A Review of the Influence of Parental Involvement on Secondary School Students' Academic Achievement

Abstract

This article reviews the research literature on the relationship between parental involvement (PI) and academic achievement, with special focus on the secondary school (middle and high school) level. The results first present how individual PI variables correlate with academic achievement, and then move to more complex analyses of multiple variables on the general construct described in the literature. Several promising PI variables are identified, with small to moderate correlations to academic achievement: (a) communication between children and parents about school activities and plans, (b) parents holding high expectations/aspirations for their children's schooling, and (c) parents employing an authoritative parenting style. Findings are then discussed in light of criticisms of the limitations of nonexperimental research (especially the inability to distinguish between correlation and causation), the different effects of children and parent perspectives, and how traditional views of the nature and magnitude of the parental influence on academic achievement have been challenged.

Key words: Academic achievement, parental involvement, parental influence, peer influence, personality.

A Review of the Influence of Parental Involvement on Secondary School Students' Academic Achievement

An important issue in identifying points of leverage in improving students' academic achievement is determining how and to what degree parental involvement (PI) affects student achievement. Such knowledge might inform parenting practices as well as school-based policies, practices, and interventions that involve working with parents. For example, such research might help design and development of interventions that maximize parental involvement where it has been shown to have the most positive and powerful effect. To assist in this endeavor, we reviewed the literature about the types of PI that might have an impact. We found that the literature on PI is quite "knotty"—complex and sometimes contradictory. This review attempts to disentangle the knot by closely examining the current literature on the relationship between PI and academic achievement at the middle and high school levels.

The idea that parental involvement engenders students' academic achievement is intuitively appealing to the point that society in general, and educators in particular, have considered PI an important ingredient for the remedy of many ills in education today. In the 1980s and early 1990s, studies were published that suggested the importance of parental involvement in school. In the mid-1990s, the popular press, policy makers, and school administrators actively advocated PI. Legislation was enacted, such as the Goals 2000: Educate America Act and the reauthorized Elementary and Secondary Education Act (ESEA), which has made parents' involvement in their children's education a national priority (Baker & Soden, 1998). Schools have been encouraged to reexamine their parental involvement policies and programs and to demonstrate innovative approaches in order to obtain federal education dollars.

For example, eligibility for Title I funding is now contingent on the development of agreements where families and schools assume mutual responsibility for children's learning.

Many practitioners and researchers support the policy direction of increased PI in their children's academic lives, yet confusion persists regarding an appropriate definition of PI and the activities, goals, and desired outcomes of various PI programs and policies. Less is known about PI than is commonly assumed. Early studies suggesting the importance of PI are, unfortunately, treated as definitive, regardless of the equivocal nature of the data, and they are used to support the position that virtually all types of PI are important. According to Ho and Willms (1996), PI has been treated too long as a one-dimensional construct.

It is apparent that identifying the influence of PI on academic achievement is complicated by at least three factors: (a) researchers use different definitions for the PI construct; (b) there is a paucity of experimental studies in the PI research literature; and (c) mediating factors and interacting variables in the PI-academic achievement story are often ignored. Any effort to clarify the role of PI in academic achievement must consider these issues.

Purpose

This article examines the research literature on the relationship between PI and academic achievement, with particular focus on the middle and high school level. This review will examine how PI has been defined, describe the relationships between PI variables and academic achievement, attempt to generalize the results, and finally, discuss key areas of controversy and areas for further research.

Methodology

We began this literature review process by gathering and reviewing many books, reviews, meta-analyses, and individual articles. Among the sources we employed toward this end were

EBSCOhost, PsycInfo, ERIC, Google Scholar, the Brigham Library at Educational Testing Service, and the Strozier Library at the Florida State University. The criteria we used to select the final studies for our review included: focus on secondary education, those that presented results in terms of prominent PI variables, and those that studied any mediating factors and interacting variables in the PI-student academic achievement relationship. We omitted qualitative studies or studies that did not meet the specified criteria. The resources we selected for the review included: eight books, three extensive literature reviews, two meta-analyses, five NELS:88 reports (i.e., the National Education Longitudinal Study of 1988, Institute of Education Sciences, n.d.), six longitudinal studies, and more than 50 individual studies reported in journal articles, book chapters, and research reports.

Defining Parental Involvement

Figure 1 depicts the prominent aspects of PI found in the literature. We have grouped these variables into the two main categories of home and school activities.

Figure 1 about here

Many studies examine underlying aspects of PI, yet few do it in exactly the same way (e.g., Baker & Soden, 1998). Such differences make it difficult to assess cumulative knowledge across studies and can also lead to contradictory findings. We will point these out in the results section as they arise.

Literature Review Results

The results of the literature review are presented in terms of how PI variables impact student academic achievement, in two sections: (a) findings around single PI variables, and (b)

findings of large-scale studies that analyze the PI construct in terms of a set of underlying variables.

Single Parental Involvement Variables

In this section, we look at the results of different studies on prominent PI variables, including parent-child discussions about school, parental aspirations and expectations, parenting style, reading at home, checking homework, school involvement, and home rules and supervision.

Parent-child discussions about school. The parent-child discussion variable refers to ongoing conversations between parents and their children concerning school-related activities, programs, near- and long-term school plans, and other academic issues. This variable frequently yields the strongest positive association with academic achievement (e.g., Catsambis, 1998; J. Chen, 2008; Desimone, 1999; Ho & Willms, 1996; Jeynes, 2007; Keith et al., 1993; McNeal, 1999).

One interesting subtlety involving this variable is that talking with one's mother is positively associated with academic achievement, but the association between talking with one's father and academic achievement may depend on ethnicity and also on whether the child or parent is reporting (e.g., Battle, 2002; Dearing, McCartney, Weis, Kreider, & Simpkins, 2004; Desimone, 1999). For instance, talking with one's father shows no correlation to academic achievement when data are collapsed across ethnicities, but talking with fathers for Black and Hispanic children is negatively related to achievement, while for Asian children talking with fathers is positively related to achievement.

