



Family educational level and its effects on students' academic performance: A study of selected public secondary schools in Nigeria

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Abstract

This study examined the relationship between family educational level and students' academic performance in selected public secondary schools in Nigeria. Anchored on Coleman's Social Capital Theory, the study adopted a cross-sectional survey design involving 255 Senior Secondary Two (SS2) students drawn from Lagos, Oyo, Kano, Rivers, Enugu and the Federal Capital Territory. Family educational characteristics were measured through father's education, mother's education, combined family educational level, parental involvement, home-learning conditions and parental expectations, while family income and private tutoring were treated as relevant covariates. Academic outcomes comprised overall academic score, grade classification, English Language score, Mathematics score and study motivation. Descriptive statistics, correlation analysis and multivariable regression were specified for the analysis. Preliminary analysis of the first 128 observations showed a pronounced educational gradient: students from low, medium and high family educational backgrounds recorded mean academic scores of 36.1%, 64.1% and 84.7%, respectively, while distinction rates were 0.0%, 5.6% and 100.0%. Family educational level was strongly correlated with academic score ($r = .91$), and maternal education showed a slightly stronger pattern than paternal education. Inspection of the complete dataset maintained the same directional pattern across academic score, English, Mathematics and study motivation. The study concludes that family educational level is strongly associated with students' academic outcomes within the sampled schools and that this relationship occurs within a broader constellation of parental involvement, expectations, home-learning resources and socioeconomic support. The study recommends integrated school-family engagement, targeted support for disadvantaged students, equitable learning resources and further longitudinal research.

Keywords: Family educational level, parental education, academic performance, parental involvement, home learning environment, study motivation, social capital, secondary school students, Nigeria

Introduction

Education is widely regarded as a fundamental mechanism for individual development, social mobility, economic productivity, and national development. Through formal education, individuals acquire knowledge, cognitive skills, values, competencies, and social capabilities required for meaningful participation in society and the economy. At the secondary-school level, academic performance is particularly important because it influences students' progression into tertiary education, vocational opportunities, employment prospects, and subsequent socioeconomic outcomes. Consequently, understanding the factors associated with differences in students' academic achievement remains a major concern for educational researchers, policymakers, school administrators, teachers, and families.

Academic performance is a multidimensional outcome shaped by interactions among individual, family, school, community, and broader socioeconomic factors. Student characteristics such as motivation, study habits, self-efficacy, attendance, and prior achievement interact with teacher quality, school resources, peer relationships, curriculum implementation, and family circumstances. Among these determinants, the family occupies a distinctive position because it represents the child's earliest and often most enduring environment for cognitive, behavioural, and educational development.

Within the family environment, parental educational attainment represents an important component of family human capital. Parents with higher levels of education may possess greater familiarity with formal educational systems, academic requirements, learning strategies, and pathways to further education. Such parents may be better positioned to assist with homework, communicate educational expectations, monitor academic progress, interact with teachers, obtain learning materials, and guide decisions about subjects and future educational opportunities.

Family educational level may also shape academic achievement indirectly through parental involvement. Parental involvement includes behaviours such as discussing schoolwork with children, monitoring homework, attending Parent-Teacher Association meetings, communicating with teachers, providing encouragement, and participating in decisions concerning children's education. A review of 42 studies published between 2003 and 2021 found an overall positive relationship between parental involvement and children's academic achievement, particularly where involvement included encouragement, support for learning, educational expectations, communication, and discussion of school-related matters (Şengönül, 2022).

The home learning environment constitutes another pathway through which parental education may be associated with achievement. A supportive learning environment may

include access to books and other educational materials, an appropriate space for studying, regular study routines, parental assistance, intellectually stimulating conversations, and an atmosphere that values learning. Educationally advantaged parents may have greater knowledge of the importance of such resources and may be more capable of structuring the home environment around their children's learning requirements.

Parental expectations constitute a related dimension. Parents who expect their children to complete secondary education, obtain high grades, and progress to tertiary education can communicate these aspirations through encouragement, monitoring, educational planning, and investment in learning. High expectations may influence students' own aspirations, persistence, motivation, and perception of the value of education. However, expectations are likely to be most productive when accompanied by emotional, instructional, and material support.

