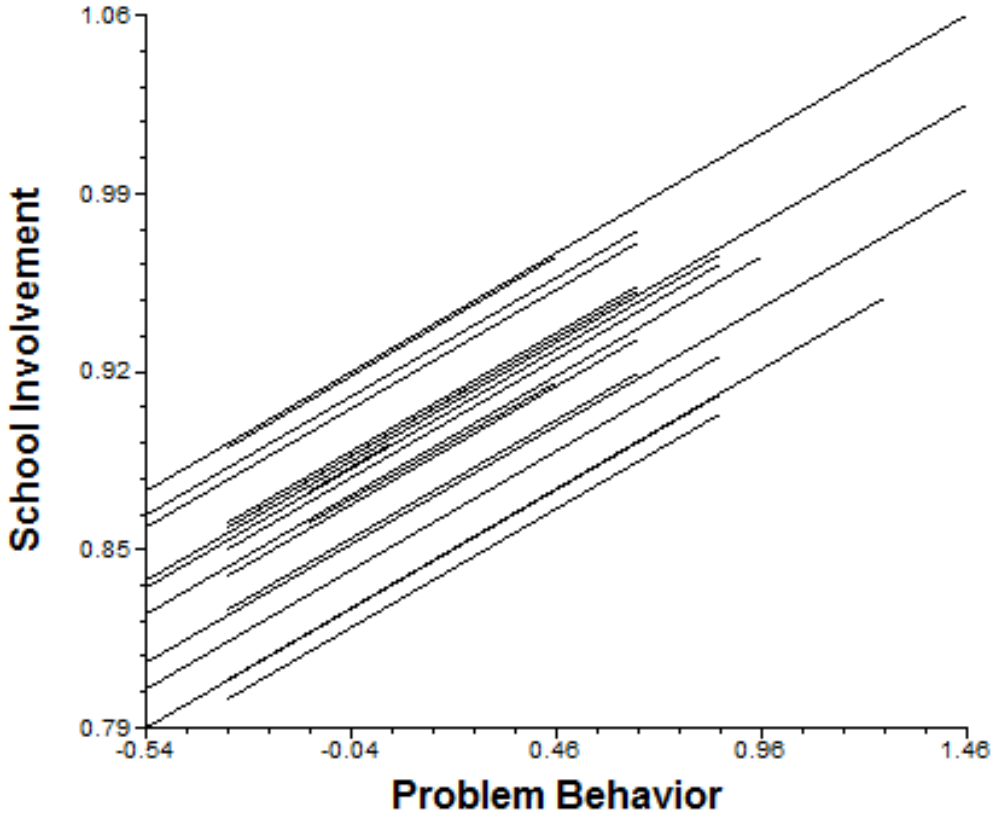

Figure 8. Level 1 equation graph of the relationship between parental school involvement and problem behavior in a random sample of 20 schools.