Parental aspirations and expectations. Parental aspirations and expectations are often described collectively or used interchangeably in the literature. Taken together, aspirations and

expectations reflect the degree to which parents presume that their child will perform well in school, now and in the future. This variable appears in many PI research studies and is generally shown to have a positive relationship to academic achievement. For example, parental aspirations/expectations is the strongest dimension in the Fan and Chen (2001) meta-analysis examining effects on academic achievement, as well as the strongest predictor in the Singh et al. (1995) structural equation modeling study. Parental expectations also had the largest effect size and was one of the strongest predictors in determining academic achievement in Jeynes' (2007) meta-analysis on PI variables.

To date, of the PI papers we reviewed, the articles and large-scale studies that focus on parental expectations report a positive effect on student achievement. Specifically, Baker and Soden (1998) note that high expectations, coupled with an effective parenting style (i.e., moderate levels of parental support and supervision) are positively related to academic achievement. We now turn our attention to research involving parenting style.

Parenting style. This PI variable is defined as a complex set of behaviors and/or attitudes by which parents demonstrate and communicate the values, behaviors, and standards that their children are expected to adopt. According to various researchers (e.g., Baumrind, 1971; Jeynes, 2007; Maccoby, 2000; Maccoby & Martin, 1983; Paulson, 1994), parenting style may be viewed along two dimensions: responsive and demanding (see Figure 2).

An *authoritative* parenting style is consistently and positively associated with student academic outcomes. This style is characterized by parents who are both responsive and demanding (lower right hand corner of Figure 2). On the other hand, *authoritarian* and *permissive* styles (as well as *indifferent* styles) are negatively related to academic achievement

(Baumrind, 1978; Demo & Cox, 2000; Dornbusch, Ritter, Leiderman, & Roberts, 1987; Maccoby, 2000; Radziszewska, Richardson, Dent, & Flay, 1996).

Figure 2 about here

We examined 28 articles that studied parenting style in some form or another and its relationship to academic achievement. Representative characteristics of parenting style in the literature include authoritative style, joint decision making, PI in children's lives, behavioral supervision, discussion of education with one's children, firm disciplinary practices, permissive (or indifferent) styles, limit setting, strong communication, and maternal and paternal styles. Following are mixed findings in the literature on the variable of parenting style.

Positive association. Authoritative parenting style is characterized by parents who develop and maintain close, warm relationships with their children while at the same time establishing structure and guidelines that are enforced as necessary. This parenting style was referred to in seven articles. They all reported a positive association with student achievement (e.g., Adeyemo, 2005; Aunola, Stattin, & Nurmi, 2000; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Maccoby, 2000) except for one study that showed no effect for first generation Chinese Americans (Chao, 2001). In some studies, parental affective support appeared to be one of the strongest predictors of students' academic achievement (e.g., Deslandes, Bouchard, & St-Amant, 1998; Jeynes, 2007). A *child's* perception of parenting style was referred to in one article, which reported that child perceptions of parenting style, involvement, and teacher/school communication factors strongly predicted school achievement (H-F. Chen, 2009; Marchant, Paulson, & Rothlisberg, 2001). The meta-analysis conducted by Jeynes (2007) showed a

positive association between parental style—defined as supportive, loving, helpful, and maintaining an adequate level of discipline—and academic achievement.

No association or negative association. PI in the form of behavioral supervision has shown either no association or a negative relationship with academic achievement (Catsambis, 1998). For example, firm disciplinary practices were found to be unrelated to a child's academic success (Miliotis, Sesma, & Masten, 1999), based on a sample of 59 6-11 year old African Americans from homeless families. A survey with Korean American adolescents showed that differences in maternal parenting styles did not significantly relate to adolescents' academic achievement (Kim & Rohner, 2002). And McNeal (1999) showed that PI in the form of supervision generally explained behavioral (e.g., truancy) but not cognitive (e.g., science achievement) outcomes, and had greater effects for more affluent White students than for less-advantaged students of any other race. However, Deslandes, Royer, Turcotte, and Bertrand (1997) and J. Chen (2008) found a negative relation between parental supervision and children's achievement.

Other PI variables. Fairly consistent associations between other PI variables and academic achievement include the following:

- *School involvement,* which refers to participation in parent-teacher organizations (PTO) or associations (PTA), community involvement, volunteer work, and so on, has shown a positive association with academic achievement (e.g., Adeyemo, 2005; Keith et al., 1993).
- *Parent-teacher communication*, described as parents' communication with teachers regarding their child's progress, has shown a positive association with students' academic achievement (e.g., Deslandes et al., 1998).

- *Parents checking child's homework* has shown a positive association with academic achievement in some studies (e.g., Adeyemo, 2005; H-F. Chen, 2009; Jeynes, 2007). Other studies, however, have shown a negative association between parents checking their children's homework and academic achievement, while participation in joint learning activities at home has shown a positive association with academic achievement (Tizard, Schofield, & Hewison, 1982).
- *Home supervision and rules* refers to moderate levels of parental support (Jeynes, 2007; Kurdek, Fine, & Sinclair, 1995), and when combined with appropriate monitoring of home-related behaviors, such as television viewing, has shown positive associations with academic achievement (Clark, 1993).
- *Reading at home*, which reflects parental modeling and support of the child's reading along with their provision of a stimulating literacy environment, has shown a positive association with academic achievement (Adeyemo, 2005; H-F. Chen, 2009; Snow, Barnes, Chandler, Goodwin, & Hemphill, 1991).

To summarize, the PI variables in our review of the literature show that there is only a small to moderate association between any individual PI variable and academic achievement. The strongest associations appear to be: (a) discussions about school activities between parent and child (positive), (b) parents' aspirations/expectations for their children (positive), and (c) parental styles, particularly authoritative style (positive) and authoritarian and permissive styles (negative).

While each of the PI variables presented in this section has shown some relationship to students' academic achievement, it is also clear from recent research that the effects are complex. For instance, studies have found interactions between some of these PI variables and academic

engagement/involvement (e.g., time spent on homework and paying attention in class), ethnicity, race, family structure, family characteristics (such as parents' education) maternal employment status, socioeconomic status, and gender (e.g., Dearing et al., 2004; De Bruyn, 2005; Desimone, 1999; Deslandes et al., 1998; Jeynes, 2007; Keith et al., 1993; Lee & Croninger, 1994; Milne, 1989; Yan & Lin, 2005). Consequently, we can view these as potentially moderating or mediating variables in relation to student achievement. For example, in a longitudinal study conducted by Dearing et al. (2004) involving 167 children, the effect of PI on the children's academic achievement (i.e., reading) was moderated by maternal education. We now explore more complex analyses of the PI construct.

