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Parents' Level of Education and Quality of Education in Rural Public Primary Schools in Machakos County, Kenya: A Mixed-Methods Study

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Abstract
Parents' level of education is widely regarded as a key family-level correlate of children's learning, but its relationship with the quality of education in Kenya's rural public primary schools has been poorly documented. This cross-sectional correlational survey with a qualitative strand, within a convergent mixed-methods design, examined that relationship in Machakos County, Kenya. Quality of education was defined as the extent to which rural public primary schools provide learning conditions and outcomes that enable pupils to acquire foundational knowledge and skills, and it was measured with a questionnaire administered to Standard 8 teachers and scored on a five-point Likert scale. Focus group discussions were also conducted with Standard 8 pupils. From a target population of 3,174 head teachers, Standard 8 teachers and Standard 8 pupils, 343 respondents were sampled through purposive and simple random sampling. The study analysed questionnaires from 214 Standard 8 teachers and data from 90 pupils in 10 focus group discussions, one in each of 10 schools, with nine pupils per group. Teachers rated the educational attainment of parents in their schools. No attainment category was endorsed by most teachers; agreement was highest for primary school leavers (25.6%), while 59.1% disagreed with that statement. Parents' education was weakly but significantly associated with quality of education, r(212) = .159, 95% confidence interval [.03, .29], p = .020, and explained 2.5% of the variance. Pupils described educated parents as giving direct academic help, and less-educated parents as giving encouragement and material support but often being unable to help with schoolwork. The association was small, rested on teachers' perceptions, and could not show causation or be generalised beyond rural public schools in one county. The study recommended school-led parent engagement and pupil support, piloting of adult literacy programmes, and further research using parent-reported data and multilevel models.

Keywords: *parents' level of education; quality education; public primary schools; parental involvement*

1. Introduction

The right of every child to quality education was affirmed in the Dakar Framework for Action (UNESCO, 2000) and reinforced by Sustainable Development Goal 4, which commits countries to inclusive and equitable quality education and lifelong learning opportunities for all (United Nations, 2015). The agenda marked a shift from the earlier emphasis of Education for All on access towards a concern with what children actually learn. Many countries have expanded enrolment considerably, but getting children into school does not guarantee that they acquire foundational literacy and numeracy (Ferguson, 1991). The 2013/4 Education for All Global Monitoring Report estimated that around 250 million children either fail to reach Grade 4 or reach it without learning the basics (UNESCO, 2014).

Kenya illustrates this tension. The Government has invested heavily in basic education, notably through Free Primary Education, and primary enrolment indicators have been high, with gross enrolment ratios above 100% (a gross enrolment rate of 104.4% in 2012 and 106.4% in 2017, and a net enrolment rate of 88.0% and 91.2%; Maina, 2018). Over the same period, the completion rate fell from 84% to 80% (Government of Kenya, 2019). Enrolment figures need careful reading. A gross enrolment ratio above 100% reflects over-age and repeating pupils as well as access,

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and a fall in completion may reflect poverty, drought, or changes in how cohorts are defined, so neither indicator on its own shows a problem of quality. They do justify asking about the conditions that surround learning, including the home. Since 2020, post-COVID learning loss (Moscoviz & Evans, 2022) and the phased replacement of the 8-4-4 system by the Competency-Based Curriculum have added urgency to that question (Kalunde, 2023; Mwang'ombe, 2021).

"Quality of education" is used in many ways, so it is defined here. Following the framework in the Education for All Global Monitoring Report (UNESCO, 2004) and UNICEF (2000), quality is treated as having three linked dimensions: inputs (for example, teachers, materials and facilities), processes (for example, teaching, leadership and school climate) and outcomes (for example, learning achievement). This study treats quality of education in public primary schools as the extent to which rural public primary schools provide learning conditions (inputs and processes) and learning outcomes that enable pupils to acquire foundational knowledge and skills. The outcome measure was chosen to match that definition (see Method). Stating the definition matters because the evidence reviewed below mostly concerns academic performance, which is one outcome dimension and not the whole construct.