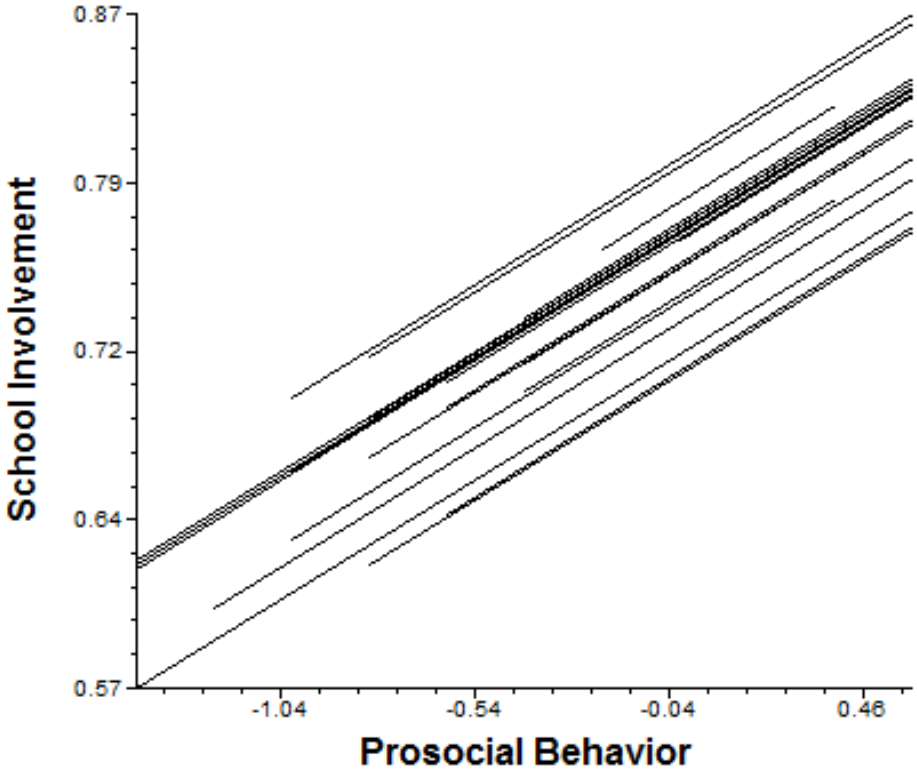

Figure 9. Level 1 equation graph of the relationship between parental school involvement and prosocial behavior in a random sample of 20 schools.

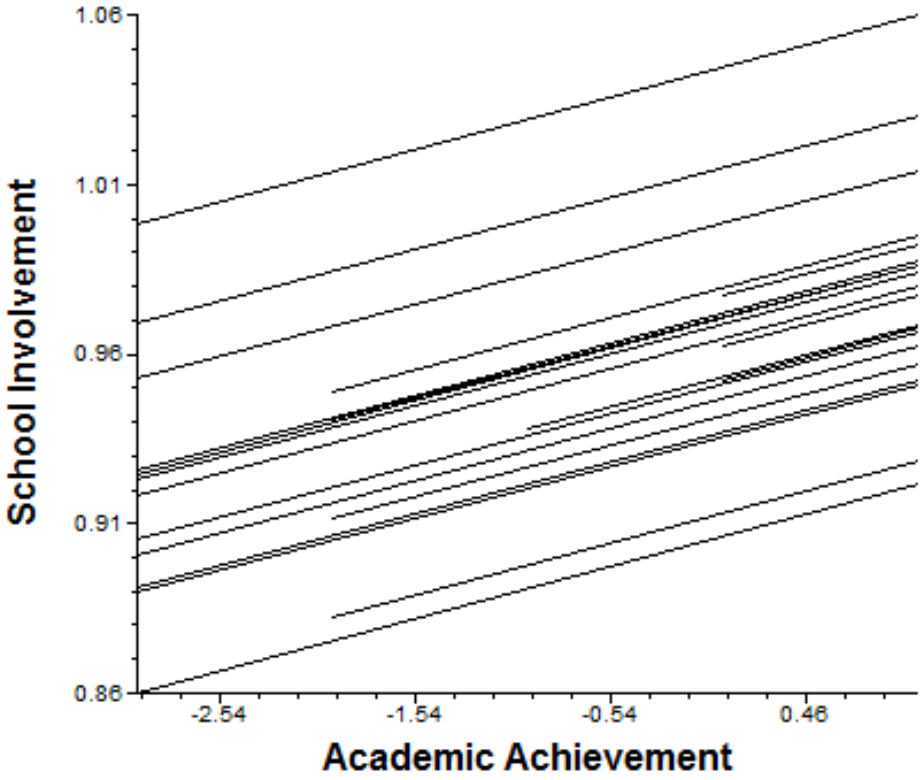

Figure 10. Level 1 equation graph of the relationship between parental school involvement and academic achievement in a random sample of 20 schools.