Large-scale Analyses of the PI Construct

In this section, we describe six large-scale studies that have been conducted in the area of PI and academic achievement: (1) Fan and Chen (2001), (2) Jeynes (2007), (3) Desimone (1999), (4) Keith et al. (1993), (5) J. Chen (2008), and (6) Ho and Willms (1996). Each of these studies looks at how a set of underlying variables explains the impact of overall PI on student academic achievement.

Fan and Chen (2001) meta-analysis. The first study is a meta-analysis conducted by Fan and Chen (2001). The sample size was 133,577 students in 25 different studies, yielding 92 correlation coefficients. The method they used was to calculate average correlations between PI (overall construct as well as specific dimensions) and academic achievement. PI dimensions included educational aspirations/expectations for children, communication with children about school-related matters, parental supervision and home structure related to school matters, parental participation in school activities, and other/general PI activities.

The result from their analysis regarding the correlation of overall PI to academic achievement is $r = .25$. Based on Cohen's (1988) suggested guidelines about the magnitude of correlation as an effect-size measure, a correlation of .25 is a "medium" effect size. The largest correlation was between parents' *aspirations and expectations* for children's educational achievement (average r about .40); and the smallest correlation was between parents' supervision of the child at home (e.g., rules for watching TV and doing school work), with an average r about .09.

Jeynes (2007) meta-analysis. The second meta-analysis we describe was conducted by Jeynes (2007) and included 52 studies that involved more than 300,000 participants. Jeynes aimed to determine the influence of PI on the educational outcomes of urban secondary school children. For this study, PI was defined as parental participation in the educational processes and experiences of their children. The specific PI variables included parental expectations, parent-child communication about school activities, parents checking homework before submission, and parental style (i.e., helpful and supportive parental approach).

Results revealed that the general PI variable yielded statistically significant outcomes of .50 to .55 of a standard deviation unit. The Hedges' g measure of effect size was reported. This index indicated that, for overall academic achievement, the effect size for parental *expectations* was the largest among all of the other variables (Hedges's $g = .88$, which represents a large effect size). The remaining variables (i.e., parent-child communication, parents checking homework, and parental style) showed medium effect sizes (Hedges' g =.32, .38, and 0.40 respectively).

Desimone (1999) regression analyses. The analysis conducted by Desimone (1999) examined specific PI variables for a large sample (N = 19,386) of 8th graders in the NELS:88 data. Table 1 shows the results of regressing 12 individual PI variables on one achievement

variable—scores on a standardized test of mathematics. The adjusted R^2 for this regression is .29, which corresponds to an *r*-value of .54 for overall PI as considered by the set of individual variables. This falls in Cohen's range of large effect sizes.

Similar, but not shown, are the regression results of the same 12 variables on two other achievement variables—scores on a standardized test of reading, and an average of self-reported grades in English, mathematics, science, and social studies. These regressions had R^2 values of .26 and .22, respectively.

Among the 12 variables predicting mathematics outcome, the strongest predictors of achievement include (a) students reporting that they talk with their parents about school (positive relationship), (b) parents reporting contact with the school (negative relationship), and (c) students reporting that parents check their homework regularly (negative relationship). Consider the first variable in Table 1, a composite score representing the variable *talk with parents about school* (C, S). This composite variable ("C"), collected from the student reports ("S"), consists of the following four individual variables from NELS:88: (a) talk to mother about planning high school program, (b) discuss school programs with parents, (c) discuss school activities with parents, and (d) discuss things studied in class with parents. The result suggests that this composite variable is an important determinant of mathematics achievement.

Table 1 about here

Another interesting finding in this table concerns whether the student or the parent reports on rules in the home (see Variables 4 and 5 in Table 1). That is, if the child perceives that parents have rules about doing chores, watching television, and going out with friends (Variable 5), there is a positive relationship to achievement. However, if the parent reports

having rules in the home—such as maintaining grade average, doing homework, and being responsible for certain household chores (Variable 4)—we see a negative relationship to math achievement. Similarly, there is an opposite relationship involving the variable *talking about school*. From the students' report, this represents a positive relationship to math achievement (Variable 1), but from the parents' report, this represents a negative relationship (Variable 12).

Desimone (1999) further examined the data in terms of ethnicity (beyond what is presented in Table 1) and reported some interesting patterns of predictor variables. For example, the variable, *talk with father about school* showed a positive relationship to math achievement for Asian children, a negative relationship for Black and Hispanic students, and no significant relationship for White students. The variable *rules on homework, chores, TV*, *etc*. was positively related to math achievement if reported by Asian children and negatively associated with math achievement if reported by White parents. Finally, the variable *parents check homework* from the students' perspective has a significant negative association with achievement across all ethnicities.

Keith et al. (1993) structural analyses. The fourth large-scale study we report was conducted by Keith et al. (1993). This widely-cited study attempts to establish causal relationships using a sample of about 22,000 8th grade students. This study uses the technique of structural equation modeling (SEM), which entails defining a causal model to which the data are fitted.

Figure 3 about here

Some of the variables that were shown to best fit the causal model relating PI and student achievement included (a) talking about school, (b) aspirations/expectations, (c) structure in the

home in the form of rules, and (d) participation in school activities such as PTO. Figure 3 shows these four variables and example topics from the NELS:88 survey.

Results showed that these four variables are not significantly correlated to one another and thus PI is multidimensional. In fact, when the structure and participation variables were removed and other variables added (e.g., family background, previous achievement, ethnicity), as shown in the model depicted in Figure 4, the model fit better.

Figure 4 about here

The student achievement variable (on the right of Figure 4) was derived from scores from short standardized tests of reading, math, science, and social studies (history, citizenship, and geography), developed for NELS by Educational Testing Service (ETS). The largest predictor of student achievement is, not surprisingly, students' previous achievement. However, Keith et al. also found unique variance attributed to the PI variable.