Two complementary perspectives help explain why parents' education may be related to children's schooling. Bourdieu's (1986) notion of cultural capital holds that families transmit knowledge, language, dispositions and familiarity with institutions that advantage children in school. Parents with more schooling typically hold more of the forms of cultural capital that schools reward. Coleman et al. (1966) reported that family background is strongly associated with children's achievement. Coleman (1988) later developed the concept of social capital, arguing that human capital embodied in parents' education benefits children only when parents invest time and attention in them, so the value of that capital depends on the relationships through which it is passed on.

Research points to several pathways. First, parents' education shapes their knowledge, beliefs, values and goals about child rearing, which influence behaviours that bear indirectly on children's school performance and attendance (Wangila, 2017). Davis-Kean (2005) found that the relationship between parental education and child achievement operates largely through parents' beliefs and the quality of the home learning environment rather than directly. Second, higher levels of schooling strengthen parents' ability to become involved in their children's education and equip them with social and problem-solving skills (Muola, 2010). Third, educated parents tend to nurture higher aspirations (Li, 2024). Fourth, parents with little formal education may be less familiar with the language of school, which limits their capacity to support learning and take part in school activities (Eze, 2017). Hornby and Lafaele (2011) similarly identify parents' education and confidence as one of several barriers to involvement.

Parental involvement is the mechanism most often invoked. A meta-analysis by Hill and Tyson (2009) found that involvement aimed at academic socialisation, such as communicating expectations and linking schoolwork to future goals, was more strongly associated with achievement than help with homework or involvement at school. This is important for rural Kenya because it implies that parents who cannot help directly with schoolwork can still contribute through encouragement and high expectations. Their review, however, concerned middle school, so applying it to primary pupils is an assumption and not an established finding. Sirin's (2005) meta-analysis of socioeconomic status and academic achievement reports a consistent positive association in which parental education is a core component.

Kenyan studies broadly, but not uniformly, support the international findings. Makewa et al. (2012) concluded that parental factors, including educational background, affect children's achievement in Kisumu City. Goro et al. (2019) reported a positive influence of parental education on pupils' achievement in public primary schools in Kisumu West. In Machakos, Muola (2010) studied 235 Standard 8 pupils and found small positive correlations between parents' education and pupils' achievement motivation (fathers, $r = .15$; mothers, $r = .14$), which are similar in size to the association reported here. Ngangi et al. (2023) reported a positive correlation between parental education and performance in secondary schools in Kangundo Sub-county, also in Machakos County. At the same time, Koskei and Ngeno (2015) and Korir and Wambugu (2018) found no significant effect of parental education at secondary level, and Muli (2015) observed that not all children with educated parents perform well and that some children of less-educated parents perform equally well, so parents' education is influential but not deterministic. Wangila (2017) reported that children whose parents had primary education or less performed worse, including a greater likelihood of repeating grades. Obilloh (2021) measured parents' education directly through parent questionnaires in rural Kenyan pre-schools and found a positive association with children's reading readiness.

Two gaps emerge. First, most of this evidence addresses academic performance or achievement motivation rather than the broader construct of quality of education, and few studies measure parents' education directly in rural primary

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schools. Second, studies that quantify the strength of the association in a rural Kenyan county while also capturing pupils' own accounts are scarce. Kieti (2017) cautions that unless the value of education in the county's public primary schools is evaluated, children's right to education will be compromised Muli (2015), an unpublished Master of Education thesis on socio-economic factors and internal efficiency in early childhood centres in Mwingi Central, and Kieti (2017), an unpublished Master of Education thesis on factors influencing academic performance in public secondary schools in Matungulu Sub-County, Machakos County, both studied other levels of education. This study differs in that it examines rural public primary schools and measures parents' education directly as a correlate of quality of education. No county-level indicator is currently given to show that a problem exists in Machakos . The Machakos County Director of Education (2023) reported that the share of candidates scoring 250 marks or more out of 500 in the Kenya Certificate of Primary Education was 46.07% in 2019, 49.02% in 2021 and 47.10% in 2022, that is, below half of candidates in each of those years. The evidence is also dated: little of it falls after 2019 (for example, Orodho & Waweru, 2020; Ngangi et al., 2023).

