



Redefining Parental Involvement and Educational Access under Urban Poverty: Evidence from Informal Settlements in Nairobi County, Kenya

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Abstract

While existing studies have demonstrated the significant impact parents have on their child's educational success, the models used in these studies do not provide enough data to measure how parental involvement influences educational outcomes when children are raised in poor and deprived communities such as informal settlements. This research examines the role of parental participation in the provision of primary education in Kibera, Mathare, and Korogocho informal settlements in Nairobi, Kenya. Using a convergent mixed-methods design, it relies on data from a survey of 300 respondents, 11 interviews, and nine focus group discussions. The analysis integrates statistical patterns and lived experiences to explain how behavioral and relational parental practices interact with material constraints to shape access to education. The results reveal that all aspects of parental participation positively and statistically correlate with the Educational Access Index. Parenting styles had the highest correlation coefficient value of 0.436 ($p < 0.01$), while resource supply had the lowest but statistically significant correlation of 0.271 ($p < 0.01$). The multiple regression analysis revealed the existence of a statistically significant relationship between parental involvement and educational access ($R^2 = 0.271$, $F = 18.83$, $p < 0.001$). Qualitative data show that parental monitoring, checking up in schools, and setting a schedule for home activities are important factors, although financial constraints affect the availability of educational materials. The findings indicate that parental involvement shapes educational access in informal settlements, with behavioral and relational dimensions exerting stronger influence than material support.

Subject Areas

Education and Development Studies

Keywords

Parental Involvement, Educational Access, Informal Settlements, Urban Poverty, Kenya

1. Introduction

Education still plays a major role in human development and poverty alleviation. Education is one of the focal points that relate to equitable access and development towards sustainable goal number four [1] [2]. In addition to other measures, governments are increasing access to education through subsidies, capitation grants, and cooperation with foreign institutions to decrease direct school expenses for poor children [3]. This strategy has led to an increase in enrollment numbers in different settings; however, access to education is still inconsistent among poor households, as evidenced by enrollment, retention, and completion rates.

International literature shows that educational access depends on various household and school factors. Studies have identified parent involvement as a key factor that affects student enrolment, attendance, retention and completion. Parent participation in school activities including school visits and academic progress monitoring and household learning material provision leads to increased attendance and completion rates for poor students [4] [5]. In Mexico, Parents participate in their children's education through both home and school activities. Parents who possess higher educational qualifications and who have better economic resources enable their children to achieve better academic results [6]. Research demonstrates that structured parent-school partnerships lead to greater student academic success [7]. Sub-Saharan African literature presents a distinct research situation. Unemployment and adult literacy deficits and food security challenges create barriers that prevent parents from participating in educational activities.

Kenya's education policy has been focused on providing access to education for all people since the launch of the KANU Manifesto in 1963 and the results of the Ominde Commission's work in 1964, followed by continued reforms and financial support to increase accessibility [8]. Access to education is improving, according to national indicators, but the problem of inequality continues, particularly in urban informal settlements that face the challenges of poverty, overcrowding, and unstable sources of income and have poor enrolment rates, low completion rates and poor transition rates [9]-[11]. Informal settlements in Nairobi account for 60% of the city's population and only 2.5% of the administrative area of the city [12]. However, compared to the rest of the city, they have much lower completion and transition rates [10] [11].

What remains unclear is how parental involvement plays out in the context of urban poverty and its relationship to school access. While literature has shown lower completion rates and higher dropout rates than in formal settings among informal learners, little research exists about how school visits, monitoring of ac-

ademic performance, and providing study materials are linked to household financial circumstances to influence the level of access to education. Additionally, little information exists about how informal versus formal schooling impacts parental involvement and completion of learners' education. This study investigates the relationship between parental involvement and access to education through enrollment, retention and completion. The paper focuses on addressing the existing research gap regarding the role of parental involvement in urban poor areas where education is considered a luxury. The next section reviews related literature and theoretical framework, followed by methodology, results, discussion and conclusion.

2. Literature Review

2.1. Theoretical Framework

Walberg's Theory of Educational Productivity [13] forms the basis for this research because it looks at how students learn by examining three areas: student characteristics, quality of instruction, and home environment. This study needs to examine the home environment because it can be used to look at how much influence parents will have on these access points in education. The theory holds the view that the ways that parents stimulate their children, help their children with academic work, and provide their children with structure and supervision motivate, discipline, and make children persistent in their learning [5]. These areas, as a whole, provide examples of how we are going to examine parental involvement through ways such as monitoring their child's attendance, providing support for their child's learning at home, and participating in school activities. It is assumed by the theory that the home will always have the same conditions and that parents will always be able to support their children's education. However, the above assumptions limit how much explanatory power this model has for families living in informal settlements where poverty, unemployment, and overcrowding make it difficult for parents to provide support for their children's education.