Additionally, Keith et al. found unique variance attributable to ethnicity. The authors coded ethnicity as 1 for *White and Asian* and 0 for *Black, Hispanic, and Native American*. While White and Asian students showed generally higher achievement than Black, Hispanic, and Native American students, what is interesting is that parents of Ethnicity 0 reported more PI than parents of Ethnicity 1 (shown by the inverse relation between ethnicity and PI). Finally, the data for family socioeconomic status (SES, reflected by the family background variable) showed that higher SES was associated with higher student achievement.

J. Chen (2008) structural analysis. The fifth study we describe was a structural analysis study conducted by J. Chen (2008) who investigated students in different grade levels (i.e., grades 9 to 11) in terms of their perceived academic involvement from parents. This

involvement was then examined relative to academic achievement directly, and also indirectly through students' self-reported academic engagement such as study time, which included hours that students reported doing their homework, studying during a typical week, and motivation to go to school.

Data were collected through questionnaires administered to 270 Hong Kong students in the three grade levels. Structural equation modeling (SEM) analysis revealed interesting findings regarding parental support. The first finding showed that the indirect relationship of perceived PI to academic achievement was mediated by perceived academic engagement. This finding, however, was significant only for 9th grade students ($p < .05$). PI was directly and *negatively* related to academic achievement for all grade levels, but statistically significant only for the 10th grade students. In short, (a) perceived PI is a powerful predictor of academic achievement, and (b) higher levels of perceived PI are associated with lower levels of achievement, especially for 10th graders in Hong Kong.

Ho and Willms (1996) factor analysis. Our final large-scale study is by Ho and Willms (1996). They computed regression and factor analyses using NELS:88 data. Table 2 shows the main findings relating to mathematics achievement. (Note: the same pattern of results in terms of significant variables was reported for reading).

Table 2 about here

All of the variables were significant at the $p < .01$ level except for the nonsignificant effects of (a) number of parents in the home, and (b) home supervision (e.g., rules), both of which may be contrary to conventional wisdom (i.e., the deleterious effects of single-parent homes on achievement, and the importance of rules). Of the PI variables, the largest predictor of

mathematics achievement is again the degree to which parents and children talk about school (i.e., home discussion). Finally, Ho and Willms (1996) reported that PI made a significant unique contribution to explaining variation in students' academic achievement, over and above the effects associated with parental background.

Discussion

Some of the main limitations of PI research, in conjunction with possible ramifications, are summarized as follows:

- Use of nonexperimental design leads to the inability to distinguish between correlation and causation.
- Inconsistent definitions of PI leads to difficulty in comparing/interpreting findings across studies that define this construct differently.
- Lack of isolation of PI effects leads to the inability to distinguish effects due to PI from genetic and other environmental variables.

One observation from reviewing this literature concerns the need to be cautious about interpreting correlational data. For instance, we saw earlier that the variable *parents checking homework* is often negatively associated with student academic achievement. This is likely because parents tend to check homework more vigilantly when there are academic problems, making PI in the form of homework checking an *effect* rather than a *cause* of academic achievement. Further, actually doing homework (by the child) has been shown to be positively associated with academic achievement (Keith et al., 1993).

In addition, there may be other mediating factors relating to PI effects on student achievement that have not yet been adequately researched. For example, as part of their research and analysis using structural modeling, Keith et al. (1993) examined mediating variables

involving PI and academic achievement. As shown in Figure 5, PI is characterized as exerting its effect on student achievement via the mediating variable of homework, where more PI is associated with doing more homework, which in turn is associated with higher achievement. Also, according to this model, doing more homework is associated with less TV viewing.

Figure 5 about here

The literature we reviewed has paid little attention to possible interactions among classes of important variables. In short, we need to avoid assuming direct effects of parenting, genes, or social/environmental factors because all three may interact with each other in predicting academic achievement.

Children's Versus Parents' Perspectives

The literature shows that children's perceptions about PI variables appear to be better predictors of student achievement than parents' perceptions (e.g., J. Chen, 2008; Desimone, 1999). In addition, most of the studies show that PI and its probable influence on achievement declines as children progress through school (Patrikakou, 2004; Zill & Nord, 1994). There are several possible reasons for this decline: (a) middle and high schools become more complex, with more demanding curricula that can intimidate parents; (b) there are fewer school outreach efforts to involve parents in the secondary school years; (c) parents may exert progressively less influence over their adolescent children as they become more independent (Azmitia & Cooper, 2001; J. Chen, 2008; De Bruyn, 2005; Harris, 1998). Regarding the latter point, as students become older, they start to rely on peers for advice and support more than on their parents.

Other Reasons for Caution

Clues for how best to interpret the findings discussed above might be gleaned from a brief discussion of changes in views regarding child development—including how they perform academically. Figure 6 provides a schematic depiction of a progression between three different perspectives of what influences the development of personality and related variables, including intelligence and academic achievement.

Figure 6 about here

The three perspectives are (a) traditional developmental psychology, (b) a challenge to the nurture assumption, and (c) a hypothetical emerging view. Each perspective is characterized by the level of emphasis it places on three major classes of influence: heredity and prenatal life, child rearing and family life (i.e., traditional PI variables), and peers and other social and cultural factors. The greater the number of check marks, the greater the impact of the class of influences on how children develop.[1]

On the far left, the three classes of influence are related to the realms of "nature" and "nurture." Note that the influence of heredity falls into the realm of nature. Prenatal life is often categorized as part of nature, but also might be considered part of nurture, since, for example, a woman who consumes alcohol during pregnancy may injure a fetus and thereby affect the personality, intelligence, and academic achievement of the growing child. At the heart of nurture is what occurs within the home—i.e., child rearing and family life, including PI in their children's education. Additional nurture influences would include peers and other social factors.

[1] The number of checks is only generally related to magnitude of the influence.

