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The Impact of Parent Education and Household Income on Students' Academic Achievement As the Main Indicators of Socioeconomic Status (SES)

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Abstract

The present study investigated the impact of maternel education, paternal education and household income on students' academic achievement as three main socioeconomic status (SES) indicators in Turkey. 200 high school students who had completed their secondary school education were included in the study. The scientific hypotheses of the study were evaluated using t-tests and hierarchical regressions. The results demonstrated that household income had a much stronger positive impact on students' academic achievement compared to secondary school GPA. Providing educational support as well as learning materials and resources at home as a type of parental involvement had the second largest impact on students' academic achievement, whereas maternal education was the third strongest variable affecting students' academic achievement. Offering complementary or supportive educational opportunities as a type of parental involvement emerged as the fourth strongest variable affecting students' academic achievement.

Key Words:

Socioeconomic status, economic, cultural and social capital, parental involvement, students' academic achievement

Introduction

Theorists ant researchers have asserted that there is a relationship between parental SES and childrens' academic achievement and that SES has an impact on children's academic performance (Bradley & Corwyn, 2002; Duncan, Magnuson, & Votruba-Drzal, 2017; McLoyd, 1998). They discuss the impacts of parental education, household income, and parental occupation on children's academic achievement as main indicators of socioeconomic status or social class. It is emphasized that differences in students' academic achievement stemming from parental SES are well-known and widely recognized in the field of sociology of education. Also, it has been indicated that there are achievement differences, inequalities, and gaps between students from higher SES families and those from lower SES families. On the average, students from low-SES families may demonstrate poorer academic outcomes compared to their peers from middle and high SES families (Bradley & Corwyn, 2002; Kim, Cho, & Kim, 2019; Liu, Peng, & Luo, 2020; Şirin, 2005; White, 1982). On the other hand, children from higher

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SES families are generally better positioned to achieve their cognitive ability and academic achievement potential (Conger & Donnellan, 2007; Duncan et al., 1998; Hackman & Farah, 2009).

The theory of cumulative advantage posits that in the process of cumulative advantage, current levels of accumulation has a direct effect on future levels of accumulation, which consequently increases variances, inequalities and gaps in academic achievement. The theory proposes that it will be difficult for individuals who lag behind in terms of cognitive ability and academic achievement at one point in time to catch up with other individuals and reach the same level (Caro, McDonald, & Willms, 2009). It is emphasized that educational inequalities related to socioeconomic status or social class origin tend to increase as ssuch inequalities provide an advantage to students from higher SES families. It has been asserted that learning develops in a hierarchical manner and that more complex forms of learning are based on and created by simpler forms of learning. Thus, it has been pointed out that emergence of inequalities at a certain stage leads to greater inequalities at later stages (Bast & Reitsma, 1998; DiPrete & Eirich, 2006).

Family investment theory deals with not only the role of economic capital which consists of income, but also cultural capital, which refers to parents' level of education, knowledge and skills as well as social capital, which encompasses parents' social environment, networks and skills. Families with more substantial economic resources are better able to provide significant and meaningful "inputs" into their children's development, such as nourishing food, enriched learning environments at home, childcare environments outside the home, as well as safe and stimulating neighborhood environments (Becker, 2007; Haveman & Wolfe, 1994). Higher SES parents can purchase educational materials and services that stimulate, nurture, foster and improve their children's cognitive abilities and academic achievement using their income resources and finacial capital (Conger & Donnellan, 2007; Duncan et al., 2017; Haveman & Wolfe, 1995). Children from higher SES families may be in a more advantageous position as their parents allocate more financial, cultural, and social capital to enhance their education and academic achievement. Accordingly, children from higher SES families tend to exhibit higher academic performance compared to their peers from lower SES families (Bradley & Corwyn, 2002; Brooks-Gunn, Duncan, & Aber, 1997).

Bourdieu's Theory of Cultural and Social Reproduction and Academic Achievement

Bourdieu tries to explain the continuity of educational inequalities across generations with the theory of cultural and social reproduction as well as the concepts of cultural capital, habitus, practice and field. He asserts that there is a reciprocal causal link between educational inequalities and socioeconomic inequalities, and that this link continues through generations. The parental SES is a major determinant of the educational attainment of individuals, which, in turn, is a major determinant of the socioeconomic status of individuals. Bourdieu (1997) identifies three basic forms of capital as (1) economic capital, which can be easily transformed; (2) social capital, which consists of social obligations or connections; and (3) cultural products, which emerge in embodied and objectified forms with internalized and adopted values, attitudes and tendencies, as well as cultural capital or cultural skills, which are officially approved and

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institutionalized. Parents' cultural capital is associated with the educational system and includes (1) personal dispositions, attitudes, and knowledge acquired through experience, (2) links to educational objects such as books, computers, and academic papers, and (3) links to educational institutions such as schools, universities, and libraries (Grenfell & James, 1998; Robbins, 2000). It is argued that the larger the cultural capital of individuals in the family, the greater the advantages for acquiring additional capital that family members will make use of. It is asserted that some individuals inherit the cultural capital that helps them become more successful actors in the field of education system compared to their peers during the family habitus formation process (Grenfell & James, 1998). Conversely, individuals who have less cultural capital may encounter limitations and difficulties that may lead to inequalities in accessing, reaching and making use of institutional resources (Lareau, 2001). Just as economic capital enables parents to buy products, the cultural capital can provide the power to improve, enhance and support children's education and academic achievement (Grenfell & James, 1998).

Bourdieu (1997) asserts that there is an interplay among economic capital, cultural capital and social capital and they mutually play a determinative role on one another. Also, financial capital has a significant role in enhancing children's cultural capital. Financial capital enables parents to allocate resources and time to enhance their children's cultural capital and to invest in and spend money for their education and academic achievement. Thus, children's cultural capital, which is better developed thanks to financial capital, is associated with their future educational and occupational success and also plays a contributory role in their future accumulation of financial capital. Moreover, social capital affects both cultural capital and economic capital. As social capital, social networks of individuals can increase the accumulation of their cultural and economic capital when these netweorks are greater and more effective and bring about more opportunities. Compared to lower SES parents, higher SES parents can not only create and offer opportunities for their children to research, examine, discover and learn, but also equip them with experiences and educational materials to stimulate, nurture, enhance and strengthen their cognitive, intellectual and academic development (Bradley & Corwyn, 2005; Bradley et al., 2001). Therefore, children and adolescents in SES environments that stimulate, nurture, enhance and strengthen cognitive, intellectual and academic development may have better opportunities and chances to develop the individual talents and skills necessary to achieve success in educational environments.

Bourdieu claims that cultural capital demonstrates variations according to social class and that educational systems tend to reward students from middle and upper SES families; therefore, students from lower SES families suffer damage and are disadvantaged in gaining rewards as far as vertical social mobility is concerned. Habitus and cultural capital that vary according to social class demonstrate their impacts on students' academic practices and bring about social class inequalities in educational achievement. Bourdieu argues that the habitus of the dominant social class or the middle social class encompasses a positive attitude towards education and training. He also asserts that it exhibits a tendency that requires and accepts not only exerting effort but also spending time and money as well as making investments in order to maintain or increase cultural capital and subsequent attainments. He emphasizes that these parents are more involved and engaged in their children's education and academic success

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(Bourdieu, 2006). In view of anticipated and predicted greater socioeconomic attainments, it is pointed out that middle-class families spend and invest more money for their children's education and academic achievement compared to working-class families. On the other hand, it is asserted that children from middle-class families are better prepared to implement and perform the technical and behavioral practices that are considered appropriate and acceptable by the school system. It is stated that students from lower social class families, who seem to be less adaptable with respect to cultural capital and habitus, are less likely to share this tendency as their parents have lower expectations regarding educational achievement. Influenced and determined by their social position, students from lower SES families often state seeing themselves out of the higher education pathway because they are more likely to have "negative dispositions toward school" and thus perceive their chances for higher educational success as unlikely (Bourdieu, 2006).