John Locke's Classical Liberal Theory and the Capability Approach help define this limitation. Locke's thinking about education is as a means by which people can move up in society, and he argues that a student's development is influenced by the environment around them, including the way they are raised by their parents and how they are educated in school [14]. Kenya's Free Primary Education policy operates under an assumption that everyone has equal access to education through schools; therefore, this assumption may be challenged by the Capability Approach [15] [16] which proves that getting access to education requires certain conversion factors such as the amount of money you earn or have, the amount of free time (outside of your daily responsibilities), the ability to read at least at a basic level, and having stability at home. If all these conversion factors do not exist on an equal level, the fact you have equal access to schools does not guarantee similar education outcomes.

Parental involvement and how effective that involvement will be in Nairobi's

informal settlements is affected by conversion factors. Therefore, providing access to education as evidenced by a child being able to be enrolled in school poses an additional issue for parents' ability to continue to support their child's attendance, provide their child with educational materials, and maintain parents' regular involvement with their children. Walberg's theory considers parental involvement as a behavioural input that contributes to educational outcomes; however, the Capability Approach demonstrates how this behavioural input varies between households exposed to structural deprivation.

The theory recognizes that parental involvement is multidimensional and is affected by factors such as agency and constraints. It impacts enrollment, retention, and completion, but it is also affected by constraints associated with poverty. Inequality with regard to household capability is not adequately addressed by Walberg, and Capability Approach lacks educational mechanisms directly outlined. The current research fills this void by examining the relationship between parental involvement and access to education.

2.2. Review of Empirical Studies

The empirical evidence from around the world shows there is an overall correlation between the engagement of parents/carers and the ability for their children to access and progress in education. However, within this global literature, there are many variations in both the type and strength of this association across different contexts. A majority of the international literature agrees that parental involvement as regards: regular communication with teachers regarding their child(ren)'s school work supervision; support of learning materials; is positively associated with attendance, retention and academic progression. Ahmed *et al.* [4] found in rural Pakistan that by following up with parents/caregivers on their children's attendance, homework/assignments; this ultimately reduced absenteeism and/or school drop-out. Using a large sample made up of 104,973 learners in Mexico, Hernández-Padilla *et al.* [6] confirm that there is a significant relationship between both home and school-based engagement of parents/caregivers; this relationship strengthening with socioeconomic status of the family. The results demonstrate that long-term engagement by parents/caregivers will assist support continuity of educational experiences for children.

In addition to there being many supporting global studies that show the positive effects of parent/caregiver engagement in learners' schooling; there are also numerous studies that demonstrate and confirm inconsistencies in findings. Most of the many global studies have been located in global contexts where households report have stronger institutional support, higher levels of literacy, and incomes that are more stable than what would be found in low-resource contexts like urban informal settlements, where parents/caregivers often have to choose between meeting economic needs vs. supporting their children's educational needs.

Across sub-Saharan Africa, there is general consensus, but differences exist in how parents demonstrate their involvement in their children's learning. Accord-

ing to research from South Africa [17], many parents considered themselves as having a role in the education process, however, they reported that they experienced a lack of communication with schools, lack of empowerment, and being excluded from decisions made by the schools as the main barriers for them to participate. Similar findings were reported by Hagos and Van Wyk [18] who found that parents felt the level of communication between them and the schools was low, and they had low levels of participation in school meeting and little parental supervision of their children's academic progress at home. Therefore, low levels of parent involvement do not reflect a lack of interest by parents, but rather are the result of a variety of systemic and institutional barriers.

At the same time, there is a lack of consistency in the type and degree of involvement parents have in their children's lives. Atunde *et al.* [19] found that while there were only moderate levels of parental involvement in Nigeria, parental engagement and peer influence accounted for 55.4% of the variance in students' academic achievement. Therefore, there is a lack of consistency in the parent involvement literature, in that, while there are only limited levels of parent involvement, the degree to which they do in fact have an effect on student achievement is tremendous. Therefore, it is reasonable to presume that the quality and type of parent involvement is potentially more critical than solely the extent of their involvement.

Kenyan studies support this trend, but provide specific details that can only apply within that region. The study conducted by Mutisya, *et al.* [11] demonstrated a significant correlation between child education and income inequality for those in poor urban communities, which follows the wide-held belief across Africa that an economic factor is one of the primary causes of school non-attendance. Another study conducted by Kabue *et al.* [20] which focused on residents in informal settlements of Nairobi, discovered that trust, parental involvement and governance were the most important determinants of the continuation of educational programs.