Consider the first of the three perspectives—traditional developmental psychology. While acknowledging a contribution of genetics, traditional developmental psychology has tended to give preeminence to child rearing and family life, particularly the role of the parents. For example, Sigmund Freud viewed all little boys as having to go through the Oedipal crisis and little girls through an analogous crisis. Much of the psychological difficulties of adults could be seen as resulting from the presence of these early childhood processes. Other psychologists, while not focusing on psycho-sexual development to the same degree as Freud, continued to attribute tremendous influence to the environment, and particularly to the parents. For instance, a conviction of the malleability of children to their environment was expressed by the behaviorist John B. Watson:

> Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief, and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. (Watson, 1925, p. 10)

The second perspective, "challenge to the nurture assumption," takes its title from the work of Judith Harris (1995, 1998), in which she challenged what she termed the *nurture assumption*–what she viewed as developmental psychology's unquestioning assumption regarding the preeminent influence of parents on children's development. Harris (1998) cited what amounted to early questioning of the nurture assumption by Maccoby and Martin, who in their 1983 review of socialization research questioned the size and robustness of the effects they had just summarized. Specifically, they wondered whether the number of significant correlations was greater than that expected by chance. They cited other research indicating that biological or

adoptive siblings do not develop similar personalities as a result of being reared in the same household (Maccoby & Martin, 1983). Harris noted that about half of the variance in personality and intelligence scores among siblings (including twins and adoptive siblings) is accounted for by heredity. The heritability of intelligence is a classic example of the importance of genetics. Harris argued,

> The reason why parents who read to their children have smarter children is that these are smarter parents… If there were an environmental reason why parents who read to their children have smarter children, then we wouldn't find a zero correlation in IQ between two adoptive siblings reared by the same parents. (Harris, 1998, p. 344)

So, if genetics accounts for roughly half of the variation in individuals, and if shared home environment counts for little or nothing, then what counts for the other half? As noted earlier, Harris argued that it is not the within-family microenvironment. Rather, much of the remaining variation (i.e., that not accounted for by genetics) can be explained by the child's peers—their friends and classmates. Harris (1995) set forth a theory she terms group socialization theory to explain how children become socialized and develop their personalities based on interaction with peers in the many different groups to which they belong. For example, the language children speak with peers will become their "native language" when they are adults (Bickerton, 1983, as cited in Harris, 1995). In addition, peer group influences determine whether an adolescent will experiment with tobacco, while heredity determines whether he or she will become addicted (De Bruyn, 2005; Holloway, Mirny, Bempechat, & Li, 2008; Rowe, 1994; Rowe, Chassin, Presson, Edwards, & Sherman, 1992; the latter two references cited in Harris, 1995). Finally, peer group influences have a powerful effect on children's motivation to do well in school (Fuligni, Eccles, Barber, & Clements 2001; Kinderman, 1993).

The field of psychology appears to be adjusting to the challenge directed toward the more traditional view that parenting has a very large influence on children's development. What the emerging view will be remains to be seen. One possible view might be similar to the view expressed by Cohen (1999). He concurred with Harris's (1998) view of the importance of genetic influence, noting, "Children's academic achievement correlates more strongly with their parents' intelligence than with their parents' attitudes and rearing styles" (p. 29). But Cohen argued that while both parent and peer influences are modest, the peer influence is smaller and parent influence is larger than estimated by Harris.

Cohen (1999) estimated the proportion of influences on personality as follows: 50% is genetic, 20-25% is "physical" (i.e., prenatal, parinatal [birth complications], and post-natal [injuries]), which leaves about 25 to 30% for parents, siblings, peers, and everything else non-shared,[2] including teachers, romances, traumas, and so on. Granting, Cohen said,

> for argument's sake that the peers are the larger influence (say, 10 to 15 percent of the 25 to 30 percent), parents a lesser influence (say, 5 to 10 percent), and the rest the least influence (say, 5 to 10 percent), not one of these is all that impressive. (Cohen, 1999, p. 111)

Despite the relative modesty of the influence of PI in the research cited in this review, there is a need for caution in underemphasizing the importance of parents' efforts on behalf of their children, academically and otherwise. Even Harris, who asserted that differences in parenting have essentially no lasting influence on how children turn out, warns that her theory is not intended to imply that children can get along without their parents. In fact:

[2] Non-shared, in this context, refers to influences that are not shared by siblings living at the same address.

> Children are emotionally attached to their parents (and vice versa), are dependent on them for protection and care, and learn skills within the home that may prove useful outside it; these facts are not questioned. What GS [group socialization] theory implies is that children would develop into the same sort of individuals if we left them in their homes, their schools, their neighborhoods, and their cultural or subcultural groups, but switched all the parents around. (Harris, 1995, p. 461)

Thus, Harris affirmed the key role of parents in protection, care, and support of learning. Furthermore, given that parents play a key role in selecting or otherwise determining a child's home, school, neighborhood, and cultural group, we can see that parents have an importance that may not be fully captured in these studies. And, as Levitt and Dubner (2005) have noted, "Clearly, *bad* parenting matters a great deal…[U]nwanted children—who are disproportionately subject to neglect and abuse—have worse outcomes than children who are eagerly welcomed by their parents" (pp. 153-154).

Conclusions

Parents appear to have an important opportunity to influence their children's academic achievement, though the influence may not be as great as traditionally believed. Correlational studies have found small to moderate associations between various PI variables and student academic achievement, with some of the most consistent relationships being reported for (a) parents talking with the child about school (J. Chen, 2008; Desimone, 1999; Henderson & Mapp, 2002; Ho & Willms, 1996; Jeynes, 2007; Keith et al., 1993; McNeal, 1999), (b) parents holding high expectations for students' academic achievement (Baker & Soden, H-F. Chen, 2009; 1998; Fan & Chen, 2001; Jeynes, 2007), and (c) parents employing an authoritative (not authoritarian) parenting style (Baumrind, 1971; Jeynes, 2007; Maccoby & Martin, 1983; Paulson, 1994).

Citing the inability of correlational studies to determine causality, as well as the findings of twin and adoption studies, researchers have estimated the impact of PI variables on academic achievement as quite modest (e.g., Cohen, 1999; Harris, 1995, 1998; Levitt & Dubner, 2005). Harris (1995, 1998), in addition to asserting the parental influence as negligible, further argued that it is the child's peers who exert the main nongenetic (nonhereditary) influence on how the child turns out . Others have agreed that the influence of parents is modest but go on to assert that peer influence is likewise modest (e.g., Cohen, 1999). A possible emerging view might attribute greater parental influence and less peer influence than did Harris, while continuing to give continuing and strong recognition to the influence of genetics. Among the non-genetic influences, it seems clear that both parents and peers can have an influence on a child's academic achievement.