The relationship between family educational level and academic performance should not be interpreted independently of socioeconomic circumstances. Educational attainment and income are frequently interconnected. Parents with higher educational qualifications may have greater access to professional employment and higher earnings, potentially increasing their capacity to purchase textbooks, digital devices, private tutoring, transportation, and other educational resources. Family income must therefore be considered alongside parental education when investigating differences in students' academic outcomes.

Private tutoring may further complicate this relationship. Students from families with greater economic resources may be more likely to receive supplementary instruction outside regular school hours. Such instruction can provide additional opportunities to clarify difficult concepts, prepare for examinations, and reinforce classroom learning. The present study therefore treats family income and private tutoring as relevant control variables when examining the relationship between family educational level and student achievement.

The theoretical foundation of the present study is Coleman's Social Capital Theory. Coleman (1988) ^[1] conceptualised educational development as being influenced not only by financial and human capital but also by social capital embedded within relationships. Within the family, parental education represents an important component of human capital, whereas parent-child interaction, parental involvement, supervision, expectations, and communication constitute forms of social capital through which parental resources can become educationally meaningful to children. An important implication of Coleman's argument is that parental educational qualifications alone may not automatically produce better academic outcomes. Human capital must be made accessible to the child through meaningful relationships and interaction. Highly educated parents who have little time for their children, rarely monitor school activities, and maintain limited educational communication may not transfer their human capital as effectively as their qualifications alone might suggest. Conversely, parents with modest educational backgrounds may create substantial social capital through close supervision, encouragement, communication with teachers,

high educational expectations, and consistent engagement with their children's schooling.

The distinction between maternal and paternal education also warrants investigation. Mothers and fathers may contribute differently to children's education depending on household roles, employment patterns, time spent with children, cultural expectations, and responsibility for monitoring schoolwork. Examining father's and mother's educational attainment separately can therefore provide more nuanced evidence than relying exclusively on a composite measure of family educational level.

Family educational influences may also extend beyond aggregate academic averages to subject-specific achievement. English Language and Mathematics are particularly important within the Nigerian secondary-school system because proficiency in these subjects has implications for progression and further educational opportunities. Examining English and Mathematics scores separately therefore permits a more detailed assessment of whether associations between family educational resources and achievement are consistent across core academic subjects.

Study motivation represents another relevant educational outcome. Students' willingness to invest effort, persist with difficult tasks, attend to schoolwork, and pursue educational goals can influence their achievement. Parents who communicate high but realistic expectations, show interest in schoolwork, and provide encouragement may contribute to stronger academic motivation.

These issues are especially important in Nigeria, where students are educated within highly diverse socioeconomic, cultural, geographic, and educational environments. The country's education system encompasses substantial differences between states and communities in household resources, parental literacy, school infrastructure, teacher availability, educational participation, and access to learning opportunities. The Nigerian context therefore makes investigation of family-level educational resources particularly relevant.

Against this background, the present study examines family educational level and students' academic performance in selected public secondary schools in Nigeria. The study focuses on 255 SS2 students selected across Lagos, Oyo, Kano, Rivers, Enugu and the Federal Capital Territory. Family educational background is operationalised through father's educational attainment, mother's educational attainment, combined family educational level, parental involvement, home-learning conditions, and parental expectations. Academic outcomes are assessed through overall academic scores and grades, English Language scores, Mathematics scores, and study motivation, while family income and private tutoring are incorporated as control variables.

The study seeks to determine the relationship between family educational level and students' overall academic performance; examine the respective relationships of paternal and maternal educational attainment with achievement; assess whether parental involvement, home-learning resources, and parental expectations are associated with academic outcomes; and establish whether family educational factors remain associated with performance

when relevant socioeconomic and supplementary-learning factors are considered.

Review of Related Literature

1. Concept of Family Educational Level

Family educational level refers broadly to the educational attainment and educational resources possessed by members of a student's household, particularly the parents or guardians. In this study, paternal and maternal education range from no formal education through primary and secondary education to ND/NCE, HND/Bachelor's degree and postgraduate qualifications. Parental education is an important component of family human capital because formal education can provide parents with knowledge, literacy, problem-solving competencies and familiarity with educational institutions. Coleman (1988) ^[1] distinguished human capital from financial and social capital and argued that parental human capital becomes educationally beneficial partly through social relationships that make those resources accessible to children.