The local community still has different understandings of parental involvement. Mukabana *et al.* [21] conducted their research in Korogocho and discovered that multiple factors including poverty, childcare responsibilities, stigma, and withdrawal of parental support created major obstacles for adolescent mothers who wanted to return to school. The study defines parental involvement through three specific activities which include school visits, PTA attendance, and homework supervision. The inconsistency here is conceptual. The informal settlement environment requires parents to provide emotional support, financial assistance, childcare, and protection against social exclusion which standard assessment methods fail to recognize.

Another area of inconsistency relates to the research methodologies used in the various studies. International studies usually apply statistical generalizations while African studies especially those conducted in Kenya prefer to use qualitative research and mixed methods that allow for contextual understanding. The research

creates a conflict between statistical generalizability and the ability to deep understand contextual information. Quantitative researches have shown consistent results regarding the positive impacts of parental involvement on educational outcomes, while qualitative researches highlight how poverty, unemployment, poor literacy rates, and school systems affect the nature of parental involvement.

From the above analysis, the literature provides enough evidence of consistency regarding the effect of parental involvement on educational access. Nonetheless, there remain inconsistencies relating to definition, measurement, and interpretation of parental involvement in different socio-economic settings. Current studies do not adequately address how each dimension of parental involvement affects school enrolment, retention, and graduation. The inconsistency of not knowing whether any particular dimension can enhance enrolment, retention, and graduation among pupils in slums due to urban poverty is an area of inconsistency that forms the focus of the present study.

3. Methodology

A convergent parallel mixed-methods design was adopted to examine the role of parental involvement in school-going children's access to education in the informal settlements of Nairobi, Kenya. Through this design, the researcher was able to gather quantitative as well as qualitative information simultaneously within one phase of research [22]. Quantitative data was obtained by investigating the link between parental involvement and significant education access factors, while qualitative data collection included exploring the ways parents/guardians encourage their children to attend school in poor urban settings. The study gained credibility through the integration of numerical data together with experiential data. The method enabled researchers to assess statistical patterns together with actual household data and school observation results which helped them understand how parental behavior affects student enrollment and retention and completion rates in school [23].

The study utilized quantitative samples collected from residential areas and educational facilities located in Kibra Mathare and Korogocho, which are three major slum regions of Nairobi County. All three areas were chosen due to the high density of low-income families, and because of the fact that there was a high number of APBET institutions that are located next to public primary schools that serve low-income families with children that engage, via the APBET institution, with the public primary school system. The research design was implemented in two stages. First, 45 schools were chosen randomly from a list of APBET schools and public primary schools provided by the Ministry of Education. In the second stage, all respondents (per school) were selected from within these schools depending upon the role of the respondent, and the level of children being taught at the school. The final sample included a total of 300 respondents: 110 respondents in Kibera, 100 respondents in Mathare, and 90 respondents in Korogocho, as follows: 180 parents/guardians; 70 head teachers of the respective schools; and 50

school facilitators/support staff that are involved directly with learning and tracking the attendance of children who were receiving education through the APBET school system. Grade 7 learners were used as the reference group because they are at an age when progression pressure, attendance consistency, and dropout risk are more observable. This makes them a stable point for assessing how parental involvement relates to sustained access rather than initial enrolment alone. The response rate achieved for this study was 86% which supplied sufficient data for analysis [24].

Parental involvement was operationalized as a multidimensional construct comprising of six dimensions: engagement with the school, home learning environment, parenting styles, home rules and routines, provision of learning resources, and parental motivation and encouragement. These dimensions reflect school engagement, home supervision, behavioural guidance, and material support. All were rated on a five-point Likert-type scale ranging from strong disagreement to strong agreement. Reliability for the parental involvement scale was assessed using Cronbach's alpha to determine the internal consistency of both the overall construct and its six dimensions. The overall scale had an alpha value of 0.78, which is higher than the 0.70 threshold set for acceptable internal consistency. Subscale results were 0.81 for school engagement, 0.80 for home learning environment, 0.84 for parenting styles, 0.79 for home rules and routines, 0.76 for learning resources, and 0.82 for motivation and encouragement. Together, these results show consistent measurement across all dimensions and support the use of the scale in subsequent analyses [25].

The Educational Access Indicator was developed as a composite of four school accessibility metrics (enrollment, attendance, retention and completion) all of which were measured using a Likert-type five-point scale and aggregated through means across the four indicators with all being treated equally in the final metric. The internal consistency for the Educational Access Indicator was assessed using Cronbach's alpha and resulted in an acceptable reliability coefficient of 0.83 for use in social science research [26]. Ultimately, higher scores on the Educational Access Indicator reflect stronger and/or more consistent means of school accessibility throughout the primary education cycle.