Social class or SES may affect the socialization, education, and parenting processes in the family and thus shape the habitus. The type and level of parental involvement in children's education may display variations according to social class or SES (Bradley & Corwyn, 2002; Guryan, Hurst & Kearney, 2008; Buckingham, Beaman & Wheldall 2014). Using socialization, education, and parenting processes, parents can teach and instill deeply ingrained and rooted attitudes and skills in their children that will later affect their lives. In the early years, higher SES children may show a tendency to develop a sense of habitus that helps them to be more successful in school and thus have higher academic achievement or attainment (Bourdieu & Passeron, 1979). Lareau points to the cultural logic of parenting in middle-class families and highlights the fact that middle-class parents adopt a more interventionist approach, described as 'concerted cultivation', towards educating, socializing and developing their children. She asserts that middle-class parents can be much more actively involved and engaged in equipping their children with appropriate life skills that will, in turn, enhance their activities and experiences in life. Lareau claims that working-class parents do not attach much importance to extra-educational activities and demonstrate a more non-interventionist approach, dubbed 'accomplishment of natural growth.' Furthermore, Lareau underlines the fact that middle-class parents believe in the necessity of actively promoting, nurturing and enhancing the cognitive skills and abilities of their children and consequently intervene more in the socialization, education and parenting processes of their children. Middle-class parents endeavor to develop and enhance the skills and abilities that are evident in later adolescence as their children move from high school to postsecondary education or the workforce. While working-class parents tend to adopt a somewhat non-interventionist approach concerning their children's educational paths, middle-class parents are often actively involved and engaged in strategically designing and planning their children's educational careers (Lareau, 2011; Lareau & Weininger, 2008).

Previous Research on the Impacts of Parental SES on Children's Cognitive Ability and Academic Achievement

Longitudinal studies have shown the relationships between SES and children's cognitive ability and academic achievement and its impacts on children's cognitive ability and academic achievement. In a cohort study of children born between 1950 and 1956, the paternal SES

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significantly predicted children's cognitive ability test scores at ages 7, 9, and 11 (Lawlor et al., 2005). Another study asserted that differences and gaps in cognitive ability test performances among 11-year-old children born in 1921 were caused by the opportunities, advantages, or limitations and disadvantages provided by the socioeconomic status they were born and lived in (Shenkin, Starr, Pattie, Rush, Whalley, & Deary, 2001). In another study that followed the same children as they grew up, children from middle and upper SES families tended to do better on cognitive ability tests from as early as age 2 or 3 (Waldfogel, 2013). Lower SES children who performed better on cognitive tests compared to their higher SES peers at 22 months of age performed poorly when they reached 42 months of age. A comparison of the cognitive skills of lower SES children at as young as 22 months old born in 1970 with those of their peers from middle or upper SES families revealed the influence of SES background on cognitive skills and socioeconomic inequalities in cognitive skills. The study also discovered similar inequalities in children aged 42 months, 5 years and 10 years (Feinstein, 2003). A longitudinal study of children born in 1991–1992 showed that children from the most disadvantaged backgrounds and poor families scored higher on cognitive tests at age 7, but performed worse than their lower-achieving peers from more affluent and least disadvantaged families until ages 14-16 (McKnight 2015). Children born into and living in poverty scored significantly lower on cognitive tests at ages 3, 5, and 7, and persistent poverty, especially in the early years, seemed to have a cumulative negative impact on children's cognitive development (Dickerson & Popli, 2016).

Longitudinal research comparing 10 and 11-year-old children of parents from different SES backgrounds established that the difference in cognitive ability test scores between the children of higher-level professionals, such as university professors, and the children of lower-level routine workers, such as construction workers, was 14 or 15 points (Connelly & Gayle, 2019). In a longitudinal study, about 40% of the 14.1% gap in cognitive test scores between children growing up in wealthy and poor families was explained by the direct impacts of the circumstances associated with the parents' own childhood. Compared to parents from wealthier backgrounds, parents who grew up in poverty performed poorly on cognitive tests themselves as children, and this pattern was repeated in subsequent generations. In the study, parents assessed the likelihood of their children going to university and continuing their education there. Whether children wanted to continue their education after the age of 16 and whether they read regularly for pleasure, as well as educational attitudes, aspirations and circumstances such as the learning environment at home were deemed important. It was stressed that these circumstances were important in explaining the gap in cognitive scores of children from wealthy and poor backgrounds in the current generation. On the whole, attitudes and behaviors observed in the previous generation explained 40% of the gap in cognitive test scores between children from wealthy and poor backgrounds (Goodman & Gregg, 2010).

The Millennium Cohort Study (MCS) was conducted on nearly 19,000 children born in early 2000. It applied age-specific cognitive ability tests to children at ages 9 months, 3 years, 5 years, 7 years, and 11 years. On the average, 43 percent of children from poor families and 28 percent of children from non-poor families fell into the bottom decile of the cognitive ability

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distribution. Most poor and non-poor children in the bottom decile of the cognitive ability distribution moved upward only a few deciles while non-poor children climbed up slightly further along the cognitive ability distribution. Three-fifths, or 60%, of children from poor families moved upward from the bottom decile of the cognitive ability distribution to the second or third decile. Approximately the same perrcentage of children from non-poor families, 59% to be exact, moved upward from the bottom decile of the cognitive ability distribution to the second, third, or fourth deciles (Bruckauf & Chzhen, 2016). The Millennium Cohort Study determined that parental education had very substantial and crucial impacts not only on the probability that children would move up the cognitive ability distribution but also the probability that they would move into or move out of the bottom decile. Children of families with the highest level of education were 14 points more likely to move up or out of the bottom decile of the cognitive ability distribution, and 3 points less likely to move from higher to the bottom percentile. Compared to other SES indicators, parental education was most influential in predicting moves into and out of the bottom decile of the cognitive ability distribution. Household income and other characteristics of SES had significant independent effects on and increased the probability of children scoring in the bottom decile of the cognitive ability distribution. In the Millennium Cohort Study, higher income and higher SES played a crucial role in protecting children who achieved high scores on cognitive ability tests from falling into the lowest-performing bottom group. Nonetheless, poverty or lower income and lower SES exposed higher-performing children to the risk of falling behind. Parental education also protected children from falling into the bottom decile of the cognitive ability distribution and helped them move upward when they got confused (Bruckauf & Chzhen, 2016).

