



Who makes the cut? Parental involvement and math trajectories predicting college enrollment



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ARTICLE INFO

Article history:

Received 5 August 2016

Received in revised form 23 March 2017

Accepted 26 March 2017

Available online xxxxx

Keywords:

Parental involvement
College enrollment
Math achievement
Adolescent development

ABSTRACT

The present study examined the associations between parental involvement and college enrollment using a national sample of 3116 U.S. youth (52% male, 70% White). Four dimensions of parental involvement (academic values, behaviors promoting future academic success, home structure, and school involvement) were examined from 7th–12th grade. Higher initial levels of all four parenting dimensions in junior high school were associated with a greater likelihood of college enrollment. Less steep declines in academic values and behaviors promoting future academic success, and increases in school involvement were also associated with an increased likelihood of college enrollment. Math achievement trajectories from 8th through 12th grade were examined as mediators of these associations. Math achievement intercepts mediated the association between the parental involvement intercepts (academic values, behaviors promoting future academic success, home structure, and school involvement) and college enrollment. No mediation was detected among math achievement linear slopes. Practical implications are discussed.

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1. Introduction

Obtaining a postsecondary degree from a four-year college or university is a substantial academic achievement that paves the way for the attainment of numerous economic, social, and health-related lifetime benefits. Across all OECD (Organization for Economic Co-operation and Development) countries, adults with college degrees are more likely to secure gainful employment, achieve greater economic prosperity, and report that they are in better health (OECD, 2014). However, despite the numerous benefits derived from pursuing higher education, only 37% of adolescents in the U.S. will go on to enroll in a four-year college or university after graduating from high school (U.S. Department of Education, NCES, 2014), and statistics indicate that a large number of these prospective applicants are not adequately prepared for college-level work (Adelman, 2006; Greene & Winters, 2005). In particular, studies are finding that a substantial percentage of students enter college with notable deficiencies in math skills that often result in placement in remedial courses (ACT, 2014; Fike & Fike, 2012). Students assigned to remedial math courses may actually delay their college enrollment relative to students who are placed into regular math courses (Scott-Clayton & Rodriguez, 2012), and recent analyses suggest that the rigor of math courses taken in high school greatly increases

students' chances of acceptance into a competitive college (Adelman, 2006; Hull, 2010). This research demonstrates the importance of competency in quantitative skills in securing successful acceptance and enrollment in the college of one's choice.

Deficiencies in math skills tend to place students at a disadvantage in college preparedness (Attewell, Lavin, Domina, & Levey, 2006). As such, many efforts to improve achievement and postsecondary enrollment have focused on the enhancement of instruction and curricula in secondary schools. However, in addition to the school, parents also offer an important resource and form of "social capital" for adolescents seeking successful enrollment in a four-year college or university. To date, the effectiveness of parents' varying attempts to socialize, motivate, and instill achievement related behaviors and beliefs in youth as they advance through adolescence is relatively underresearched, particularly in regard to the relationship between these forms of parental involvement and successful college enrollment. To address these questions, we will investigate how different types of parental involvement change from 7th through 12th grade and how these changes are associated with college enrollment rates. In addition, we will examine if parental involvement trajectories predict college enrollment rates through math achievement.

1.1. Defining parental involvement

Parental involvement in education encompasses "parents' work with schools and with their children to benefit their children's

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educational outcomes and future success" (Hill et al., 2004, p. 1491). Parental involvement has been defined as a multidimensional construct, including involvement at school, involvement at home, and academic socialization (Grolnick & Slowiaczek, 1994; Hill & Tyson, 2009; Seginer, 2006; Sheldon & Epstein, 2005). In a broad context, parental involvement can be conceptualized as a form of social capital that increases students' chances of successfully preparing for, enrolling in, and completing college (Perna & Titus, 2005; Rowan-Kenyon, Bell, & Perna, 2008). Through parental involvement, students have access to the resources that parents provide, and they draw upon these resources to facilitate their success in postsecondary education (Perna, 2006). Parents as a resource for child success has been heavily studied by Eccles and colleagues, who have theorized that parents shape children's learning behaviors, achievement, and educational choices through their own parenting *beliefs* and *behaviors* (Eccles, 1993). Parenting beliefs include *academic values* which focus on the importance that parents attribute to academic success in general, and to performance in challenging subjects such as math and science. Likewise, parents with high academic expectations expect their children to perform well in school and to continue their academic progress by pursuing higher education (Benner & Mistry, 2007; Jacobs & Eccles, 2000). Researchers have often noted that these more subtle forms of parental involvement, such as having high values and expectations for academic success, are among the most consistently linked to positive academic outcomes for children and youth (Jeynes, 2010).