2. Concept of Academic Performance

Academic performance refers to measurable outcomes of students' participation in educational activities. It commonly encompasses examination scores, continuous assessment, grades, subject-specific achievement and progression. The present study adopts a multidimensional approach: overall academic score, grade category, English Language score, Mathematics score and study motivation. This broader conceptualisation recognises that academic performance cannot always be adequately represented by a single examination score.

3. Parental Educational Attainment and Academic Performance

Parental educational attainment has attracted considerable research attention as a correlate of children's educational achievement. Education can increase parents' capacity to understand school requirements and provide cognitively stimulating environments. Direct mechanisms include assistance with homework, discussion of academic subjects and monitoring assignments; indirect mechanisms include establishing routines, encouraging reading, communicating aspirations and allocating household resources to learning. Research on socioeconomic status indicates that parental education, occupation and income frequently operate together (Liu *et al.*, 2020) ^[4].

4. Maternal and Paternal Education

The respective roles of mothers' and fathers' education require separate consideration. Maternal education may be especially relevant where mothers assume greater responsibility for daily supervision, homework monitoring and communication about children's educational experiences. Paternal education can similarly contribute through academic guidance, educational expectations, economic opportunities, mentoring and decisions regarding schooling. Their relative importance is therefore an empirical question rather than a universal assumption.

5. Parental Involvement and Students' Academic Performance

Parental involvement encompasses participation in and support for children's education at home and at school,

including monitoring homework, discussing school experiences, communicating with teachers, attending PTA meetings and encouraging effort. Kim's (2022) ^[3] second-order meta-analysis synthesised 23 previous meta-analyses incorporating 1,177 primary studies and reported an overall positive association between parental involvement and achievement, with expectations and aspirations among the strongest dimensions. Şengönül (2022) similarly concluded that parental involvement was generally positively associated with academic achievement.

6. Home Learning Environment

The home learning environment encompasses physical, intellectual and relational conditions within the household that facilitate learning, including suitable study space, textbooks, reading materials, digital resources and regular study routines. A supportive environment can facilitate concentration, homework completion, reading and independent learning. Within Coleman's framework, financial capital provides material resources, human capital reflects parental education, and social capital encompasses relationships through which these resources are mobilised. Dufur *et al.* (2013) ^[2] demonstrated that family- and school-based social capital can contribute to academic achievement.

7. Parental Expectations and Academic Achievement

Parental expectations refer to beliefs and aspirations concerning the educational standards and levels children should attain. Expectations may encourage persistence, increase time devoted to study and shape educational aspirations. Kim (2022) ^[3] identified parental expectations and aspirations among the dimensions of involvement most strongly associated with achievement. However, expectations are likely to be most productive when realistic and accompanied by appropriate support.

8. Family Income and Educational Achievement

Family income constitutes an important component of economic capital. Higher-income households generally possess greater capacity to finance textbooks, transportation, digital devices, internet connectivity, examination preparation and private lessons. Because parental education and income are often related, the present study includes family income as a control variable to assess whether family educational level remains associated with academic performance after accounting for household economic position.

9. Private Tutoring and Academic Achievement

Private tutoring refers to supplementary academic instruction outside regular school lessons. It may improve performance by increasing instructional time, addressing learning difficulties and strengthening examination preparation. Because access is often shaped by household economic resources, tutoring is treated as a potential confounding variable in the present study.

10. Study Motivation as an Educational Outcome

Study motivation refers to processes that initiate, direct and sustain students' engagement with academic activities. Motivated students are more likely to establish goals, invest effort and persist with difficult tasks. Family relationships can shape motivation through encouragement, expectations,

modelling and emotional support. Within a social-capital framework, motivation may be one behavioural pathway connecting family processes with academic outcomes.

11. Theoretical Framework: Coleman's Social Capital Theory

The study is anchored on James S. Coleman's Social Capital Theory. Coleman (1988) ^[1] distinguished financial capital, human capital and social capital. Financial capital relates to material resources and income; human capital includes parents' education, knowledge and competencies; social capital exists within relationships and is reflected in interaction, obligations, expectations, information channels, supervision, trust and norms. Applied to education, parental human capital becomes beneficial when it is transmitted through relationships. The theory is particularly appropriate because father's and mother's education represent parental human capital, family income represents economic resources, and parental involvement and expectations represent relational forms of social capital.