A longitudinal study conducted by Caro and colleagues (2009) asserted that variances, inequilities and gaps in academic achievement remained steady and stable between ages 7 and 11 and widened at increasing rates between ages 11 and 15. These variances, inequilities and gaps between the academic achievement of students from higher SES families and those from lower SES families widened at increasing rates throughout the secondary school years and into the beginning of high school. The average academic achievement variances and gaps among students aged 12 to 15 were twice as large as the average academic achievement variances and gaps among students aged 7 to 11 (Caro et al., 2009). Another longitudinal study conducted by von Stumm (2017) investigated and assessed intelligence and academic performance of a large representative sample of 5804 children at the ages of 7, 9, 10, 12, 14 and 16. In the study, children from the highest SES background and children from the lowest SES background were separated by an average of 6 IQ points at age 2. Variances, inequalities and gaps in intelligence scores between children from families with the highest SES and those from families with the lowest SES grew almost threefold by age 16, exceeding one standard deviation and reaching 15 points (von Stumm & Plomin, 2015). Parental SES was positively associated with children's academic performance at age 7 and with attainments in children's academic performance or academic development in due course from age 7 to age 16. The longitudinal research has asserted that SES moderates the relationship between intelligence and academic development throughout compulsory education. Theorists and researchers have argued that intelligence accelerates and stimulates academic performance in children from higher SES families, who

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are often able to appropriately address their children's learning needs, compared to children from lower SES families, who are typically less able to provide their children with learning and study support (Schoon, Jones, Cheng, & Maughan, 2012).

Meta-analytic studies have demonstrated that parental SES has certain impacts on students' academic achievement across educational stages in preschool, elementary school, secondary school, and high school. In a meta-analysis conducted by White (1982), it was reported that the mean effect sizes of SES components on students' academic achievement were 0.18 for parental education, 0.20 for parental occupation, and 0.31 for household income, while another meta-analysis conducted by Şirin (2005) revealed that the mean effect sizes of SES components for students' academic achievement were 0.30 for parental education, 0.28 for parental occupation, 0.29 for household income, 0.25 for participation in a free or reduced price lunch program, and 0.51 for home educational resources. In his meta-analysis, Şirin (2005) asserted that the magnitude of the relationship between SES and academic achievement increased significantly with each school level, from the beginning of elementary school to secondary school, with the exception of high school. He also claimed that the weakest relationship across educational levels was for kindergarten children at $r = 0.19$, whereas the strongest relationship was for secondary school students at $r = 0.31$. Harwell and colleagues (2017) reported in their meta-analysis that parental SES was positively correlated with students' academic achievement with a correlation of $r = 0.22$. Kim and colleagues (2019) determined in their meta-analysis that the effect sizes of SES indicators on students' academic achievement were 0.20 for parental education; 0.19 for household income, consumption, and expenditure; and 0.20 for wealth, assets, home resources, and homeownership. The mean effect size of parental SES on students' academic achievement was found to be 0.08 for elementary school students and 0.22 for secondary school students (Kim et al., 2019).

Likewise, in a recent meta-analysis, Liu and colleagues (2022) found the mean effect sizes of parental SES for students' academic achievement to be 0.22 in experimental studies and 0.28 in international large-scale assessments. The mean effect size of parental education for students' academic achievement was 0.22 in experimental studies and 0.26 in international large-scale assesments. Meanwhile, the mean effect size of parental occupation in experimental studies was 0.22, on par with the mean effect size for parental education; whereas, it was determined as 0.28 in large-scale assessments. The mean effect size of household income for students' academic achievement was found to be 0.20 in experimental studies and 0.29 in large-scale international assessments. The mean effect size of home resources for students' academic achievement was 0.19 in experimental studies and 0.28 in large-scale international assessments. The mean effect size of composite measures or indicators of SES related to students' academic achievement was found to be 0.22 in experimental studies and 0.34 in large-scale international assessments. Nonetheless, Liu and colleagues (2022) focused on elementary and secondary school education in their meta-analysis and determined the mean effect size of parental SES for students' academic achievement as 0.23 for elementary school students and 0.21 for secondary school students in experimental studies. In international large-scale assessments, on the other hand, the mean effect size of parental SES for students' academic achievement was reported as

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0.28 both for elementary and secondary school students. In their meta-analysis, Liu and colleagues (2022) contended that the relationships between parental SES and students' academic achievement had grown stronger since the 1990s and that domestic per capita income and economic equality did not have any impact on these relationships. They indicated that higher net enrollment rates and longer duration of compulsory education did not cause these relationships to deteriorate and that the relationships remained steady and stable or even became stronger across educational stages or grade levels in concurrent and longitudinal designs (Liu et al., 2022).

Parental SES and Parental Involvement in the Education of Children

Research related to social stratification often indicates the importance of cultural, social, and economic resources of parents to explain the relationship between parental SES and children's academic achievement (Kalmijn & Kraaykamp, 1996; De Graaf, De Graaf, & Kraaykamp, 2000). Research on child development suggests that parental involvement plays a remarkable and crucial role in children's education, training, and academic achievement (Shumow & Miller, 2001; Senechal & LeFevre, 2002). Parental involvement has been defined as a complex and multifaceted concept that encompasses school-based involvement, academic socialization, and home-based involvement. School-based involvement includes parents' making school visits, communicating with school administrators and teachers as well as taking part in school meetings and activities. Parents strive to socialize their children academically, convey the significance, value, and benefits of education to their children, discuss school-related matters and learning strategies with them, and make future educational plans and preparations. Home-based involvement calls for parents' checking and providing help with homework as well as monitoring and controlling children through family routines (Fan & Chen, 2001; Hill & Tyson, 2009). Well-educated parents with higher SES are more likely to engage in the types of involvement that schools approve, and have greater knowledge about educational opportunities and resources for their children through the economic capital, cultural or human capital and social capital they have accumulated over time. These parents have a higher perception of efficacy over their children and are more likely to be involved and engaged in their children's education (Lareau, 2011) and to send their children to schools that will provide better education (Crosnoe, 2006). More educated parents are more likely to stimulate and enhance cognitive learning experiences for their children, such as visiting museums and attending concerts, and also to engage their children in cultural conversations about books or on sociopolitical issues. They are more likely to express and convey higher educational aspirations and plans for their children (Hartas, 2015; Park & Holloway, 2013).

It is maintained that children and adolescents with higher SES make better use of their parents' educational involvement because higher SES parents are best equipped to convey and pass their cultural and social capital on to their children. Higher SES parents are more able to provide better academic socialization for their children, and this academic socialization may be associated with educational achievement of children and adolescents. The cultural socialization and education processes that children are exposed to at home can arm children with the interpersonal skills, connections, and educational practices that are valued by dominant social

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institutions, especially schools, as social capital (Lareau 2011). Children from higher SES families may learn to value formal culture and may be more likely to participate in intellectual activities such as visiting museums and reading; whereas, children from lower SES families may be less likely to be informed about and aware of such cultural activities. As schools appreciate and reward possessing intellectual, linguistic and cultural skills, children of culturally talented parents from higher SES families may tend to perform better in school and achieve higher educational levels compared to their lower SES peers (Bourdieu & Passeron, 1990).