In this study, "parents' level of education" refers to teachers' perception of the educational attainment of the majority of parents in their school. It is a school-level (community) rating. It is not the mother's, the father's or the higher of the two. The objective was to examine the association between parents' level of education and quality of education in rural public primary schools in Machakos County, Kenya. Because the literature reviewed above predicts a positive association, the following hypotheses were tested:

> H0: There is no significant relationship between parents' level of education and quality of education in rural public primary schools in Machakos County.
>
> H1: Higher parents' level of education is associated with higher quality of education in rural public primary schools in Machakos County.

Pupils' focus group accounts were used to explore how parents' education is experienced in pupils' schooling. The findings are intended to inform policymakers, school administrators and community programmes seeking to strengthen home–school partnerships.

2. Research Methods

The study used a cross-sectional correlational survey with a qualitative strand, within a convergent mixed-methods design (Creswell & Plano Clark, 2018). The two strands were collected in the same period, during the same visits to each school and analysed separately, then compared at interpretation. This design was chosen because the survey could estimate the strength of the association, while the focus group discussions could show how pupils experience it. Because the survey tests a hypothesis with correlation and regression, it is not a purely descriptive study. The independent variable was parents' level of education, assessed through teachers' ratings. The dependent variable was quality of education.

Data were collected in October, 2023. At that time, Standard 8 was the final class of the 8-4-4 system, which Kenya has been replacing with the Competency-Based Curriculum. The findings therefore describe schools in the late 8-4-4 period

Machakos County has eight sub-counties and 909 public primary schools, of which 403 are rural (Machakos County Director of Education, 2022). Only rural public primary schools were sampled, so the findings apply to that setting. The target population of 3,174 comprised 403 head teachers, 2,015 Standard 8 teachers and 756 Standard 8 pupils (403 + 2,015 + 756 = 3,174). The pupil figure is under two pupils per school, so it cannot be the full Standard 8 roll. The county records report these 756 pupils as pupils drawn from the sub-counties (Machakos County Director of Education, 2022), so they are best read as a sub-population accessible for the focus group discussions. The sampling frame was the list of all rural public primary schools in each sub-county. From this list 44 schools were selected by systematic random sampling at every tenth school. Purposive sampling was used for head teachers and teachers with direct knowledge of the study variables, systematic random sampling for schools, and a lottery for pupils. Head teachers and 217 Standard 8 teachers were selected purposively from the sampled schools. For the focus group discussions, one school was chosen in each sub-county and nine pupils per school were selected by lottery: the researcher prepared slips of paper, nine marked "yes" and the rest "no", and pupils who drew a "yes" slip took part.

The total sample of 343 was obtained with the Mugenda and Mugenda formula for a finite population (Mugenda & Mugenda, 2010; population 3,174, 95% confidence, 5% margin of error, $p = .50$, which gives $n = 343$). The initial estimate of 384 for a large population was adjusted for the population of 3,174 (n / (1 + n/N)), which gives 343. The

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allocation was 44 head teachers, 217 Standard 8 teachers and 82 pupils, 343 in total. Of 217 questionnaires issued to Standard 8 teachers, 215 were returned (a response rate of 99.0%), and 214 cases had data on both parents' education and quality of education, so the analyses use N = 214. Record forms were returned by 42 of 44 head teachers (95.0%). Focus group discussions were held in 10 schools, one group of nine pupils per school, giving 90 pupils.