Educational Access Indicator is a continuous scale variable therefore, Ordinary Least Squares (OLS) regression was conducted as the modelling of the associations between the predictive and the outcome variables hypothesized a linear relationship. The results of the regression analysis were derived under the normal Ordinary Least Squares conditions of independent observations with constant variance and approximately normal distribution of residuals. Residual diagnostics and tests for heteroscedasticity indicated no violations that would impact the statistical estimates of the model [27].

The research used semi-structured interviews to gather information from selected parents and guardians, head teachers, and community education stakeholders. The interviews focused on how family decision-making processes, financial

difficulties and school follow-up procedures and parent worries about educational activities affected student learning. The interview process included evaluation of multiple topics which included how often parents visited schools and how parents tracked educational progress and how parents supplied learning materials and how students missed school and dropped out of school. The study relied on theme-based data analysis with Nvivo 14 software to study all interview data.

To gain further insights from the quantitative studies, 6 focus groups were held - 2 in each of the 3 communities of Kibera, Mathare, and Korogocho - totaling 42 participants, with an equal number of head of institutions, school facilitators, and parent/guardian participants. This mixed group structure reflects how these roles typically behave towards each other within real-situation classroom settings since interaction occurs continuously (and not only through individual roles) in relation to decisions being made regarding the child's attendance and support. The participants had been selected purposefully through school records and local education contacts in the community, focusing on individuals who were directly involved in attending to learners, recording attendance, and connecting home and school. The discussions were moderated with clear turn-taking, follow-up prompts to support less active participants, and to actively manage any interruptions to ensure that one single role was not dominant over the course of the discussion. This created an environment where parents / facilitators could share their input along with school leaders, thus providing a more balanced perspective on the practice of how educational decisions and support practices are made and implemented. Thematic analysis was employed for analysing the collected data. Codes were created based on induction and sorted out in NVivo 14 in such a way that their corresponding themes matched the six dimensions of parental involvement under investigation.

Data integration was carried out using a joint-display approach, where qualitative themes were placed alongside quantitative findings for direct comparison and interpretation. This made it possible to identify points of convergence and divergence between measured parental involvement and the actual experiences reported by participants. For example, the statistical relationships observed between school visitation and learner retention were interpreted together with interview narratives illustrating how the presence of parents during school meetings affects learner motivation and the responses of teachers, as well as follow-ups on learners' absence. The integration of statistics and experiences made the interpretation of the findings more robust. Ethical approval for conducting the research was received from NACOSTI. The respondents gave their informed consent before data gathering, and codes were used for anonymizing the participants.

Overall, the convergent parallel mixed-methods design served both a methodological and practical purpose by measuring the influence of parental involvement on access to education while capturing the processes through which this influence is experienced in Nairobi's informal settlements. The design therefore provided a rigorous framework for understanding how school visits, performance monitor-

ing, and provision of academic requirements shape enrolment, retention, and completion outcomes among school-going children.

4. Results

The following is an analysis of the results from the investigation on the effects of parental involvement on educational access of school-going children in Nairobi informal settlements. In this research, parental involvement is considered the independent variable and is conceptualized by six dimensions: engagement with the school, home learning environment, parenting styles, home rules and routines, provision of learning resources, and parental motivation and encouragement. The dependent variable in this study is access to education and is assessed using four main indicators (enrolment, attendance, retention, completion). These factors form a measure of access to education which is defined as the process that starts with the initial enrollment stage and goes up to completion of the primary level of education.

Table 1 shows the descriptive statistics of parental involvement on educational access of school-going children in Nairobi informal settlements with measures of central tendency and dispersion from a sample size of 300 respondents.

Table 1. Descriptive statistics on parental involvement and educational access.

Statement	N	Min	Max	Mean	Std. Dev.
Parents engage with the school regularly	300	2	4	3.36	0.674
Home environment shapes school-going children's performance	300	3	5	4.09	0.701
Parenting styles affect school-going children's performance	300	3	5	4.18	0.603
Home rules influence attitudes and performance	300	2	5	4.09	0.944
Parents provide adequate resources and materials for learning	300	1	5	2.91	1.136
Parents motivate school-going children to perform well in school	300	3	5	3.64	0.674

Source: Author (2025).