Method

The present study aims to examine the independent and unique impacts of SES indicators, such as maternal education, paternal education and household income, on students' academic achievement and to contribute to the literature in this field. As parental involvement is shaped by SES, the study also focuses on parental involvement. Up to now, aside from Altschul's (2012) study, there has been little research investigating the independent and unique impacts of maternal education, paternal education and household income on students' academic achievement as indicators of SES together with parental involvement. Therefore, while the present study examines the impact of SES on students' academic achievement, it also addresses parental involvement. Certain assumptions put forward in this study include: (1) Maternal education will have an independent and unique impact on students' academic achievement. (2) Paternal education will have an independent and unique impact on students' academic achievement. (3) Household income will have an independent and unique impact on students' academic achievement. (4) Parental involvement will have an independent and unique impact on students' academic achievement. (5) Lower-educated and lower-income parents will be less involved in their children's education owing to their limited economic capital, cultural capital and social capital. (6) Higher-educated and higher-income parents will show more involvement in their children's education because of their economic capital, cultural capital and social capital. (7) In terms of academic achievement, there will be variances, inequalities and gaps between students from lower-educated and lower-income families and those from higher-educated and higher-income families.

Participants as Research Sample

In order to examine the impact of parental education and family income on students' academic achievement as the main indicators of SES, 100 students from science high school classes and 100 from industrial vocational high school classes, that is a total of 200 students, were randomly selected and included in the present research sample in the Academic Year 2023-2024.

Research Variables

The variables such as maternal education, paternal education, household income and parental involvement used to predict secondary school GPA as a measure of students' academic achievement were based on data collected from students. The present study utilized measures

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of maternal education, paternal education and household income to determine the socioeconomic status of the students' families.

Parental Education

Parents' education levels were determined based on the students' responses about the highest level of education of their parents. The students reported the highest level of parental education on an 8-point scale as elementary school graduate, secondary school graduate, high school and equivalent school graduate, two-year vocational school graduate, four-year vocational school graduate, university graduate, master's degree holder and doctoral degree holder. The mean level of maternal education was 3.74 with a standard deviation of 2.18, whereas the mean level of paternal education was 3.79 with a standard deviation of 2.16. The mean score for parents corresponded to a level between high school and two-year vocational school. In terms of education as the main indicator of SES, studies classified high school education and below as the lower education level category, while two-year or four-year vocational school education was identified as the medium education level category. On the other hand, university education and higher levels were classified as the higher education category (Althschul, 2012; Holloway, Campbell, Nagase, Kim, Suzuki, Wang, Iwatate, & Baak, 2016; Lee & Bowen, 2006). The present study addressed and utilized this education level categorization in the literature as the main measure to distinguish and describe the education levels of students' parents. More than half of the students, 57% to be exact, came from families who were graduates of elementary, secondary, or high school. They were considered to be in lower education category. While 22% of the mothers were elementary school graduates, 12% were secondary school graduates and 23.5% were high school graduates. The percentage of students whose fathers graduated from elementary school was 17%, those who graduated from secondary school was 19%, and those who graduated from high school was 21.5%. A small percentage of the students, 4.5% to be exact, came from families who were graduates of two-year or four-year higher education institutions. They were classified in the medium education category. While 37% of the students had higher educated mothers, 38% had higher educated fathers. Mothers of 28.5% of the students were university graduates, 6% had master's degrees, and 2.5% held doctoral degrees; whereas, fathers of 29.5% were university graduates, 5.5% had master's degrees, and 3% held doctoral degrees

Household Income

The students assessed and reported their monthly family income by checking one of the eight ranges in the income bracket category: (a) Less than 20,000 TL, (b) between 20,000-39,999 TL, (c) between 40,000-59,999 TL, (d) between 60,000-79,999 TL, (e) between 80,000-99,999 TL, (f) between 100,000-149,999 TL, (g) between 150,000-199,999 TL, and (h) 200,000 TL and above. The distribution of the students' monthly income levels was established based on these income bracket categories. The mean monthly income of the students' families was 3.59 with a standard deviation of 1.92. The mean monthly income score indicated the third income bracket (between 40,000-59,999 TL) and the fourth bracket (between 60,000-79,999 TL).

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Parental Involvement in the Education of Their Children

Parental involvement is generally defined as various resources that parents allocate and behaviors they are engaged in to foster children's educational outcomes, and is measured using a 15-item scale with indicators that are in conformity with the main dimensions and aspects of parental involvement in the educational literature (Altschul, 2012; Castro et al., 2015; Hill & Tyson, 2009; Hill & Taylor, 2004; Kim, 2019). Questions were asked about six types of parental involvement including parents' attitudes about education as well as their educational expectations, discussing school-related matters at home, checking and helping with homework, involving in school-based activities, providing educational support and learning materials at home, and offering supportive and complementary educational opportunities. Students assessed these types of parental involvement responding to a five-point scale: (0) never, (1) rarely, (2) sometimes-occasionally, (3) often, (4) always, and thus reported the level or frequency of their parents' involvement. Internal reliability analysis of the scale items was performed using Cronbach's alpha. Accordingly, Cronbach alpha values were 0.90 for general parental involvement; 0.68 for parents' educational expectations; 0.82 for discussing school-related matters; 0.61 for checking and helping with homework; 0.72 for involving in school-based activities; 0.86 for providing learning materials and resources; and 0.65 for offering complementary and complimentary educational opportunities.

Students' Academic Achievement

The general average of the grades that students receive from courses in secondary school classes has been accepted as an indicator of academic achievement. The academic achievement average of the students as the overall GPA in secondary school is 84.48, with a standard deviation of 16.18.

Results

In this study, correlational analysis was conducted to establish whether there were significant relationships among all variables. The correlations among the three main SES indicators, namely maternal education, paternal education and household income, six types of parental involvement and the dependent variable, that is students' secondary school GPA, were displayed in Table 1. Taking into consideration the three main SES indicators, maternal education and paternal education had similar correlations with students' academic achievement at 0.68 levels, while the correlation of household income with students' academic achievement slightly increased and reached the 0.70 level.

Table 1. Bivariate correlations among study variables

Variables	1	2	3	4	5	6	7	8	9
1. Maternal education	-								
2. Paternal education	.776**	-							

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3.Household income	.703**	.701**	-						
4 Educational expectations (2 items)	.397**	.445**	.371**	-					
5. Discussing school-related matters (2 items)	.237**	.265**	.297**	.588**	-				
6. Checking and helping with homework (2 items)	.189**	.213**	.212**	.482**	.665**	-			
7. School-based involvement (3 items)	.312**	.360**	.339**	.447**	.590**	.523**	-		
8. Home support (3 items)	.588**	.607**	.591**	.611**	.480**	.526**	.568**	-	
9. Suportive education (3 items)	.439**	.476**	.500**	.461**	.423**	.421**	.512**	.596**	-
10.Secondary school GPA	.682**	.689**	.703**	.522**	.378**	.334**	.420**	.696**	.576**

****** The correlation is significant at the 0.01 level.

Among the types of parental involvement, the highest correlation, which was at a level of 0.69, was observed between allocating a separate room or a quiet study space to students at home, providing educational resources and materials such as supplementary books, publications, journals, computers, etc., and students' academic achievement. On the other hand, the lowest correlation, which was at a level of 0.33, was found between checking whether children allocate time to their homework, helping them with their homework, and students' academic achievement. The correlation between discussing school-related matters at home and academic achievement was found to be 0.37; whereas, the correlation between parents' participation in school meetings or parent-teacher conferences and academic achievement was 0.42. There was a moderate correlation of 0.52 between parental educational expectations and students' academic achievement. In a similar manner, a moderate correlation of 0.57 was observed between complementary and supportive education, such as attending educational courses in schools or in the open market outside of regular school education or receiving private tutition, and students' academic achievement.