Standard 8 teachers rated their agreement with four statements beginning "The majority of parents in the school…": "are graduates", "are secondary school leavers", "are primary school leavers" and "never went to school". Each was rated on a five-point scale (1 = strongly disagree, 5 = strongly agree). The four items are not mutually exclusive categories (for example, there is no option for diploma, certificate or incomplete primary schooling), and two of them point in opposite directions. For this reason, the item-level distributions are reported separately for each item in the Results. The regression used a single predictor score, the mean of the four items (possible range 1–5), so that higher scores indicate higher teacher-rated parental attainment. "Never went to school" was not reverse-coded, as the overall mean of 2.063 is the simple average of the four item means.

Focus group discussions were held with Standard 8 pupils to obtain their views on how their parents' level of education related to their schooling. Ten discussions were held, one in each of 10 schools, each with a group of nine pupils chosen by lottery, with gender balance sought. The researcher moderated the discussions with a 14-question discussion guide and recorded them on a smartphone sound recorder, alongside handwritten notes. The researcher used English and the duration per session was 45 minutes.

Reliability was assessed by test–retest, with a Pearson coefficient of r = .83 between two administrations of the instruments to the same pilot group; Cronbach's α was not computed. Validity was established through content (face) validity, judged by expert review from the researcher's supervisors, whose comments were incorporated before data collection, and the instruments were piloted in one rural public primary school in Machakos County that was not included in the final study (about 1% of the sample).

The research permit was issued by the National Commission for Science, Technology and Innovation. The permit number was 698984 dated 7th October 2023. Ethical approval was granted by the postgraduate school committee of the University of Nairobi, which cleared the researcher for data collection. Permission to collect data was obtained from the Machakos County Commissioner and the County Director of Education. Teachers gave written informed consent. For pupils, parents/guardians gave written consent for their children to participate in the focus group discussion. Participation was voluntary and withdrawal was possible at any time without consequence. Names were not recorded; pupils were identified in this article only by codes, and the data were stored securely to prevent unauthorised access, and participants were assured of emotional, psychological and physical safety

Quantitative data were cleaned and coded and analysed in the Statistical Package for the Social Sciences version 26.0. Descriptive statistics (frequencies, percentages, means and standard deviations) summarised teachers' responses. Pearson's product-moment correlation was used to estimate the direction and strength of the association, and simple linear regression was used to estimate the slope. Likert items were treated as interval data, as is common practice, although this is an assumption. The coefficient of determination (R^2) is the proportion of variance in quality of education accounted for by the predictor (Field, 2018). Effect sizes were interpreted against Cohen's (1988) benchmarks (r = .10 small, .30 medium). Statistical significance was judged at α = .05 (two-tailed). Assumptions of linearity, normality of residuals, homoscedasticity and outliers were checked according to Tabachnick & Fidell 2019). Teachers are nested in schools, so observations may not be independent. The unit of analysis was the individual teacher's questionnaire. Because 217 teachers were drawn from 44 schools, several teachers per school responded and the observations are clustered. The model was fitted as a single-level regression and was not re-estimated with multilevel modelling (Raudenbush & Bryk, 2002), so the standard errors may be too small.

Focus group recordings were transcribed and analysed using reflexive thematic analysis (Braun & Clarke, 2006). Familiarisation, coding, theme generation, review and naming. Pupils are identified by a group code and pupil number. The quantitative and qualitative findings are brought together in the final subsection of the results.