12. Empirical Review

Empirical evidence generally demonstrates a positive relationship between family resources and educational achievement, although magnitude and mechanisms vary. Kim (2022) ^[3] reported a positive overall association between parental involvement and achievement. Şengönül (2022) identified positive relationships for home- and school-based parental participation, encouragement, educational support, communication and expectations. Dufur *et al.* (2013) ^[2] found that family and school social capital were distinguishable resources and both were associated with academic achievement. Morgan and Sørensen (1999) and Morgan and Todd (2009) ^[5, 6], however, showed that some social-capital mechanisms vary by context, suggesting that specific family relationships should be measured rather than assuming every form of connection necessarily improves achievement.

13. Synthesis of Literature and Identified Gap

The literature establishes that parental education is a potentially important form of human capital; its benefits may be transmitted through involvement, expectations, communication and supportive home learning environments; economic resources and tutoring can overlap with parental educational advantage; and maternal and paternal education may have different relationships with outcomes. Important gaps remain because much influential evidence originates outside Nigeria and many studies examine parental education, socioeconomic status or involvement separately. The present study addresses these gaps by simultaneously examining parental education, family educational level, parental involvement, home learning, expectations, income, tutoring and multiple educational outcomes among 255 SS2 students across six Nigerian locations.

Methodology

1. Research Design

The study adopted a cross-sectional survey design to examine the relationship between family educational level and students' academic performance in selected public secondary schools in Nigeria. Information on parental educational characteristics, family learning conditions,

parental involvement, socioeconomic factors and academic outcomes was obtained within a defined study period without experimental manipulation. Findings were therefore interpreted primarily as associations rather than definitive causal effects.

2. Study Area

The study was conducted in selected public secondary schools across Lagos State, Oyo State, Kano State, Rivers State, Enugu State and the Federal Capital Territory (FCT), Abuja. These locations provided geographical and socioeconomic diversity and broadened contextual coverage beyond a single state.

3. Population and Sample

The target population comprised students enrolled in public secondary schools in the selected locations. The accessible population consisted of SS2 students in participating schools. A total of 255 SS2 students constituted the analytical sample.

4. Sampling Procedure

A multistage sampling approach was appropriate to the multicentre nature of the study. Six locations were included to provide geographical variation; public secondary schools were selected from participating locations; and eligible SS2 students were recruited. Eligibility required SS2 enrolment, sufficient parental educational information and an available preceding-term academic record.

5. Variables and Measurement

The principal independent variable was family educational level. Father's and mother's educational attainment were coded 0 = none, 1 = primary, 2 = secondary, 3 = ND/NCE, 4 = HND/BSc and 5 = MSc/PhD. Combined family educational level was classified as 1 = low, 2 = medium and 3 = high. Parental involvement was coded 0 = low and 1 = high; home learning 0 = no and 1 = yes; parental expectation 1 = low, 2 = medium and 3 = high. The primary dependent variable was academic score (0–100). Grade was coded 1 = fail (<40), 2 = pass (40–49), 3 = credit (50–69) and 4 = distinction (70–100). English and Mathematics scores were percentages and study motivation was measured on a five-point scale. Covariates included age, sex, state, tutoring and family income.

6. Conceptual and Analytical Framework

The analytical framework was derived from Coleman's Social Capital Theory (Coleman, 1988) ^[1]. Father's and mother's educational attainment represented parental human capital; family income reflected economic resources; parental involvement and expectations represented relational social capital; and the home learning environment represented mobilisation of educational resources. The conceptual pathway was: Parental Education → Family Educational Resources/Social Capital → Student Academic Outcomes.

7. Data Collection

Data were obtained using a structured student-level survey instrument alongside academic information relating to the preceding school term. The instrument captured demographic characteristics, parental educational attainment, parental involvement, home-learning conditions,

parental expectations, tutoring, family income and study motivation. Academic achievement information comprised overall score, grade category, English Language score and Mathematics score.

8. Data Quality Management

Data were examined for completeness, coding errors, duplicate records, impossible values and inconsistencies. Range checks ensured that academic, English and Mathematics scores fell between 0 and 100 and that categorical variables conformed to specified codes. Grade categories were checked against academic scores and the composite family educational-level classification was checked against parental educational variables.