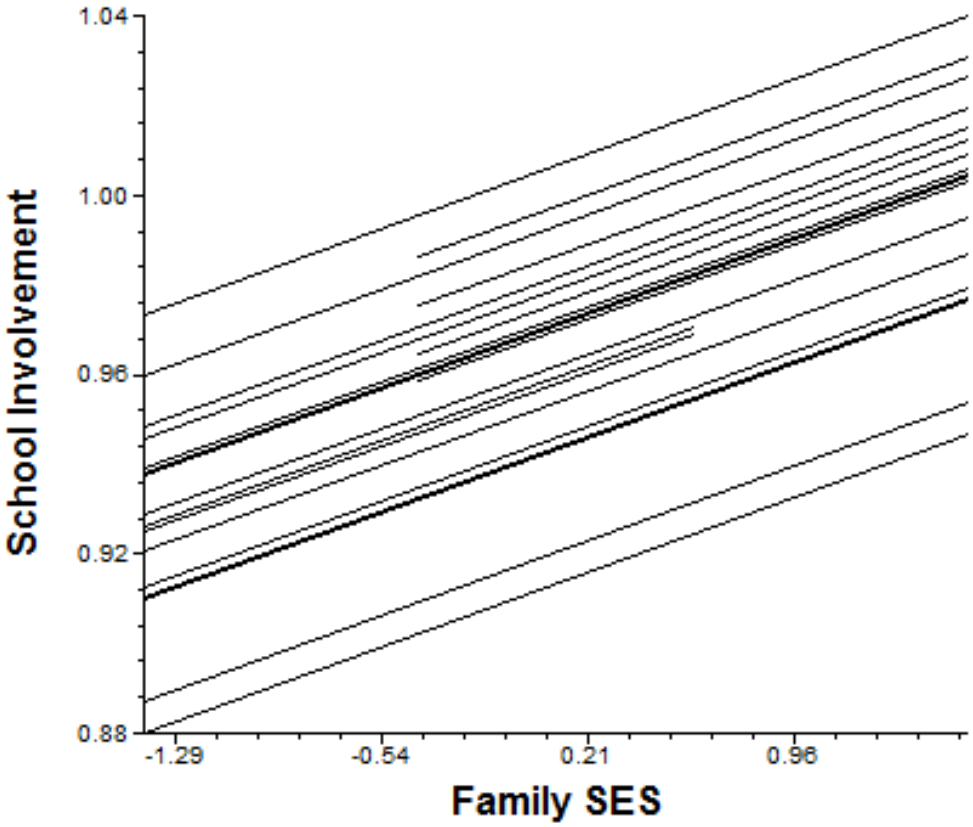

Figure 11. Level 1 equation graph of the relationship between parental school involvement and family socioeconomic status in a random sample of 20 schools.

Table 1

Study Variables and Measures

Variable	Measure
Level 1	
Ethnicity	Positive Family Support Student Survey item
Gender	Positive Family Support Student Survey item
Problem behavior	Strength and Difficulties Scale
Prosocial behavior	Strength and Difficulties Scale
Academic achievement	Positive Family Support Student Survey item
Family socioeconomic status	Positive Family Support Student Survey item
Parental school involvement	Positive Family Support Student Survey items
Parental home involvement	Monitoring Scale, Caretaking and Family Routines Scale
Level 2	
Percentage of Latino/a students	Oregon Department of Education Report Card
Percentage of English language learners	Oregon Department of Education Report Card
Percentage of low-income students	Oregon Department of Education Report Card

Table 2

Level 1 Variables Missing Data

Variable	*N* Missing	Percentage Missing
Gender	13	0.7%
Problem behavior	144	7.6%
Prosocial behavior	138	7.3%
Academic achievement	47	2.5%
Family socioeconomic status	162	8.6%
Parental home involvement	72	3.8%
Parental school involvement	75	4.0%

Table 3

Descriptive Statistics for Level 1 and 2 Variables

Variable	*N*	Mean	SD	Skew	Kurtosis
Level 1 variables					
Gender	1,871	0.49	0.50	0.02	-2.00
Problem behavior	1,740	1.54	0.29	1.04	1.62
Prosocial behavior	1,746	2.42	0.41	-0.56	0.08
Academic achievement	1,837	3.97	1.08	-0.95	0.28
Family socioeconomic status	1,722	2.41	0.82	0.54	-0.32
Parental home involvement	1,812	2.86	0.75	-0.32	-0.71
Parental school involvement	1,809	0.51	0.32	0.26	-0.55
Level 2 variables					
Percentage of Latino/a students	40	0.18	0.14	2.43	8.00
Percentage of ELL students	40	0.10	0.12	2.40	7.93
Percentage of low-income students	40	0.58	0.17	0.10	-0.00

Table 4

Pearson's Correlation of Parental Home Involvement Items

Item	1	2	3	4	5	6	7
1. Make sure child get up on time	1	.46**	.33**	.38**	.33**	.32**	.37**
2. Check for everything child need for school		1	.47**	.49**	.45**	.43**	.39**
3. Check in after school			1	.44**	.52**	.42**	.42**
4. Check for homework				1	.46**	.46**	.45**
5. Make time to talk about child's day					1	.56**	.43**
6. Help with school work						1	.42**
7. Make sure child is in bed on time							1