3. Analysis Result

3.1 Teachers' Ratings of Parents' Level of Education

Teachers rated each statement from 1 (strongly disagree) to 5 (strongly agree). No attainment category was endorsed by most teachers. For "the majority of parents are graduates", 60.9% strongly disagreed, 32.1% disagreed, 4.2% were neutral, 0.9% agreed and 1.9% strongly agreed (93.0% disagreed and 2.8% agreed; M = 1.51, SD = 0.79). For

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"secondary school leavers", the figures were 24.2%, 47.9%, 17.7%, 6.0% and 4.2% (72.1% disagreed and 10.2% agreed; $M = 2.18$, $SD = 1.00$). For "primary school leavers", they were 11.2%, 47.9%, 15.3%, 17.2% and 8.4% (59.1% disagreed and 25.6% agreed; $M = 2.64$, $SD = 1.14$), the highest agreement of the four. For "never went to school", they were 41.4%, 40.0%, 8.4%, 5.6% and 4.7% (81.4% disagreed and 10.3% agreed; $M = 1.92$, $SD = 1.07$). Percentages may not sum to 100.0 because of rounding.

These ratings do not show that most parents had a basic education. They show that teachers did not see any single level as typical. This may mean that the parent communities were mixed, or that the response options did not fit the actual range of attainment (see section 4.4). The four items were not averaged into a single descriptive score, because they are opposing statements and the average cannot be interpreted as a level of education.

3.2 Association Between Parents' Level of Education and Quality of Education

Parents' level of education was weakly but significantly correlated with quality of education, $r(212) = .159$, 95% confidence interval [.03, .29], $p = .020$. By Cohen's (1988) benchmarks this is a small effect. Simple linear regression showed that the predictor accounted for 2.5% of the variance in quality of education ($R^2 = .025$, adjusted $R^2 = .021$), $F(1, 212) = 5.51$, $p = .020$. The slope was B = 8.20 ($SE = 3.49$, 95% confidence interval [1.31, 15.09]), $\beta = .159$, $t(212) = 2.35$, $p = .020$, so one additional point on the parents' education score was associated with 8.20 additional points on the quality of education score. The model was Quality of education = 221.41 + 8.20 × (parents' education). The correlation, the F test and the slope t test have the same p value because they test the same thing in a one-predictor model.

The null hypothesis was rejected at $\alpha = .05$, and the direction of the association was consistent with H1. The effect is small and imprecise: the confidence interval for r runs from near zero (.03) to about .29, and 97.5% of the variance in quality of education is not accounted for by this predictor

3.3 Pupils' Perspectives on Parents' Level of Education

The focus group discussions explored how pupils experienced their parents' education. Four themes were generated. Counts of pupils contributing to each theme are given so that readers can judge how widely each was held

Educated parents as active academic partners

Pupils whose parents were well educated or in professional occupations said their parents encouraged them and helped directly with schoolwork. One pupil said, "*My father is a teacher and encourages me to work hard so that I pass the exam. He motivates me so much. He keeps on telling me, ' The fruits of education are sweet* **"**" (Pupil IV).

Another described practical help:

> *My father is a doctor, and my mother is a social worker. They support me so much in my learning. For example, while doing homework and unable to understand some areas, they clarify them for me. Also, when I am doing homework and my siblings go to sleep, my parents wait for me until I finish.* (Pupil III)

Support without academic capacity

Pupils whose parents had little schooling often felt supported but described its limits. Their parents valued education and said so, yet could not help when pupils were stuck. One said,

"*My parents support me so much in my school matters. They keep on telling me that education is good, though they did not make it to secondary school*" (Pupil I).

Another said,

"*My parents did not study past primary education. Sometimes, when I'm doing homework and get stuck, I find it hard to ask them anything because, in most cases, they do not know"* (Pupil IV).

Provision without engagement

One pupil reported that parents provided school requirements inconsistently, left academic work to teachers, and questioned the economic value of schooling:

> *"My parents do not care much about my learning. They provide what is required in school, though sometimes they do not. My father keeps on saying many people are educated but are poor, and others are not educated but are rich"*. (Pupil VI,)

Another pupil said,

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"*My father keeps saying your future will not be dictated by education; nature will take its course*". (Pupil III)

Resilience and aspiration among less-educated parents

Pupils described parents with little schooling who worked hard, sometimes in casual labour, to meet school needs, and who saw their children's education as a chance to achieve what they could not. One said,

"*My parents are primary school leavers and are casual labourers. They work hard to ensure our school's needs are met. This makes me work hard"* (Pupil III,).