There was a lot of variability across different aspects of parental involvement. The aspect with the highest mean score ($M = 4.18$, $SD = 0.603$) was the effects of parenting styles on the academic performance of children attending school, indicating that there was a high degree of agreement between participants and relatively low variability in scores. Following behind in mean score are the effects of the home environment on the performance of children ($M = 4.09$, $SD = 0.701$), and the influence of home rules on the attitudes and performance of children ($M = 4.09$, $SD = 0.944$). The next highest mean score is that of parents motivating their children to perform well in school ($M = 3.64$, $SD = 0.674$), and generally ($M = 2.9$) where the mean was relatively low. In contrast to the above; Regular parent engagement with the educational institution where their children are students (M

= 3.36, SD = 0.674); is a moderate mean ($M = 3.36$, $SD = 0.674$). Of the indicators measuring parent engagement with their children's education/training; the lowest mean is for providing adequate learning resources and materials ($M = 2.91$, $SD = 1.136$), which has the largest standard deviation of all the items measured in the study, indicating that there is a lot of variability between parents by way of providing proper learning/educational resources. The range for the observed minimum and maximum value was from 1 to 5 for most of the indicators used to measure the parents' involvement with their children with the Likert scale; therefore, the distribution of the scores from the respondents reflects that there is a wide range of values.

The research reveals that parents show stronger dedication to their children through their parenting methods, home environment and their established household rules than they do through their financial assistance. The high average results with their low standard deviation values indicate that most respondents believe home-based parental practices exist as essential elements which determine how children perform in their educational activities. The provision of learning materials shows a low average value with high distribution range, which indicates that households possess different capacity levels because of their varying economic resources. The study pattern shows parental involvement through supervision, motivation and behavioral direction, which leads to direct control over their children's academic progress, except for material resources needed in their education.

The next level of examination focuses on how parental engagement relates to educational access using the Educational Access Index (EAI). The index is made up of four dimensions; enrolment, attendance, retention, and completion. Each respondent received a single score formed by averaging these four components so that each one carried equal weight in the final measure. The resulting composite score was treated as a continuous variable and used in the correlation analysis to represent overall access across the schooling process. The study used Spearman rho correlation to conduct bivariate analysis to test the relationship between parental involvement variables and the Educational Access Index. This analysis method was preferred because the independent variables used ordinal Likert scale ratings while the data exhibited non-normal distribution combined with unequal interval measurements which made Pearson's correlation coefficient invalid. Spearman rho ranks the values observed and then evaluates whether there is a positive or negative monotonous relationship among variables. **Table 2** displays the bivariate analysis results.

Positive and statistically significant correlations at the 0.01 level (2-tailed) between all indicators of parental involvement and the Educational Access Index were found. Parenting styles were found to be the most significantly correlated indicator ($r = 0.436$, $p < 0.01$) of educational access, followed by Home Environment ($r = 0.412$, $p < 0.01$), Home Rules ($r = 0.398$, $p < 0.01$), Engagement with School ($r_s = 0.384$, $p < 0.01$), Parental Motivation ($r_s = 0.359$, $p < 0.01$), and Provision of Resources ($r = 0.271$, $p < 0.01$). The correlation matrix also shows statis-

tically significant and positive relationships among the indicators of parental involvement. For example, Parenting Styles were found to be positively correlated with Home Environment ($r = 0.455$, $p < 0.01$). Furthermore, Parenting Styles were positively correlated with Parental Motivation ($r = 0.420$, $p < 0.01$). Lastly, Engagement with School had statistically positive correlations with Home Environment ($r = 0.418$, $p < 0.01$) and Parental Motivation ($r = 0.389$, $p < 0.01$) as well.

Table 2. Spearman's rho correlation matrix between parental involvement indicators and educational access index.

Variables	1	2	3	4	5	6	7
1. EAI	1						
2. Engage with school	0.384**	1					
3. Home environment	0.412**	0.418**	1				
4. Parenting styles	0.436**	0.401**	0.455**	1			
5. Home rules	0.398**	0.372**	0.433**	0.421**	1		
6. Resources	0.271**	0.310**	0.295**	0.338**	0.301**	1	
7. Motivation	0.359**	0.389**	0.407**	0.420**	0.395**	0.352**	1

p < 0.01 (2-tailed) for all reported correlations; EAI = Educational Access Index. **Source:** Author (2025).

These findings show a consistent positive relationship between parental involvement and educational access. The direction of all associations is uniform and positive, indicating that increases in parental involvement align with increases in the Educational Access Index. The magnitude of the relationships is weak to moderate, suggesting that parental involvement is linked to educational access but does not operate as a dominant standalone driver of variation in access outcomes. The strongest association appears in behavioural and supervisory dimensions, especially parenting styles, while material support shows the weakest link. This pattern suggests that how parents organize, supervise, and engage with children's daily learning environment aligns more closely with educational access outcomes than the provision of resources alone. The consistency across all indicators points to a clustered relationship, where different forms of parental involvement reinforce each other rather than function independently. In relation to the study objective, the results support the view that parental involvement matters for educational access, but its influence is partial and likely interacts with broader household and structural conditions that also shape access outcomes.