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

Table 5

Frequency of Parental Home Involvement Activities

Item	Never or almost never	Sometimes	Often	Always or almost always
Make sure child get up on time	4.9%	13.1%	20.3%	61.7%
Check for everything child need for school	12.8%	23.0%	26.4%	37.8%
Check in after school	20.2%	22.7%	22.0%	35.1%
Check for homework	10.3%	20.8%	26.0%	42.9%
Make time to talk about child's day	17.5%	31.5%	24.5%	26.5%
Help with school work	18.8%	30.6%	26.5%	24.1%
Make sure child is in bed on time	13.3%	25.4%	23.8%	37.5%

Table 6

Pearson's Correlation of Parental School Involvement Items

Item	1	2	3	4	5	6
1. Called teacher	1	.44**	.40**	.06*	.11**	.13**
2. Written note or emailed teacher		1	.28**	.14**	.21**	.13**
3. Talked to teacher			1	.19**	.16**	.23**
4. Attended special event				1	.41**	.38**
5. Attended or organized activity					1	.29**
6. Parent teacher conference or open house						1

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

Table 7

Frequency of Parental School Involvement Activities

Item	Not at all	Once	2-3 times	Monthly	Weekly or more
Called teacher	64.0%	21.0%	12.9%	1.3%	0.8%
Written note or emailed teacher	69.6%	15.8%	10.9%	2.3%	1.5%
Talked to teacher	63.7%	22.0%	12.1%	1.1%	1.0%
Attended special event	48.9%	24.0%	22.2%	3.0%	2.0%
Attended or organized activity	61.3%	15.2%	12.0%	4.0%	7.5%
Parent teacher conference or open house	27.6%	32.8%	30.8%	5.1%	3.7%

Table 8

Pearson's Correlation of Level 1 Variables

Variable	1	2	3	4	5	6
1. Problem behavior	1	-.04	-.13**	-.01	.05*	.07**
2. Prosocial behavior		1	.17**	.04	.34**	.13**
3. Academic achievement			1	.08**	.15**	.06*
4. Family SES				1	.06*	.07**
5. Parental home involvement					1	.21**
6. Parental school involvement						1

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

Table 9

Pearson's Correlation of Level 2 Variables

Variable	1	2	3
1. Percentage of Latino/a students	1	.91**	.61**
2. Percentage of ELL students		1	.56**
3. Percentage of low-income students			1

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

Table 10

Null Model for Parental Home Involvement

Fixed Effect	Coefficient	Standard Error	*p* Value
Parental home involvement, γ_{00}	2.88	0.03	<0.00
Random Effect	**Variance Component**	**Standard Deviation**	
Intercept, u_{0j}	0.01	0.10	<0.00
Level-1, e_{ij}	0.54	0.74	
Model Comparison Test			
Deviance	4,060.61		

Table 11

Final Model for Parental Home Involvement

Fixed Effect	Coefficient	Standard Error	*p* Value
Intercept, γ_{00}	2.82	0.03	<0.00
Gender, γ_{10}	0.08	0.04	0.03
Problem behavior, γ_{20}	-0.07	0.06	0.27
Prosocial behavior, γ_{30}	0.57	0.04	<0.00
Academic achievement, γ_{40}	0.07	0.02	<0.00
Family SES, γ_{40}	0.02	0.02	0.29
Random Effect	Variance Component	Standard Deviation	
Intercept, u_{0j}	0.01	0.10	0.00
Level-1, e_{ij}	0.48	0.69	
Model Comparison Test			
χ^2	788.91		<0.00
Deviance	3,271.70		

Table 12

Null Model for Parental School Involvement

Fixed Effect	Coefficient	Standard Error	*p* Value
Parental school involvement, γ_{00}	0.51	0.01	<0.00
Random Effect	**Variance Component**	**Standard Deviation**	
Intercept, u_{0j}	0.00	0.04	<0.00
Level-1, e_{ij}	0.10	0.32	
Model Comparison Test			
Deviance	978.49		

Table 13

Final Model for Parental School Involvement

Fixed Effect	Coefficient	Standard Error	*p* Value
Intercept, γ_{00}	0.49	0.01	<0.00
Gender, γ_{10}	0.04	0.02	0.01
Problem behavior, γ_{20}	0.09	0.03	0.00
Prosocial behavior, γ_{30}	0.11	0.02	<0.00
Academic achievement, γ_{40}	0.02	0.01	0.04
Family SES, γ_{40}	0.02	0.01	0.02
Random Effect	Variance Component	Standard Deviation	
Intercept, u_{0j}	0.00	0.05	0.00
Level-1, e_{ij}	0.09	0.31	
Model Comparison Test			
χ^2	230.54		<0.00
Deviance	747.94		

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