Given that parents have no control over the genetic component, and have limited influence over the child's peer relationships, direct parental influence remains an opportunity to leverage those factors for the benefit of the child, including their academic achievement. The design of policies, practices, and interventions should reflect an understanding of these findings about the nature and magnitude of parental influence on children's academic achievement.

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Table 1

Parental Involvement Variables and Their Relationship to Mathematics Achievement, Arrayed From Most-to-Least Significant

Independent variables	*t*-value
1. Talk with parents about school (C, S)	25.39
2. Contact school about academics (C, P)	-16.63
3. Parents check homework (S)	-15.24[3]
4. Rules on homework, GPA, chores (C, P)	-12.45
5. Rules on TV, friends, etc. (C, S)	9.99
6. Knowing parents of child's friends (P)	8.05
7. PTO involvement (C, P)	7.41
8. Parent attends PTO meetings (P)	-6.92
9. Volunteering, fundraising, etc. (C, P)	5.36
10. Talk with father about school program (S)	-3.69
11. Talk about post high-school plans (P)	3.10
12. Talk with child about school issues (C, P)	-2.85

Note. **C** = composite score; P = parent report, and S = student report. All variables are significant at the $p < 0.05$ level or better. From "Linking Parent Involvement with Student Achievement: Do Race and Income Matter?" by L. Desimone, 1999, *The Journal of Educational Research*, *93*(1), p. 15.

[3] The author of the 1999 study confirmed that the value in the original table (-1.524) should be corrected to the value shown in this document (-15.24) (L. Desimone, personal communication, August 31, 2007

Table 2

Relationships Among Variables (PI Variables, Family Variables, Ethnicity) and Mathematics Achievement

Independent variables	Regression Coefficient (β)	Standard Error
Parental involvement factors		
Home discussion[4]	.12**	.006
Home supervision	.01	.005
School communication	-.05**	.006
School participation	.03**	.006
Family and student background		
SES	.26**	.007
Number of siblings	-.02**	.003
Number of parents	-.01	.014
Learning problem	-.65**	.023
Behavioral problem	-.19**	.019
Race/ethnicity ***		
Asian or Pacific Islander	.21**	.023
Hispanic	-.22**	.019
Black	-.45**	.202
Native American	-.37**	.050

** Significant at the $p < .01$ level.

*** Asian or Pacific Islander coded as 1, and Hispanic, Black, and Native American coded as 0.

Note. From "The effects of parental involvement on eighth grade achievement" by E. Ho and J. D. Willms, 1996, *Sociology of Education*, *69,* p. 136.

[4] To interpret these findings, for the home discussion variable, a coefficient = .12 means that an increase of 1 SD in home discussion is associated with an increase of 0.12 SD in achievement.

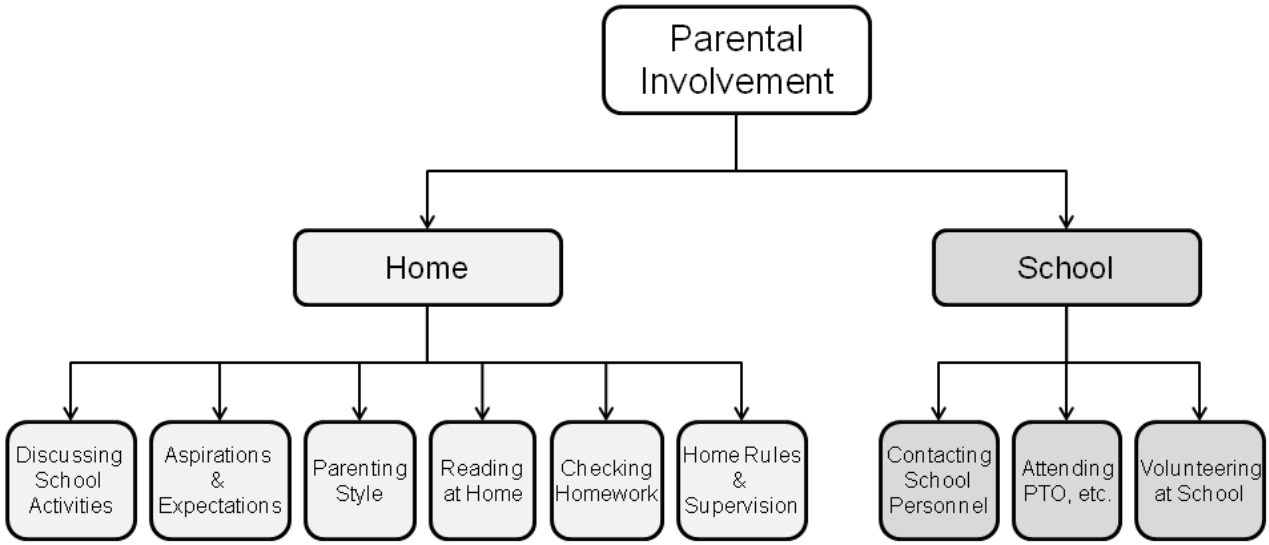

Figure 1. Prominent aspects of parental involvement enacted at home and at school.

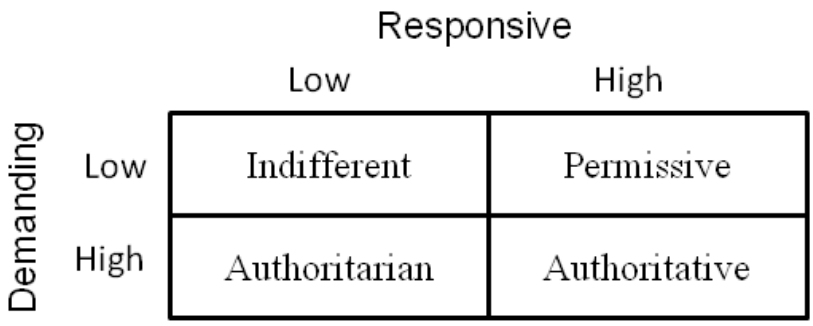

Figure 2. A cross of responsive and demanding parenting, yielding four distinct styles.