Taking a cue from the above bivariate findings, a Multiple Linear Regression Analysis was carried out to assess the combined influence of different measures of parental involvement on the educational access score. This method was used since the dependent variable is continuous, and OLS regression help determine not only the total variance explained by the predictors but also the extent to which each measure of parental involvement influences the dependent variable in isolation, holding all other variables constant. **Table 3** below contains the output for this

analysis.

Table 3. Model summary and ANOVA results for multiple linear regression (OLS) on parental involvement and educational access.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.521	0.271	0.256	0.612		
Model	Sum of Squares	df	Mean Square	F	Sig.	
Regression	42.318	6	7.053	18.83	0	
Residual	113.942	293	0.389			
Total	156.26	299				

a Dependent Variable: Educational Access Index (EAI); b Predictors: Engagement, Home environment, Parenting styles, home rules, Resources, Motivation. **Source:** Author (2025).

According to the ANOVA test, the OLS regression model is significant ($F = 18.83$, $p < 0.001$), implying that the combination of the parental involvement measures significantly accounts for variation in the Educational Access Index. Overall, the model explains 27.1% of the variability in educational access ($R^2 = 0.271$; Adjusted $R^2 = 0.256$). This implies that parental involvement measures have some explanatory value for education access but not completely. There are other factors not included in the model that contribute significantly to the explanation of educational access.

Table 4 below presents the findings from the multiple linear regression analysis on the impact of parental involvement on educational access.

Table 4. Coefficients of multiple linear regression (Ordinary Least Squares) for parental involvement predictors of educational access.

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.	Tolerance	VIF
(Constant)	0.842	0.214		3.93	0		
Engagement with school	0.118	0.042	0.132	2.81	0.005	0.71	1.41
Home environment	0.156	0.048	0.178	3.25	0.001	0.63	1.59
Parenting styles	0.184	0.051	0.201	3.61	0	0.58	1.72
Home rules	0.142	0.045	0.161	3.16	0.002	0.6	1.67
Resources	0.096	0.038	0.118	2.53	0.012	0.75	1.33
Motivation	0.131	0.043	0.147	3.05	0.003	0.68	1.47

The data analysis shows that all predictors reveal positive and statistically significant connections to educational access. The school engagement ($B = 0.118$, $\beta = 0.132$, $p = 0.005$) establishes an important connection that shows positive results. The home environment ($B = 0.156$, $\beta = 0.178$, $p = 0.001$) demonstrates a major positive impact. The predictor variables show their most powerful effect

through parenting styles which produces the biggest standardized impact on educational access ($B = 0.184, \beta = 0.201, p < 0.001$). Home rules ($B = 0.142, \beta = 0.161, p = 0.002$) shows a positive relationship which reaches statistical significance. The resource variable presents the lowest predictor coefficient ($B = 0.096, \beta = 0.118, p = 0.012$) yet still maintains statistical significance. The motivation variable ($B = 0.131, \beta = 0.147, p = 0.003$) establishes an important connection which leads to educational access. The predictors show acceptable tolerance values which range from 0.58 to 0.75 while showing VIF values that range from 1.33 to 1.72 which proves that multicollinearity problems do not exist and maintains regression estimate stability.

Multicollinearity diagnostics was used to determine the extent to which the predictor variables in the multiple linear regression model depend on one another. The multicollinearity diagnostics in **Table 5** show that all tolerance and VIF values meet acceptable standards which demonstrate that predictors do not exhibit dangerous multicollinearity while OLS estimates maintain their accurate performance.

Table 5. Multicollinearity diagnostics.

Variable	Tolerance	VIF	Interpretation
Engagement with school	0.71	1.41	No concern
Home environment	0.63	1.59	No concern
Parenting styles	0.58	1.72	Acceptable
Home rules	0.6	1.67	Acceptable
Resources	0.75	1.33	No concern
Motivation	0.68	1.47	No concern

The results indicate that all tolerance values were above the acceptable threshold of 0.10, while all Variance Inflation Factor (VIF) values remained below 5. This suggests that the predictors do not exhibit harmful multicollinearity and are suitable for inclusion in the regression model. The absence of severe multicollinearity confirms that each independent variable contributes unique explanatory power to the model estimating educational access. Therefore, the regression coefficients can be interpreted as stable and reliable estimates of the relationship between parental involvement dimensions and educational access.