Parents with high academic values may further encourage children to excel in school by instilling these values through modeling, encouragement, provision of materials and structuring the home environment, and sharing activities with children (Jacobs & Eccles, 2000; Simpkins, Fredricks, & Eccles, 2012; Simpkins, Fredricks, & Eccles, 2015). These *behaviors* are reflected in the following three dimensions: *behaviors that link education to future success*, *provision of home structure*, and *school involvement*. Behaviors that link education to future success include verbal encouragement and positive reinforcement of high academic performance, as well as investment in time or activities that promote the importance of academic achievement (Hoover-Dempsey et al., 2005; Simpkins et al., 2012). These behaviors also include parent efforts to reinforce and support the importance of learning for future success in postsecondary school (Sheldon & Epstein, 2005; Wang, Hill, & Hofkens, 2014). Provision of home structure focuses on the rules, limits, expectations of behavior, and supervision of activities that parents implement. These behaviors include limits on TV viewing, use of curfews, and providing chores (Wang, Dishion, Stormshak, & Willett, 2011). Finally, *school involvement* includes direct and shared involvement in school-related activities, such as volunteering, meeting with the teacher, and attending school events (Anderson & Minke, 2007; Sheldon & Epstein, 2005). Each of these four dimensions of parent behaviors and beliefs reflect an important pathway through which parents may encourage their children to achieve at higher rates and to choose to continue their education beyond high school.

1.2. Parental involvement in secondary school

Research suggests that parental involvement decreases in frequency over time, although this pattern is not uniform across all dimensions. For example, when examining more general composites of involvement (e.g., home versus school involvement), parental involvement decreases over time (Crosnoe, 2001; Green, Walker, Hoover-Dempsey, & Sandler, 2007). More specific categorizations of involvement, however, have shown that parent communication with students about school, interest in school, and direct involvement with the school decrease, on average, across junior and senior high school, while parental monitoring and structuring increase and academic values remain stable (Paulson & Sputa, 1996; Stone, 2006). Another recent study found that while preventative communication and the quality of communication between parents and the school decreased from 7th–11th grade, increases in

academically supportive structuring at home, scaffolding of independence, and linking education to future success were detected (Wang et al., 2014).

While decreases in parental involvement over time may seem alarming, declines in specific dimensions of parental involvement, such as home structure and parental monitoring, might directly occur in response to shifts in the developmental needs of adolescents and may not necessarily foreshadow negative outcomes. The effects of parental involvement on adolescent outcomes not only depend upon the positive quality and supportive nature of the involvement (Jeynes, 2010; Pomerantz, Moorman, & Litwack, 2007), but on the fit between adolescent developmental needs and parenting practices (Gutman & Eccles, 2007). Changes in adolescent development often coincide with transitions to complex and bureaucratic schools, an increased number of teachers, less welcoming attitudes toward parental involvement by schools, and more pressure on parents to understand course-planning and college preparation activities (Gutman & Midgley, 2000; Hill & Tyson, 2009). Stage-environment fit theory suggests that youth thrive most when their environments match their psychological needs of autonomy, competence, and belongingness (Eccles, Lord, & Midgley, 1991). As these psychological needs become increasingly important during adolescence, environmental contexts must adjust accordingly to support optimal development. Therefore, some parental involvement strategies that were successful during the elementary school years may not be as effective or appropriate in secondary school (Hill & Taylor, 2004).

Particularly, increases in *provision of home structure*, although effective in early childhood, may actually demonstrate deleterious effects on adolescents. For example, younger children rely on parents to establish and reinforce codes of conduct (Boles, 1999). Over time, however, children internalize these rules and become more capable of taking personal responsibility for their behavior. Therefore, as children enter adolescence they attempt to renegotiate the balance of power within the family, developing a greater need for autonomy and decision-making and less parental control (Eccles et al., 1993; Van Petegem, Beyers, Vansteenkiste, & Soenens, 2012; Vansteenkiste, Soenens, Van Petegem, & Duriez, 2014). Higher levels of structure and control in adolescence may stifle youth autonomy and feelings of competence, thereby rendering this dimension of parental involvement less effective than at an earlier age. Indeed, increases in parental scaffolding of adolescent independence and autonomy have been linked to positive adjustment, including higher GPA, lower depression (Wang et al., 2014), and less oppositional defiance (Vansteenkiste et al., 2014).

However, while vying for greater autonomy and less parental control, youth still rely on high parental support in academic endeavors to further encourage the development of competence and autonomy. Particularly, given the rigid structure of many secondary schools and the increasing pressure of college acceptance, increased parental encouragement of academic success may be linked with more positive outcomes over time. In this case, increasing or maintaining consistently high *academic values*, *behaviors that link education to future success*, and *school involvement* may help youth internalize these parental expectations, increasing their motivation and engagement to excel in school (Kaplan, Liu, & Kaplan, 2001; Wang & Sheikh-Khalil, 2014). Under the supportive academic guidance of their parents, youth may invest more time and energy in learning, thereby increasing their perceived competence and role as autonomous learners (Eccles, 2009). In the following sections, we examine prior research establishing links between parental involvement and both math achievement and college enrollment.

1.3. Linking parental involvement to college enrollment

While parental involvement is posited to have a substantial impact on children's academic behaviors and educational choices, to date, there is little research connecting trajectories of parental involvement throughout secondary school to actual college enrollment. However,

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