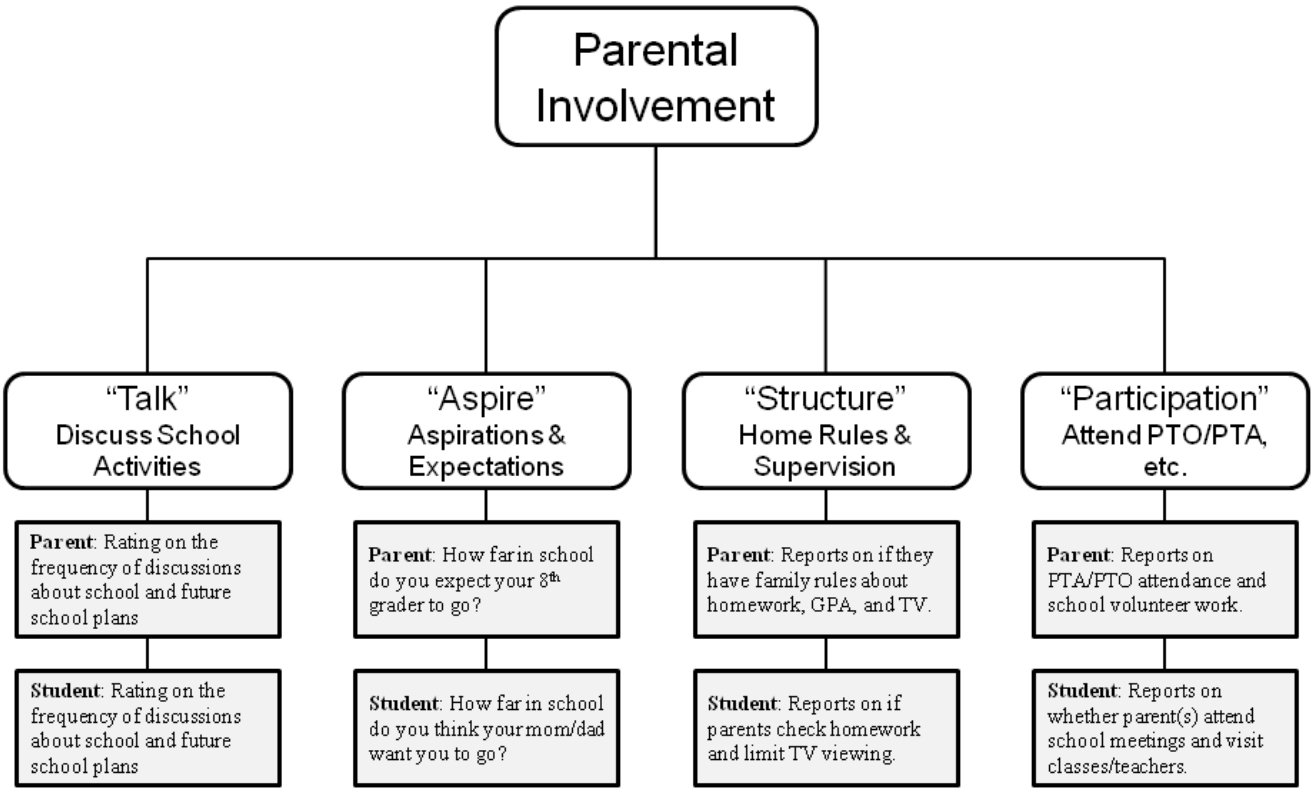

Figure 3. Original four variables underlying the PI construct in the Keith et al. (1993) study.

Note. From "Does parental involvement affect eighth-grade student achievement? Structural analysis of national data," by T. Z. Keith, P. B. Keith, G. C. Troutman, P. G. Bickley, P. S. Trivette, and K. Singh, 1993, *School Psychology Review, 22*(3), pp. 483, 486.

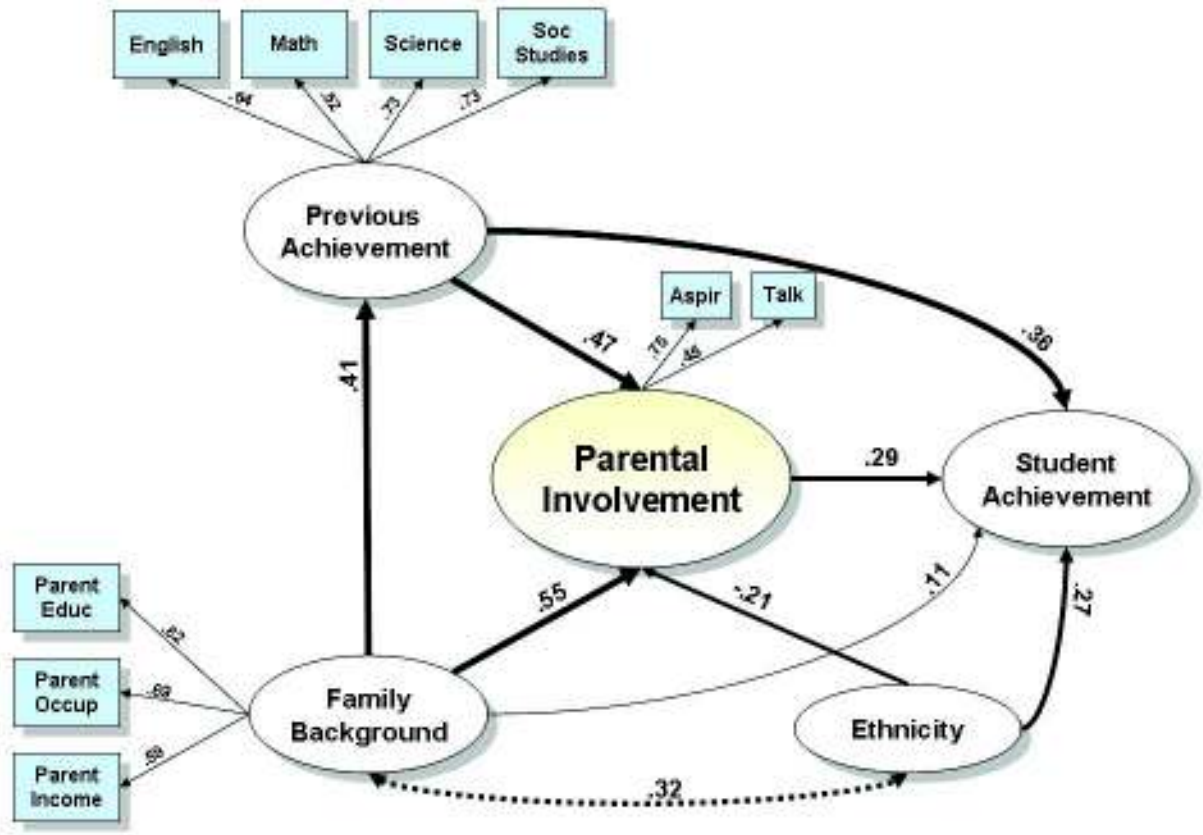

Figure 4. Keith et al.'s (1993) structural equation model of parental involvement variables and student achievement.