The multiple linear regression results show that the overall model is statistically significant, indicating that the set of parental involvement indicators jointly explains variation in the Educational Access Index. The model demonstrates moderate explanatory power, with $R^2 = 0.271$ (Adjusted $R^2 = 0.256$), meaning that a limited but meaningful proportion of variation in educational access is accounted for by the included parental involvement dimensions, while a larger proportion remains unexplained by the model. The ANOVA results confirm that the joint contribution of the predictors is statistically significant ($F = 18.83, p < 0.001$), supporting the relevance of the combined parental involvement framework. At the

individual level, all predictors show positive and statistically significant relationships with educational access, with parenting styles emerging as the strongest contributor, followed by home environment and home rules, while resources consistently show the weakest relative contribution. Engagement with school and motivation also demonstrate significant but comparatively smaller effects.

The results of the multicollinearity analysis indicate that tolerance and VIF values indicate that predictors in the model are not highly correlated and support stable coefficient estimates for interpretations. In general, the data demonstrate that parental behavioural and structural involvement is a stronger predictor of educational access than just parental material support and that all predictors do not dominate the model. The results of the multiple linear regression analysis show that all parental involvement indicators yield positive and statistically significant correlations for educational access, with parenting style being the strongest predictor, followed by home environment and home rules, while school engagement and parenting motivation have relatively weaker but statistically significant predictors. The weak predictor is the availability of resources.

The results of the multicollinearity analysis identify all tolerance and VIF values as being within acceptable ranges, indicating that there is no damaging multicollinearity present in the data set, which supports stable coefficients for all variables included in the model. Finally, the statistical significance of the model indicates that parental involvement is measurably correlated to educational access, but does not explain all variation in educational access.

The study demonstrates that different types of parent involvement work as non-physical elements which create educational access better than material resources. The access outcomes show stronger connections to different types of involvement than they do to material resources. The evidence shows that parental involvement practices function as essential elements which determine how parents execute and control their children's educational activities. The following quote from one of the participants demonstrates this finding: *"Sometimes we can't even pay for uniforms or lunch, which means that the kids just stay at home. Even if they want to go to school, the lack of money prevents them,"* (R002, Field Data, 2025). While this statement reflects resource constraints, it also indirectly reinforces the limits of material explanations, since the regression pattern shows stronger and more consistent associations for behavioural and supervisory forms of parental involvement. The information collected through interviews with key informants further reinforces the results of the analysis regarding the impact of supervision, routines, and interaction at schools. One of the teachers explained that *"parents who check on their children throughout the day will keep their children in school even if their educational costs is difficult to pay. The issue appears when parents stop monitoring their children at home."* (KII-T01, Field Data, 2025). An interviewee reported that *"though I don't always afford to buy school materials, I ensure that the child allocates enough time for studies, and I review his or her homework once I return from work. I have seen the child often benefits from this method because*

it enables him to focus better during classroom activities.” (KII-P03, Field Data, 2025). These accounts reinforce the statistical findings, showing that daily engagement, monitoring, and structured home routines shape educational access more consistently than material provision alone.

5. Discussion

Overall, the findings (descriptive, bivariate, multivariate), showed a generally consistent but not consistently equal relationship between parental involvement and educational access. The behavioural and relational dimensions of parental involvement consistently provided stronger predictive power for educational access than did material support. Descriptive statistics indicate that parenting style, home environment, and rules for the home had higher average scores than did the provision of learning resources; this suggests a distribution of parental involvement overall that contains some households with relatively high levels of parental involvement and some households with relatively low levels of parental involvement. The study discovered that household parental involvement shows uneven patterns which the bivariate correlations between parental involvement indices and Educational Access Index demonstrate because all parental constructs showed positive correlation with the Educational Access Index yet their association strength differed between different types of parental involvement. In addition, the results of the multivariate regression analysis confirm the findings of the previous two statistical analyses because the behavioural dimensions of parental involvement were found to maintain their independent effects on educational access after controlling for the effects of all other factors, while the provision of material resources was found to provide the weakest independent effect on access to education.

In all three analyses, parental style has the highest value, followed by home environment and rules, with engagement and motivation falling in between and resources being consistently low. The consistency of these results implies that education opportunities are significantly determined not so much by tangible resources as by what kind of parenting children receive regarding supervision, structuring, and involvement in education. Nevertheless, the explanatory power of the model is far from sufficient, as there are other forces at play that determine whether students can enroll and complete their programs.