Another said,

"*My father tells me that he dropped out of school because of poverty, though he liked education. So, he keeps on telling me to work hard in school because he is sure I will accomplish what he did not*" (Pupil II).

3.4 Integration of the Quantitative and Qualitative Findings

The two strands point in the same direction on the main question, but neither can show how widely the pupils' experiences apply. On parents with more schooling, few teachers agreed that most parents were graduates (2.8%) or secondary school leavers (10.2%), and pupils with educated or professional parents described direct academic help (Theme 1). This is consistent in direction with the positive association. The ratings suggest that such parents are a minority in these schools, but the focus group discussions cannot show their share.

On parents with less schooling, the primary-leaver statement drew the most agreement from teachers (25.6%), although 59.1% disagreed. Pupils described encouragement and material support with limited academic help, and strong aspiration (Themes 2 and 4). The strands are complementary here: the focus group discussions describe the kind of support less-educated parents give, which the survey did not measure.

On why the association is weak, the survey found $r = .159$ with 2.5% of variance explained, while Theme 3 described disengagement and Theme 4 described strong commitment, both among less-educated parents. Variation in involvement within education groups is one possible reason, but it was not tested. Measurement error, restricted range, aggregated perceptions and omitted variables are equally plausible. The head teachers' record forms and document analysis are not part of this article.

4. Discussion

The study examined how parents' level of education, as perceived by teachers, relates to quality of education in rural public primary schools in Machakos County. Three points emerge.

4.1 The Association Is Positive but Small

The correlation ($r = .159$) and the regression ($R^2 = .025$) show a significant positive association that is small and imprecise. This is consistent with the wider literature linking parental education to achievement (Davis-Kean, 2005; Eze, 2017; Sirin, 2005) and with the small correlations that Muola (2010) found in Machakos. A small association is also to be expected because quality of education depends on many factors, including teachers, school resources, leadership, the curriculum and household income. Parents' education is best treated as one strand among many. The correlation is smaller than the medium average association between socioeconomic status and achievement that Sirin (2005) reports, although that review concerns individual-level measures, and it is about the same size as the correlations that Muola (2010) reports in Machakos ($r = .14$ and .15).

Because no attainment category was endorsed by most teachers in the survey, the study cannot describe the typical educational profile of parents in these schools. Parent-reported data would be needed for that.

4.2 Pupils' Accounts Suggest Possible Pathways

Educated parents were described as clarifying difficult content, waiting for children to finish homework and modelling the value of schooling, which is in line with the pathways described by Muola (2010) and with the cultural capital perspective (Bourdieu, 1986). Less-educated parents were described as often unable to help with schoolwork, which agrees with Eze (2017). The pupil who described resources without engagement echoes the observation that academic socialisation matters more than resources alone (Hill & Tyson, 2009). These are pupils' perceptions from a small number of discussions. Involvement and aspiration were not measured in the survey and no mediation analysis was done, so this study cannot say that the association operates through them.

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4.3 Education Is Not Destiny

Several pupils described parents with little schooling who worked as casual labourers, sacrificed to meet school needs and hoped their children would achieve what they could not. These accounts match Akoye's (2010) point about aspirations and Muli's (2015) observation that some children of less-educated parents do as well as others. They may be one reason the association is weak, but this is speculation. Measurement error in the teacher ratings, a restricted range of attainment, the aggregation of perceptions to the school level and omitted variables are equally plausible explanations. The practical point is that low parental education should not be read as a fixed barrier.