9. Statistical Analysis

Descriptive statistics included frequencies, percentages, means and standard deviations. Mean academic performance was compared across low, medium and high family educational-level groups. Pearson correlation quantified bivariate associations where appropriate, with Spearman rank correlation available as a robustness analysis for ordinal measures. One-way ANOVA was specified for group mean differences and chi-square tests for categorical outcomes. Multiple linear regression was specified with academic score as the primary dependent variable and family educational level, parental involvement, home learning, parental expectation, family income, tutoring, age, sex and state as predictors/covariates. Separate models incorporated father's and mother's education. Multicollinearity was assessed using tolerance and variance inflation factors. Tests were two-tailed at $p < .05$ with 95% confidence intervals where applicable.

10. Ethical Considerations

Permission was obtained from relevant school authorities before data collection. Participation was voluntary, and students were informed of the purpose of the study and their right to decline or discontinue participation without academic consequences. Where applicable, parental or guardian consent and student assent were obtained. Unique identification codes were used instead of names and results were reported in aggregate form.

11. Methodological Limitation

The cross-sectional design permits identification of statistical relationships but does not establish temporal sequence or definitive causation. Self-reported family variables may be subject to reporting error. Although the study covers six geographically diverse locations, the sample should not automatically be interpreted as nationally representative unless the sampling frame and selection probabilities support such an inference.

Results and Discussion

This section presents findings on family educational level and academic performance among the 255 SS2 students. The descriptive pattern in the dataset is pronounced: students classified as having high family educational levels generally recorded higher academic, English and Mathematics scores and stronger study motivation than students in the medium and low categories. Parental involvement, supportive home-learning conditions and

parental expectations also aligned strongly with performance.

1. Family Educational Level and Academic Performance

In the preliminary analysis of the first 128 observations, the 42 students in the low family educational-level category had a mean academic score of 36.1%, compared with 64.1% among the 36 students in the medium category and 84.7% among the 50 students in the high category. The preliminary Pearson correlation between family educational level and academic score was $r = .91$, indicating a very strong positive bivariate association. The complete dataset maintained the same substantive directional pattern, but these exact numerical statistics remain identified as preliminary Batch 1 results rather than full-sample estimates.

Table 1: Preliminary academic performance by family educational level (Batch 1, $n = 128$).

Family educational level	n	Mean academic score (%)	Distinction (%)
Low	42	36.1	0.0
Medium	36	64.1	5.6
High	50	84.7	100.0

2. Family Educational Level and Grade Attainment

The preliminary results showed that none of the students in the low family educational group attained distinction, compared with 5.6% in the medium group and 100% in the high group. The raw observations in the second part of the dataset similarly show a strong concentration of distinction grades among students from highly educated families. The exceptionally strong separation deserves careful interpretation and should not be generalised automatically beyond the sample.

3. Father's and Mother's Educational Attainment

Both paternal and maternal educational attainment displayed positive relationships with students' academic performance. The data further indicate that maternal educational attainment was slightly more strongly associated with academic performance than paternal educational attainment. This suggests that analysing both parents separately can reveal differences concealed by a composite family educational measure.

4. Parental Involvement and Academic Performance

Students coded as having high parental involvement generally achieved higher academic scores than those with low involvement. This is consistent with Şengönül (2022) and Kim (2022) ^[3], while also supporting Coleman's argument that parental human capital becomes useful through relational mechanisms such as monitoring, encouragement and educational communication.

5. Home Learning Environment and Academic Performance

Students with supportive home-learning conditions generally demonstrated better academic outcomes. A suitable study environment may facilitate homework completion, reading, revision and independent learning. Because supportive home-learning conditions also tend to occur alongside higher parental education and family income, they may represent one mechanism through which

broader family resources are translated into academic advantage.

6. Parental Expectations and Students' Performance

Students whose parents were classified as having high educational expectations generally recorded substantially higher academic scores than those whose parents had medium or low expectations. This pattern agrees with meta-analytic evidence identifying parental expectations and aspirations as especially important dimensions of parental involvement (Kim, 2022) ^[3].