The results of this study are consistent with previous empirical studies. Ahmed *et al.* [4] state that parental follow-up on their children’s attendance and homework helps rural Pakistani children be more present in school and reduce dropout rates. Hernández-Padilla *et al.* [6] demonstrate a positive correlation between parental involvement and student performance in Mexico, with a more significant impact in households with higher incomes. Curtis *et al.* [7] demonstrate that parents who remain involved throughout their children’s education contribute to improved academic success over time. Limitations to these findings exist, particularly in regards to the strength and structure of the relationships between parental involvement and educational outcomes. Studies outside of Canada show a stronger

and more consistent relationship between the dimensions of parental involvement and child educational outcomes compared to this study, which found weaker and inconsistent relationships. In particular, the study showed that the level of assistance provided by parents was consistently the lowest across the various dimensions of parental involvement, while the behavioural dimensions were consistently the most influential. Mutisya *et al.* [11] found that poverty, lack of government support, and social stigma negatively impact children's access to education in urban informal settlement communities in Kenya. Similarly, Kabue *et al.* [20] noted that the perception of government authority and trust play an essential role in ensuring continuity of education in informal settlements. Mukabana *et al.* [21] found that poverty, the demands of caregiving, and the social stigma associated with being a parent have been shown to prevent children from participating fully in school. The differences between this study and other studies are attributed to the challenges faced by families residing in informal settlements. Families living in informal settlements are often subject to economic instability and unsupported by material resources and are therefore more dependent on parental supervision and structured routines within the home than families living in more stable environments where there is greater institutional support for children's education.

The evidence is also consistent with the theory of educational productivity, according to which the home environment plays a crucial role in determining the result of learning due to stimulation, structuring, and supervising [13]. It is noticeable that the impact of such factors as parenting style, home environment, and home rules is significantly higher than that of material provisions. The evidence corresponds to the theoretical prediction since it refers to home processes that influence the context of learning. Moreover, the stability of results in different statistical tests supports the correlation. On the other hand, the weak impact of material provisions points to the lack of validity of the theory, which does not work properly in an environment characterized by structural deprivation. In such cases, it is difficult to maintain stable family relations.

A second lens for analysis employs the Capability Approach and Locke's educational philosophy as interpretative frameworks. Locke's educational philosophy emphasizes that an individual's learning experiences are influenced by the contextual realities that shape their individual development [14]. The Capability Approach provides insight into how family circumstances, such as material income and literacy, function and interact to affect how much parents' activities at home can translate into access to educational resources [15] [16]. The data show the differences in impact among the four areas of parental engagement from an individual household perspective, where behavioural engagement has a greater positive impact than tangible inputs. This suggests that similar parental engagement efforts are differently realized within families because of their respective family capacities.

The findings point to a clear policy direction. Promoting regular home-based learning activities through effective school-to-home communication is necessary

to enhance the opportunity for increased parental engagement. Providing assistance with the cost of basic educational materials for low-income households is important. A dual focus on enhancing behavioral engagement and overcoming physical obstacles which restrict educational resource access to all students should be established as a solution for educational access problems faced by students in informal settlements.

6. Conclusions

The study aimed to investigate how parental involvement affects students' educational access in Nairobi's informal settlements. The relationship between the two variables shows consistent patterns across different analysis methods which include descriptive and bivariate and multivariate analysis. Educational access increases with parental involvement because both behavioral and relational aspects of parental involvement show stronger relationships than material aspects do. The resource component shows a lower relationship with other variables across all models. The study found that parental involvement explains part of educational access variation through regression analysis while most of the variation continues to remain unexplained.

The study contributes to theory by illustrating that there is an uneven distribution of the meaning of the different aspects of parental participation in low-resource settings. This compares to the two frameworks of Walberg's theory and Lockes theory of education as a function of the environment. The greater importance is given to home-based behavioural supports such as supervision and discipline to explain why these types of parental behaviours were more strongly related to educational access than the provision of material resources. The research also exposes the limitations of the Walberg model since it assumes that all households have relatively stable characteristics. However, it is clear from the findings that most households in this sample have little stability and therefore, the degree to which they succeed in gaining access to education will differ. Locke's understanding of education takes into account that environmental variables influence the degree to which children develop the knowledge and skills required for success in school. The capabilities approach to education outlines why there was such a wide range of variation across households. The environmental characteristics associated with each household, such as income, time, and literacy, directly affect the ability of parents to convert positive parental behaviour into educational access for children. As a result, despite a similar level of parent involvement by the parents of two different children, the extent of educational access will differ for those children.

The current research has several limitations. The model used in the analysis accounts for a relatively small proportion of variation in access to education, suggesting there may be additional factors affecting these outcomes besides the involvement of parents in their child's education. In addition, this analysis is based on self-reported data (subject to reporting error). This analysis also only examines

informal settlements located within the city of Nairobi, thus precluding generalization to other settings. Future research should pay attention to school and policy factors when examining how schools and parents interact with each other and to what extent parents provide financial support to their children, which continues from one generation to the next.

Conflicts of Interest

The authors declare no conflicts of interest.

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