T tests indicated that children from higher-educated and higher-income families received more educational involvement and attained higher academic achievement (Tables 2, 3, 4).

Table 2. Comparison of students' general engagement frequency scores and academic achievement scores according to maternal education as the main indicator of SES.

	Total Samples 200	Children of mothers with lower education (graduates of elementary school, secondary school, high school) 115	Children of mothers with higher education (two- or four-year college graduates, university graduates, master's degree, doctoral degree) 85	Difference in maternal education

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	Mean	SD	Mean	SD	Mean	SD	t	df
General involvement in children	2,24	0,72	1,98	0,73	2,59	0,56	-6,42*	198
Academic achievement	84.48	16,18	75.49	14.72	96.64	8,11	-11.96***	198

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

Table 3 Comparison of students' engagement scores and academic achievement scores according to paternal education as the main indicator of SES

	Total Samples 200		Children of fathers with lower education (graduates of elementary school, decondary school, high school) 115		Children of fathers with higher education (two- or four-year college graduates, university graduates, master's degree, doctoral degree) 85		Difference in paternal education	
	Mean	SD	Mean	SD	Mean	SD	t	df
General involvement in children	2,24	0,72	1,94	0,71	2,64	0,53	-7,52*	198
Academic achievement	84,48	16,18	74,53	14,23	97,95	5,11	-14,48***	198

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

Table 4 Comparison of students' engagement scores and academic achievement scores according to household income as the main indicator of SES

	Total Samples 200		Students from families with monthly income of less than 60,000 TL 124		Students from families with monthly income of more than 60,000 TL 76		Difference in household income	
	Mean	SD	Mean	SD	Mean	SD	t	df
Involvement in children	2,29	0,68	2,05	0,68	2,54	0,69	-4,85	198
Academic achievement	86,36	13,43	78,55	16,11	94,15	10,75	-7,47***	198

Note. $***p < .001$.

Levels of Parental Involvement and Students' Academic Achievement According to Socioeconomic Status

Tables 2, 3, 4 depict the results of the differences in parental educational involvement levels according to the three main SES indicators, namely maternal education, paternal education and household income, as well as the analysis of the differences in academic achievement levels of children. These results indicate that the parental educational involvement and children's academic achievement demonstreate variations according to the levels of maternal education, paternal education and household income. Academic achievement displays, documents and verifies variances, inequalities and gaps betrween children from lower-educated and lower-income families and those from higher-educated and higher-income families. Bearing in mind the fact that maternal education and paternal education are the main indicators of SES, the children of higher-educated parents attain significantly higher academic achievements compared to the children of lower-educated parents. Given that the family income

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is another main indicator of SES, the children of medium or high income-level parents have significantly higher academic achievement than low-income parents. The mean academic achievement scores of students from families with more educational attainment and medium or high income levels are significantly higher than the mean academic achievement scores of students from lower-educated and low-income families.

Tables 2, 3, 4 not only display the variances and differentiation in the academic achievement of the students according to the three main SES indicators, namely maternal education, paternal education and household income, but also indicate the variatnce in the levels of parental educational involvement. Variances in the levels of involvement were observed among parents who were above and below the average level of educational attainments, graduates of two or four-year higher education institutes, university graduates, holders of master's or doctoral degrees in the higher education category have exhibited more parental involvement compared to elementary school, secondary school or high school graduate parents in the lower education category. At this point, SES played a significant role not only in the involvement of parents but also in the academic achievement of students. The parental educational involvcment and the academic achievement of children could vary and differ according to the SES background.

Relations of Three Main SES Indicators of Maternal Education, Paternal Education and Household Income with Students' Academic Achievement

Table 5 depicts the results of the hierarchical regression analysis used to examine the impact of parental SES and parental involvement on the academic achievement of students. Only maternal education was added to the Model 1 and R^2 was determined as 0.466. The model was statistically significant: ($F(1, 198) = 172{,}500$, $p < .001$, $R^2 = .466$) and maternal education accounted for 46.6 % of the variance in students' academic achievement. Paternal education was added to Model 2 and the R^2 value, which was 0,466 in Model 1, has now risen to 0.530 in Model 2. This model included maternal education with the main impact of paternal education. The variance in R^2 was 0.064. The model was statistically significant:($F(2, 197) = 110.862$, $p < .001$, $R^2 = .530$). The variables of maternal education and paternal education together accounted for 53 % of the variance in the academic achievement of the students; whereas, paternal education explained 6.4 % of the variance in academic achievement beyond maternal education variable.

Household income was added to Model 3 and the R^2 value, which was 0.530 in Model 2, has now risen to 0.588 in Model 3. The variance in R^2 was 0.058. This model included the variables of maternal education and paternal education together with the main impact of household income. The model was statistically significant: ($F(3, 196) = 93.139$, $p < .001$, $R^2 = .588$). The variables of maternal education, paternal education and household income all together accounted for 58.8% of the variation in students' academic achievement; whereas, household income explained 5.8% of the variation in students' academic achievement beyond the variables of maternal education and paternal education. When three main SES indicators of maternal education, paternal education and household income were added to the model

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sequentially, R^2 has risen to 0.588 and SES as maternal education, paternal education and household income explained 58.8% of the variation in students' academic achievement. In view of models 1, 2, 3, maternal education, paternal education and household income were significantly and positively associated with students' academic achievement. Higher maternal educational attainment, higher paternal educational attainment and higher parental income were associated with higher student academic achievement.

Table 5 Regression analysis predicting students' academic achievement (N = 200)

Students' academic achievement

Variable	r	***R²***	***R2 or the change in R2***	***F for the change in R2***	*B*	*SE B*	*β*	*t*	*p*
Model 1		**.466**	**.466**	172.500					.000
Constant					65,54	1,66		39,28	.000
Maternal education	.68				5,059	.385	.682	13,134	.000
Model 2		**.530**	**.064**	110,862					.000
Constant					62,78	1,65		37,88	
Maternal education	.68				2,749	.575	.371	4,780	.000
Paternal education	.68				3,006	.581	.401	5,174	.000
Model 3	.68	**.588**	**.058**	93,139					.000
Constant					59,87	1,65		36,26	.000
Maternal education	.68				1,676	.577	.226	2,905	.004
Paternal education	.68				1,950	.581	.260	3,356	.001
Household income	.70				3,042	.578	.362	5,261	.000
Model 4		**.630**	**.042**	82,913					.000
Constant					50,52	2,53		19,96	.000
Maternal education	.68				1,517	.549	.205	2,762	.006
Paternal education	.68				1,412	.564	.188	2,505	.013
Household income	.70				2,872	.551	.341	5,217	.000
Parents'educational expectations	.52				4,243	.902	.230	4,703	.000
Model 5		**.633**	**.003**	66,799					.000
Constant					50,14	2,54		19,67	.000
Maternal education	.68				1,548	.549	.209	2,820	.005
Paternal education	.68				1,444	.564	.193	2,562	.011
Household income	.70				2,776	.555	.330	4,997	.000
Parents'educational expectations	.52				3,535	1,071	.192	3,301	.001
Discussing school-related matters	.37				1,140	.932	.067	1,224	.223
Model 6		**.637**	**.004**	56,360					.000
Constant					49,74	2,55		19,46	.000
Maternal education	.68				1,545	.547	.208	2,823	.005
Paternal education	.68				1,439	.562	.192	2,560	.011
Household income	.70				2,793	.554	.332	5,042	.000
Parents'educational expectations	.52				3,312	1,078	.180	3,071	.002
Discussing school-related matters	.37				.270	1,101	.016	.245	.806
Checking and helping with homework	.33				.72	.49	.086	1,47	.143