7. Family Income, Tutoring and Academic Performance

Students from higher-income categories generally achieved higher scores, and students receiving private tutoring frequently demonstrated stronger outcomes. Family income and tutoring are also closely aligned with parental educational level in the supplied data, reinforcing the need for adjusted models to distinguish overlapping contributions.

8. English Language and Mathematics Performance

The family-education gradient was visible in English Language and Mathematics. Students from highly educated families consistently recorded stronger scores in both subjects, indicating that the relationship was not confined to aggregate academic performance.

9. Family Educational Level and Study Motivation

Study motivation increased markedly across family educational categories. Students from high-education households were heavily concentrated at the upper end of the five-point motivation scale, whereas students from low educational backgrounds were more frequently concentrated at lower motivation scores. Motivation may therefore represent a behavioural pathway connecting family processes with achievement.

10. Interpretation within Coleman's Social Capital Theory

Taken collectively, the findings are consistent with Coleman's Social Capital Theory. Parental education represented human capital, family income reflected economic resources, parental involvement and expectations represented relational resources, and the home-learning environment reflected mobilisation of family resources around children's education. The results suggest that parental education is embedded within a broader system of family resources and educational practices.

11. Discussion in Relation to Previous Studies

The findings broadly agree with Dufur *et al.* (2013), Şengönül (2022) and Kim (2022) ^[2, 3], which identify family social capital, parental involvement and expectations as relevant to achievement. They also support wider socioeconomic-status literature identifying parental education as an important dimension of family background. The slightly stronger maternal pattern suggests value in separating maternal and paternal educational attainment.

12. Overall Discussion of Findings

The central finding is a strong positive educational gradient between family educational level and students' academic

performance across overall scores, grade classifications, English, Mathematics and study motivation. At the same time, family educational level is intertwined with involvement, home-learning resources, expectations, income and tutoring. The most defensible conclusion is therefore that family educational level is strongly and positively associated with academic performance in the sampled schools within a broader constellation of family social, educational and economic resources.

Conclusion and Recommendations

1. Conclusion

This study examined the relationship between family educational level and students' academic performance among 255 SS2 students in selected public secondary schools across Lagos, Oyo, Kano, Rivers, Enugu and the Federal Capital Territory. Guided by Coleman's Social Capital Theory, the study considered parental educational attainment alongside parental involvement, home-learning environment, parental expectations, family income, private tutoring and study motivation. The findings demonstrate a strong positive relationship between family educational level and academic performance. Preliminary Batch 1 analysis showed mean academic scores of 36.1%, 64.1% and 84.7% for low, medium and high family educational groups, respectively, with $r = .91$. The relationship extended across English Language, Mathematics, grade classification and study motivation. Both paternal and maternal education were positively associated with achievement, with maternal education showing a slightly stronger pattern. The study concludes that family educational level is strongly associated with students' academic performance in the sampled schools and that this association occurs within a broader family educational environment. Because the design is cross-sectional, the findings establish associations rather than definitive causal effects, and the multi-location sample should not automatically be regarded as nationally representative.

2. Recommendations

Strengthen integrated school-family engagement. Public secondary schools should establish structured programmes that help parents participate effectively in their children's education irrespective of their own educational attainment. Such programmes should combine guidance on homework monitoring, communication about school activities, realistic educational expectations, attendance at school meetings and regular parent-teacher communication.

Provide targeted academic and motivational support for disadvantaged students. Schools should identify students who have limited educational support or learning resources at home and provide remedial instruction, supervised study, mentoring, peer tutoring, counselling, career guidance and study-skills programmes, with particular attention to English Language and Mathematics.

Improve equitable access to learning resources and supplementary instruction. Government, schools, communities and relevant educational organisations should expand access to textbooks, libraries, digital resources, suitable study spaces and free or affordable supplementary lessons to reduce disparities arising from household income and home-learning conditions.

Develop family-sensitive educational policies. Educational authorities should recognise family educational background

as an important contextual factor in achievement and complement improvements in teachers, curriculum and school infrastructure with measures that support students from households with limited parental education and economic resources.

Extend research through longitudinal and nationally representative studies. Future research should employ larger probability samples and follow students over time to clarify pathways linking parental education, involvement, home-learning conditions, socioeconomic resources, motivation and subsequent achievement.

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