Note. From "Does parental involvement affect eighth-grade student achievement? Structural analysis of national data," by T. Z. Keith, P. B. Keith, G. C. Troutman, P. G. Bickley, P. S. Trivette, and K. Singh, 1993, *School Psychology Review*, *22*(3), p. 488.

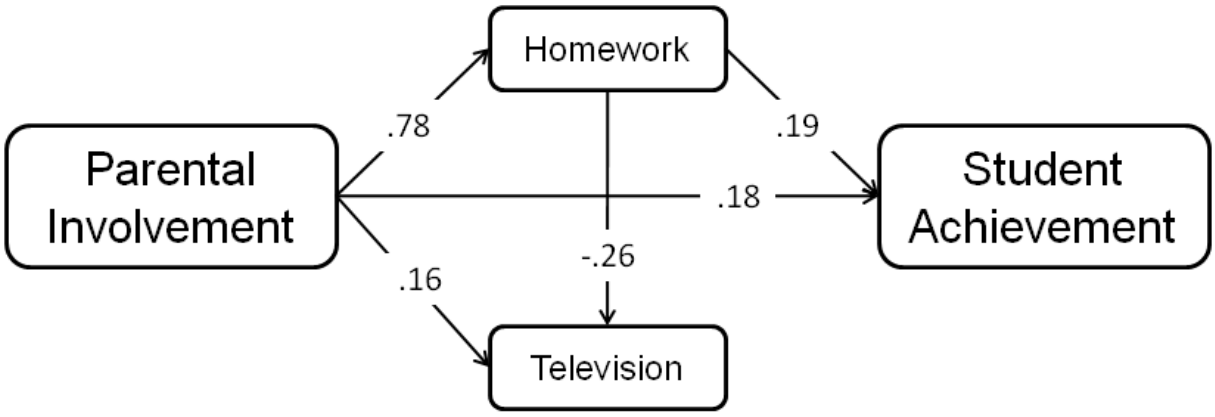

Figure 5. Relationship between PI and achievement with homework and television viewing as mediating variables.

Note. Adapted from "Does parental involvement affect eighth-grade student achievement? Structural analysis of national data," by T. Z. Keith, P. B. Keith, G. C. Troutman, P. G. Bickley, P. S. Trivette, and K. Singh, 1993, *School Psychology Review*, *22*(3), p. 490.

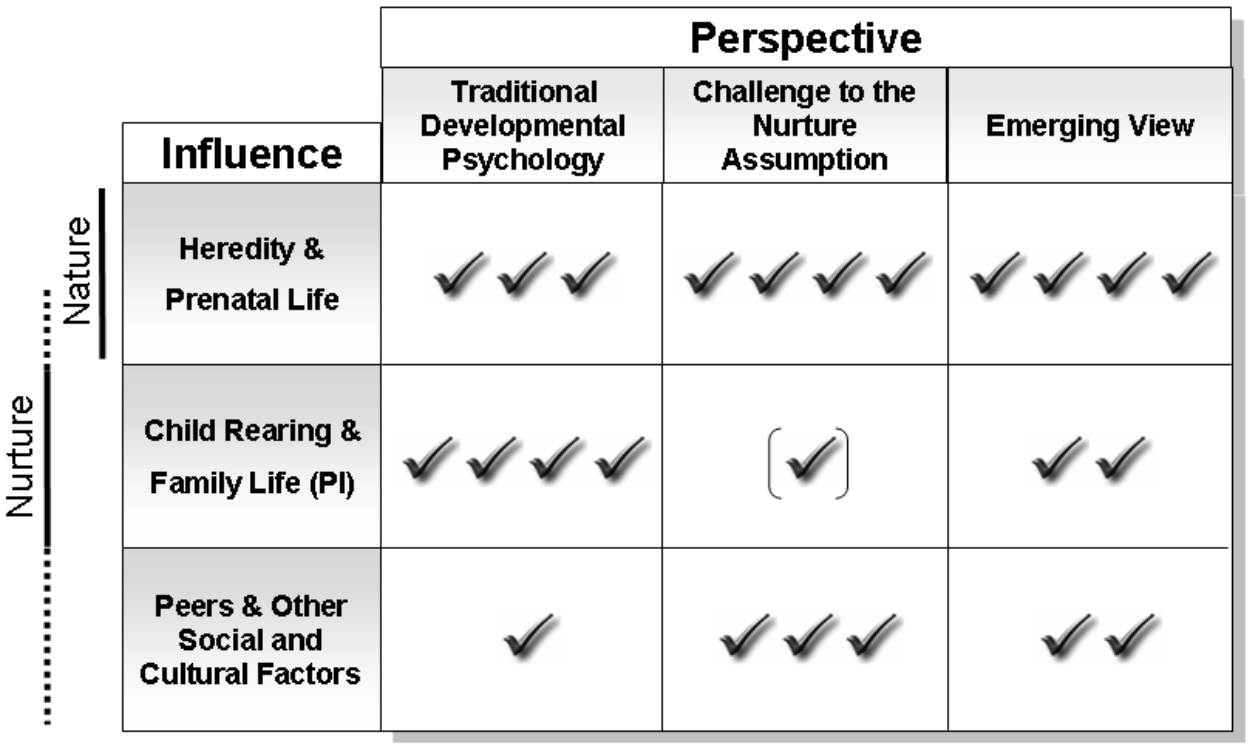

Figure 6. Three perspectives, with the emerging view estimating a modest impact of child rearing and family life.