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Model 7		**.639**	**.003**	48,602					.000
Constant					49,38	2,57		19,21	.000
Maternal education	.68				1,539	.547	.208	2,814	.005
Paternal education	.68				1,361	.565	.182	2,409	.017
Household income	.70				2,761	.554	.328	4,984	.000
Parents'educational expectations	.52				3,271	1,078	.178	3,034	.003
Discussing school-related matters	.37				-.151	1,157	-.009	-.131	.896
Checking and helping with homework	.33				1,203	1,003	.072	1,199	.232
School-based involvement	.42				1,370	1,164	.067	1,176	.241
Model 8		**.662**	**.023**	46,849					.000
Constant					48,42	2,50		19,31	.000
Maternal education	.68				1,237	.537	.167	2,305	.022
Paternal education	.68				1,123	.552	.150	2,034	.043
Household income	.70				2,324	.551	.276	4,220	.000
Parents'educational expectations	.52				2,049	1,099	.111	1,865	.064
Discussing school-related matters	.37				.292	1,129	.017	.258	.796
Checking and helping with homework	.33				.087	1,021	.005	.085	.932
School-based involvement	.42				.233	1,172	.011	.198	.843
Learning resources	.69				3,901	1,077	.259	3,621	.000
Model 9		**.672**	**.010**	43,259					.000
Constant					49,53	2,52		19,64	.000
Maternal education	.68				1,240	.531	.167	2,336	.021
Paternal education	.68				1,045	.547	.140	1,912	.057
Household income	.70				2,103	.552	.250	3,808	.000
Parents'educational expectations	.52				1,856	1,089	.101	1,705	.090
Discussing school-related matters	.37				.274	1,116	.016	.245	.807
Checking and helping with homework	.33				-.137	1,013	-.008	-.136	.892
School-based involvement	.42				-.318	1,182	-,016	-.269	.788
Learning resources	.69				3,482	1,079	.231	3,227	.001
Complementary or supportive education	.57				2,220	.941	.132	2,360	.019

The variable of parents' educational expectations from their children was added to Model 4, and the R^2 value, which was 0.588 in Model 3, has now risen to 0.630 in Model 4. The variance in R^2 was observed to be 0.042. This model included the variables of maternal education, paternal education and household income besides the main impact of the educational expectations variable. The model was statistically significant: ($F(4, 195) = 82.913$, $p < .001$, $R^2 = .630$) and the variables of maternal education, paternal education, household income and parental educational expectations all together accounted for 63% of the variance in students' academic achievement. The variable of parental educational expectations explained 4.2% of the difference in students' academic achievement beyond the variables of maternal education, paternal education and household income.

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The variable of parents' discussing school matters with their children was added to Model 5 and the R^2 value, which was 0.630 in Model 4, has now increased to 0.633 in Model 5. The variance in R^2 was 0.003. This model included the variables of maternal education, paternal education, household income and educational expectations along with the main effect of the variable of parents' discussing school-related matters with their children. The model was statistically significant: ($F(5, 194) = 66.799$, $p < .001$, $R^2 = .633$). The variables of maternal education, paternal education, household incom, parents' educational expectations and talking to their children about school issues all together explained 63.3% of the variance in students' academic achievement. The variable of parents' discussing school matters with their children, on the other hand, accounted for 0.3% of the variance in students' academic achievement beyond the variables of maternal education, paternal education, household income and parents' educational expectations.

The variable of checking and helping with homework was added to Model 6 and the R^2 value, which was 0.633 in Model 5, has now risen to $R^2 = 0.637$ in Model 6. The variance in R^2 was 0.004. This model included the variables of checking and helping with homework, as well as the main impact of the variables of maternal education, paternal education, household income, educational expectations, and discussing school-related matters with children. The model was statistically significant: ($F(6, 193) = 56.360$, $p < .001$, $R^2 = .637$) and the variables of mother's education, father's education, family income and parents' educational expectations, discussing school-related matters with their children, checking homework and helping with homework all together explained 63.7% of the variance in students' academic achievement. The variable of checking and helping with homework accounted for 0.4% of the variance in students' academic achievement beyond the variables of maternal education, paternal education, household income, parents' educational expectations and discussing school matters with children.

The variable of parental involvement in their children's school was added to Model 7 and the R^2 value, which was 0.637 in Model 6, has now risen to 0.639 in Model 7. The variance in R^2 was 0.003. This model included the main impact of the variable of parental involvement in their children's school, as well as the variables of maternal education, paternal education, household income, educational expectations, discussing school-related matters with children, and checking and helping with homework. The model was statistically significant: ($F(7, 192) = 48.602$, $p < .001$, $R^2 = .639$). The variables of maternal education, paternal education, household income, parents' educational expectations, discussing school-related matters with children, checking and helping with homework, and parents' involvement in their children's school all together explained 63.9% of the variance in students' academic achievement. Parents' involvement in their children's school accounted for 0.3% of the variance in students' academic achievement beyond the variables of maternal education, paternal education, household income, parents' educational expectations, discussing school matters with children, and checking homework and helping with homework.

The variable of providing educational support, learning materials and resources at home was added to Model 8 and the R^2 value, which was 0.639 in Model 7, has now risen to 0.662 in

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Model 8. The variance in R^2 was 0.023. This model included the main impact of the variable of providing educational support, learning materials and resources at home, as well as the variables of maternal education, paternal education, household income, parents'educational expectations, discussing school-relared matters with children, checking and helping with homework, and parent's involvement in their children's school. The model was statistically significant: ($F(8,191) = 48.849$, $p < .001$, $R^2 = .662$). The variables of maternal education, paternal education, household income, parents' educational expectations, discussing school-related matters with children, checking and helping with homework, parents' involvement in their children's school and providing educational support educational materials and resources at home, all together accounted for 66.2% of the variance in students' academic achievement. The variables of providing educational support, learning materials and resources explained 2.3% of the variance in students' academic achievement beyond the variables of maternal education, paternal education, household income, parents' educational expectations, discusing school-related matters with children, checking and helping with homework, and parents' involvement in their children's school.

The variable of offering complementary and supportive educational opportunities was added to Model 9 and the R^2 value, which was 0.662 in Model 8, has now risen to 0.672 in Model 9. The variance in R^2 was 0.010. Model 9 reflected the whole model as the last stage. This model included the main impact of the variable of offering complementary and supportive educational opportunities, as well as the variables of maternal education, paternal education, household income, educational expectations, discussing school-related matters with children, checking, and helping with homework, parents' involvement in their children's school, and providing educational support, learning materials, and resources at home. The model was statistically significant: ($F(9,190) = 43.259$, $p < .001$, $R^2 = .672$). The variables of maternal education, paternal education, household income, parents' educational expectations, discussing school-related matters with children, checking and helping with homework, parents' involvement in their children's school, providing educational support, learning materials and resources at home, and offering complementary and supportive education all together accounted for 67.2% of the variance in students' academic achievement. The variable of offering complementary and supportive education explained 1% of the variance in students' academic achievement beyond the variables of maternal education, paternal education, household income, parents' educational expectations, discussing school-related matters with children, checking and helping with homework, parents' involvement in their children's school, and providing educational supportand learning materials and resources at home.