4.4 Limitations

Several limitations affect how far the conclusions can be trusted. First, parents' education was measured through teachers' perceptions of the parent body, not through parents' own reports, and perceptions may not match actual attainment. The measure is four single items that are not mutually exclusive, with no diploma, certificate, or incomplete-primary option, and its reliability and validity are limited to a test–retest coefficient of r = .83 from the pilot and content validity judged by the researcher's supervisors. Second, teachers are nested within schools, and unless this was modelled (it was not) the standard errors may be too small. Third, the response rate for teachers was 99.0% (215 of 217 questionnaires), but 214 cases had data on both variables, so one case was lost to missing data. Sixth, pupils may have given socially desirable answers in group discussions, and only Standard 8 pupils took part. Seventh, the single-predictor model does not control for household income, school resources, or teacher characteristics, and the results come from rural public schools in one county, so they should not be generalised to urban or private schools or to other counties. Finally, the study is cross-sectional and correlational, so it supports conclusions about association and not about cause. Future studies should collect data from parents directly, use validated multi-item measures, model clustering, include other predictors and, where possible, follow pupils over time.

5. Conclusions

This study set out to establish how parents' level of education relates to the quality of education in rural public primary schools in Machakos County. The null hypothesis was rejected: parents' level of education, as rated by teachers, was positively and significantly associated with quality of education, but the association was small, r = .159, 95% confidence interval [.03, .29], and explained 2.5% of the variance. Separately, pupils' accounts described educated parents as giving direct academic help, and less-educated parents as often giving encouragement and material support while being unable to help with schoolwork; some pupils described parents who left academic matters to teachers. Teachers did not agree that most parents belonged to any one attainment category, so the study does not show what the typical level of parental education is.

The study contributes an estimate of the size of the association in a rural Kenyan county, together with pupils' own accounts of how parents' education is experienced, to a literature that mostly reports academic performance. Its broader implication is that parents' education alone is unlikely to explain much of the variation in quality between schools, so efforts to improve quality should also attend to teaching, resources and leadership, while schools can still help parents with limited schooling to support learning. The findings have limits. They rest on teachers' perceptions of the parent body, come from rural public schools in one county, use a single-predictor model, and cannot show cause (section 4.4). Whether involvement and school support can offset low parental education is a question for future research and was not tested here.

6. Recommendations

The recommendations are grouped by audience and ranked within and across groups by how directly the study supports them and how feasible they are for schools. Parents' education explained 2.5% of the variance, so the remaining 97.5% includes factors such as teaching quality, school resources and leadership that may be higher-leverage targets but were not examined here. The recommendations below should therefore complement, and not replace, investment in those school factors.

Schools should hold parent workshops and open days and communicate in simple language, including local languages, so that parents with limited schooling know practical ways to support learning, such as setting a regular study time, asking children to explain what they learned and expressing high expectations. This follows from the study's findings (Themes 2 and 4) and from Hill and Tyson (2009). Attendance monitoring and mobile messaging were not examined in this study and are the authors' suggestions.

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Schools should offer homework clubs, remedial classes, peer tutoring and supervised study to pupils who cannot get academic help at home. This follows directly from Theme 2, in which pupils described being stuck on homework with no one to ask.

Schools should affirm and use the high aspirations of less-educated parents through guidance and counselling, community role models and parent–teacher associations. This follows from Theme 4 and from Hill and Tyson (2009).

Family and adult literacy programmes should be piloted and evaluated before any wide expansion, and treated as a longer-term complement and not a stand-alone response. This rests on the literature and the authors' judgement. The small association found here, with 2.5% of variance explained, does not on its own justify large investment.

Resources should not be targeted using teachers' perceptions of parents' education. If parental profiles are to be used, direct data should first be collected from parents, and care taken not to stigmatise communities. This follows from the limitation of this study's perception-based measure and from the authors' judgement.

Future studies should measure parents' education directly, use validated multi-item measures of quality, model the clustering of teachers within schools, include other home and school predictors, and consider longitudinal designs. This follows from the limitations of this study.

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