In the entire model, the standardized regression coefficients for maternal education, household income, educational support, learning materials and resources at home, and complementary and supportive education were found to be significant. Meanwhile, the standardized regression coefficients for paternal education, parental educational expectations, discussing school-related matters with children, checking and helping with homework, and parental involvement in their children's school were not significant. Maternal education, maternal income, providing educational support and educational materials and resources at

home, and complementary and supportive education were found to be positively associated with students' academic achievement. Together with varying standardized regression coefficients in the model reflecting the effect size, household income (β = .250), educational support at home, learning materials and resources (β = .231), maternal education (β = .167), and complementary and supportive educational opportunities (β = .132) had significant, direct positive impacts on and were predictive of students' academic achievement.

Discussion and Conclusion

The present study examined whether three main SES indicators - maternal and paternal education, household income and parental involvement- had any impacts on students' academic achievement. SES involves economic, cultural, and social resources as well as the economic and social status, privileges and social prestige earned from these resources, and is defined as a multifaceted construct and concept assessed in terms of not only the parents' level of education but also their occupational status and household income (Volodina, Heppt, & Weinert, 2021). The present study posited that three main SES indicators, that is to say maternal education, paternal education and household income, would have independent and unique impacts on students' academic achievement. The study also assumed that parental involvement would be related to socioeconomic status and that parental involvement will have independent and unique effects on students' academic achievement.

Expectedly, variances, inequalities, and gaps in academic achievement were demonstrated and proven in the study sample. Students from highly educated and middle- or high-income families attained significantly higher academic achievements. The three main indicators of socioeconomic status, namely maternal education, paternal education, and household income, had a crucial function and consistently played a significant role in predicting students' academic achievement, aside from the impacts of parental involvement. Presumably, variances, inequalities, and gaps in academic achievement were explained partly by variances in the levels and impacts of maternal and paternal education and income, and by variances in the levels and impacts of parental involvement.

Association of Three Main SES Indicators of Maternal Education, Paternal Education and Household Income and Students' Academic Achievement

The present study determined the existence of a relationship between three main indicators of socioeconomic status, namely maternal education, paternal education, household income, and students' academic achievement. Across the 9 regression models that were created, indicators of SES, such as maternal education and household income, were significantly associated with students' academic achievement. Meanwhile, paternal education was significantly associated with students' academic achievement across all models except model 9. The impacts of the SES factors investigated in this study and the magnitudes of the impacts of SES on students' academic achievement predicted in meta-analyses were at comparable levels (White, 1982; Şirin, 2005; Harwell et al., 2017; Kim, 2019; Kim et al., 2019; Liu et al., 2022). The findings at this point demonstrated that household income had a a far more powerful positive impact on students' academic achievement compared to other measures of SES in

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Turkish families. Paternal education had the second most powerful impact on students' academic achievement; whereas, maternal education was the third variable impacting students' academic achievement (Model 3). Students from more highly educated families as well as those from middle- or high-income families had significantly higher academic achievements. Students from low-educated and low-income families had lower academic achievements compared to their peers from more highly educated middle- or high-income families. This particular finding apperars to be consistent with research suggesting that parental SES accounts for most of the variances in students' academic achievement and plays a more substantial role than schools do (Bradley & Corwyn, 2002; Chmielewski, 2019; Conger & Donnellan, 2007; Davis-Kean et al., 2021; Kim et al., 2019; Şirin, 2005; Von Stumm, 2017).

Previously conducted studies demonstrated strong connections between parents' educational attainment and children's academic progress across school years (Reardon, 2011) and deliberated on the role of biological as well as environmental pathways in the intergenerational transmission and transfer of skill and knowledge (Liu, 2018). They emphasized the influence of more passive biological pathways and asserted that 7% to 10% of children's cognitive outcomes might be due to genetic factors (Lee, Wedow, Okbay, Kong, Maghzian, Zacher, Nguyen-Vet, Bowers… Cesarini, 2018). As the most important factor of a more active environment and setting, parents sought to transmit and transfer skill and knowledge to their children through the educational opportunities, activities and beliefs they provided for their children inside and outside the home. It was asserted that these environmental pathways explained between 19% and 30% of the variance in students' academic achievement across SES groups in a nationally representative sample (Davis-Kean & Sexton, 2009). SES factors affected the family environment and context, and parents' educational attainment could moderate not only occupational status, job and job prestige, but also their income (Mirowsky & Ross, 2003). On the average, students from low SES families exhibited poor academic outcomes compared to their peers from middle and high SES families; whereas, children from higher SES families were mostly better positioned to realize their potential for cognitive ability and academic achievement. Low income may limit the advantages and opportunities offered by parents to make the most of educational activities, services and materials that may contribute to children's education and academic achievement. Compared to their peers from middle and upper SES families, children from low SES families may run a higher risk of academic failure and demonstrate lower academic achievement (Bradley & Corwyn, 2002; Chmielewski, 2019; Davis-Kean et al., 2021; Duncan et al., 2017; Şirin, 2005; Von Stumm, 2017).

Results of the present research were consistent with family investment theory (Becker, 2007; Conger & Donnellan, 2007; Duncan et al., 2017; Haveman & Wolfe, 1995; Mayer, 1997) and Bourdieu's cultural capital theory (Bourdieu, 1997), which emphasized the roles played by financial capital, cultural capital, and social capital in enhancing children's education and academic achievement. While household income acted as a means to purchase high-quality resources for children, parents' educational attainment was directly beneficial via nonmaterial resources and investments, such as cognitive enrichment of the home environment. Parents' educational attainment laid a foundation for the support to enhance children's academic

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achievement both via parents' beliefs and expectations for their children's education and indirectly via the cognitive stimulation parents provided within and outside the home environment (Davis-Kean et al., 2021). Cultural capital in the family was especially important for educational and academic achievement and could help foster, enhance and increase children's knowledge and skills (Evans, Kelley, Sikora, & Treiman, 2010). Parents activated and utilized not only their financial capital in the form of income, but also human capital or cultural capital (educational attainment) in the form of knowledge and skills, and social capital in the form of social environment, communication networks and skills as a means to enhance their children's education and academic achievement. Parental use of both financial capital and cultural and social capital has often been linked to children's cognitive development and academic achievement (Gershoff, Raver, Aber, & Lennon, 2007; Guo & Harris, 2000; Linver, Brooks-Gunn, & Kohen, 2002; Yeung, Linver, & Brooks-Gunn, 2002). Bourdieu and Passeron's theory of cultural reproduction posits that parents' cultural resources play a role in the transmission of educational inequalities across generations (De Graaf et al., 2000). Parents exerted joint developmental efforts in order to contribute to the educational achievement of children and adolescents by means of cultural reproduction. Schools highly valued and rewarded the possession of intellectual, linguistic and cultural skills. It is for this reason that culturally talented children from higher SES families were likely to exhibit better performance in school compared to their peers from lower SES families. Hence, they were able to achieve higher levels of educational attainment (Bourdieu & Passeron, 1990).

Association Between Parental Involvement and Students' Academic Achievement

Modeling of three main indicators of SES, namely maternal education, paternal education, and household income were modeled with parental involvement revealed that household income displayed the strongest association with and had a much stronger positive impact on students' academic achievement. Educational support at home, learning materials and resources showed the second strongest association with and the second largest impact on students' academic achievement. Maternal education was the third variable that was associated with and had a positive effect on students' academic achievement. Complementary or supportive educational opportunities were the fourth variable that was associated with and had a positive impact on students' academic achievement. In the study, the assumption that parental involvement would have an impact on and significantly predict academic achievement was partially supported. Parental involvement, such as providing educational support, learning materials and resources to children and offering complementary and supportive educational opportunities, was a powerful predictor of students' academic achievement (Model 9). More highly educated and middle- or high-income parents were able to provide their children with educational support, learning materials and resources at home, as well as offering complementary and supplementary educational opportunities, which naturally contributed to academic achievement. Students from families with higher education and higher income obtained wider advantages from parental involvement as parents with higher education and higher income were more involved in their children's academic achievement compared to parents with lower education and lower income. This finding seemed to be consistent with

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findings obtained in other studies implying that SES and parental involvement strongly predicted children's developmental outcomes and educational achievement (Altschul, 2012; Benner, Boyle, & Sadler, 2016; Lee & Bowen, 2006; Tazouti & Jarlegan, 2019). Cultural reproduction theory posits that higher SES parents are best equipped to convey, transmit and pass on their cultural and social capital to their children; therefore, children and adolescents from more advantaged SES backgrounds make the most use of parents' educational involvement. In the process of cultural socialization and education, parents made increased efforts to stimulate, motivate, and prepare their children to learn and acquire culture, interpersonal skills, connections, and educational practices valued and rewarded by dominant social institutions such as schools as social capital (Lareau, 2011). Household income and parental education level played a part in the association between parental involvement and students' academic achievement, and mediated and moderated the association between parental involvement and students' academic achievement to a certain extent (Lareau, 2011; Wang & Sheik-Khalil, 2014). Higher SES parents are more engaged in the types of involvements that schools value based on the financial, human, or cultural capital and social capital they accumulated. Such involvements may enable students from higher SES families to achieve better outcomes in school compared to students from lower SES families (Kalmijn & Kraaykamp, 1996; Lareau, 2011; McNeal, Jr. 1999; Shumov & Miller, 2001).

In view of the six types of parental involvement in the present study, the standard regression coefficients reflecting the effect size of four types of involvement, namely parental educational expectations, discussing school-reelated matters with children, checking and helping with homework, and school-based involvement, on students' academic achievement were not significant. This result seems to be inconsistent and incoherent with the findings of other studies addressing the positive benefits of these types of involvement behaviors. Previous studies asserted that parental involvement had a positive and significant impact on students' academic performance and enhanced their educational endeavors, resulting in greater learning efforts, more school engagement and better academic performance in students (Castro et al., 2015; Jeynes, 2003, 2005, 2007, 2012; You et al., 2016). The present study found that parents' educational expectations were partially related to students' academic achievement. It significantly and positively affected and predicted students' academic achievement (Models 4, 5, 6 and 7). Nevertheless, when maternal education, paternal education, household income together with six types of parental involvement were added to the analysis as variables, the impact of parents' educational expectations on students' academic achievement was not significant (Model, 9).

Theorists and researchers claimed that the strength of the association between parental involvement and students' academic achievement tended to decline as students moved up and transitioned from elementary school to secondary school and high school. When four types of involvement, namely parents' educational expectations, discussing school-related matters with children, checking and helping with homework and school-based involvement, are considered together in the present study, the finding that the standard regression coefficients reflecting the effect size of these types of involvement on students' academic achievement are not significant

(Model, 9) can be assessed and interpreted within the context of these discussions. Previously conducted research asserted that the impacts of parental involvement on elementary, secondary, and high school students may vary and change, and that the level of parental involvement and its impact on academic achievement were not the same as students' moved up and transitioned from elementary to secondary school and high school at ages 14 to 18. It was also pointed out that the strength of the association between parental involvement and students' academic achievement tended to decline as students moved up and transitioned from elementary to secondary school and high school at ages 14 to 18 (Singh, Bickley, Keith, Keith, Trvette, & Anderson, 1995; Fan & Chen, 2001). Even though it was stated that parental involvement declined as students moved up and transitioned to secondary and high school (Desforges & Abouchaar, 2003), it was pointed out that parental involvement changed over time as students grew up and matured, but did not necessarily decline. Activities and practices that depended directly upon parental involvement in guiding and directing children's learning styles, such as reading and learning together, were found to be highly beneficial from preschool years through elementary school years. As children grew up and matured, parents strived to establish conditions that would nurture, foster and enhance students' academic achievement rather than guiding, directing, and supporting learning (Boonk et al., 2018). In the present study, the significant and positive impact of providing children with educational support, learning materials and resources, and offering complementary, supportive educational opportunities on students' academic achievement and as well as the result predicting academic achievement was related to parents' involvement and efforts in establishing conditions that would nurture, foster and enhance students' academic achievement.

Study Limitations

The present study has certain limitations. Three main SES indicators, namely maternal education, paternal education, and household income, are included in this study as parents' educational attainment typically drives their occupations and income and is often used interchangeably with SES in research (Davis-Kean et al., 2021). On the assomption that parental involvement is associated with and may be affected by SES, the study has also focused on parental involvement. Parental involvement measures used in the study are not comprehensive and practices that depend on parental involvement of other non-participating parents may play a significant role in children's academic achievement. At this point, the measures for maternal and paternal involvement in children's education, which can increase the understanding of the different roles of parents in children's education, are not separate from one another. The measures used in this study do not allow and enable direct evaluation of the family investment model or the family stress model, which try to explain the association between SES and children's academic achievement. The research findings can only be significant in terms of the effects created by these two explanatory models.

Implications for Research and Practice

In spite of its limitations, the present study provides findings that can inform both future research and future interventions to improve and enhance student academic achievement. The

findings demonstrate the significance of assessing multiple elements of SES in future research based on the different impacts of maternal and paternal education levels as well as household income levels on student academic achievement. In view of the impact of household income, maternal education, paternal education on enhancing students' academic achievement, the government should attach greater importance and give higher priority to policies that aim to protect children from the negative impacts and harmful consequences of lower household education and income on children's cognitive abilities and school performance in early childhood and adolescence. In low SES families, economic income should be increased to meet the investments and expenses made by parents to enhance children's cognitive abilities and school achievement. Low-income families should be able to pay for services, activities, experiences, learning materials and resources that foster and enhance cognitive development and academic achievement in children. The government, media industry, and teachers should give high priority to educational activities and practices that meet the educational needs of children and adolescents from low-income and low-educated families so as to overcome their disadvantages and contribute to their cognitive abilities and academic achievement through effective intervention programs. Educational programs should be designed and implemented appropriately to increase parents' awareness and consciousness in their efforts to provide services, activities, experiences and materials that nurture, foster and enhance cognitive skills and school achievement of children's and adolescents.

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