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Influence of Teachers' Competency as a Social Determinant on Quality Education in Public Primary Schools in Machakos County, Kenya

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Abstract

This study examined the way teachers' competency, viewed as a social determinant, influences the quality of education in public primary schools in Machakos County, Kenya. Although the government has expanded access through initiatives like Free Primary Education, questions persist regarding the quality of education that pupils actually receive. At the national level, Gross Enrolment Rates have risen while completion rates have fallen, indicating quality gaps that teachers' competency, as a social determinant, could help to clarify. The primary aim was to examine teachers' competency as a social determinant of quality education in these schools. The study adopted a descriptive research design, integrating both qualitative and quantitative methods. Teachers' competency served as the independent variable, measured through four indicators: mastery of the teaching content, capacity to fulfil evaluation requirements, application of teaching methodologies, and classroom management. Quality of education served as the dependent variable. The target population consisted of 3,174 individuals, comprising 403 head teachers, 2,015 Standard 8 teachers and 756 Standard 8 pupils drawn from the 403 rural public primary schools distributed across the 8 sub-counties of Machakos County. A sample of 343 respondents was drawn using purposive and simple random sampling. Standard 8 teachers filled in questionnaires, Standard 8 pupils participated in Focus Group Discussions, and observation schedules were employed alongside a review of school records completed by head teachers. The qualitative data were organized into themes and presented in narrative form. The quantitative data were cleaned, sorted, and coded, after which they were analyzed descriptively using the Statistical Package for the Social Sciences (SPSS) version 26.0. Multiple linear regression was used to examine the relationship between teachers' competency and quality education, with Goodness-of-Fit (R-Square) and F-test statistics providing support for the

analysis. The findings revealed that a change in teachers' competency, as a social determinant, led to a statistically significant change in quality education in public primary schools in Machakos County, Kenya, and that the two variables were positively and linearly related. The study concludes that teachers' competency is an essential social determinant of educational quality. It recommends that teachers enhance their competencies by participating in continuous professional development courses and workshops, and that education stakeholders invest more in teacher-focused social interventions to improve the quality of education offered to public primary school pupils.

Keywords: Influence, Public Primary School, Quality Education, Social Determinant, Teachers' Competency

Introduction

The concept of quality education can be traced back to the Dakar Framework for Action (2000), which declared that access to quality education is essential and is the right of every child (United Nations Educational, Scientific and Cultural Organizations [UNESCO], 2012). To help fulfill this right, the United Nations (UN) established Sustainable Development Goal four, which shifted focus from mere access under Education for All (EFA) to access to quality education. Over the last ten years, developed countries have advanced rapidly toward universal primary education by enrolling large numbers of children in school. That same decade has also intensified pressure on nations to extend EFA beyond enrolment alone and to include improved learning outcomes for every child (Ferguson, 2017). Schinder (2013) reiterates that efforts have been made to address the problems affecting quality education in state schools in developed countries, even though the available data are incomplete. It is against this backdrop that the researcher introduces teachers' competency as a social determinant of quality education. Teachers' competency qualifies as a social determinant because it is shaped through human interaction, professional development systems, and institutional support structures within the school, rather than through material or infrastructural inputs alone. Within the school system, Mhidiwa (2015) contends that the quality of education is determined by teachers' competency, which in turn is likely to influence educational outcomes and the progression of pupils to the next level of learning in a given society. How teachers teach is a key concern in any reform intended to improve quality education. As social agents in the education system, teachers therefore exert the strongest influence on learning and on many other factors that constitute quality in schools.

Across Africa, quality education has improved slightly over the past decade, owing to strategies introduced in the basic education sector, including the strengthening of teachers' competency as a social determinant. Even so, quality has been held back. The Global Partnership for Education (GPE) (2013) reported that 250 million children in developing countries either leave school or do not acquire basic reading, writing and math skills by grade four, despite the presence of teachers in their schools. A World Bank (2016)

study on the Africa Learning Barometer reflected the same concern, revealing that primary school children in Sub-Saharan Africa have only a 10% chance of finishing the learning cycle. These results strongly indicate the need to consider teachers' competency as a social determinant, since a teacher lacking either academic or professional qualifications will undoubtedly have a harmful impact on the teaching and learning of his or her subject (Wekesa, 2013). Okoye (2010) concurs that professional training equips teachers with knowledge that helps pupils learn, fosters deep mastery of both subject matter and pedagogy, and thereby improves the quality of education. Trained teachers are also proficient in assessment, not just in instructional methods, which enables them to determine how learners are progressing and to plan activities that match their needs. The situation differed in Togo, Uganda and Cape Verde, where between 35% and 50% of students were taught by unqualified teachers (Bakare, 2014). As a result, quality education declined, because student achievement beyond the basic skills depends largely on how well the teacher masters the subject matter (Eze, 2017). It therefore follows that teachers, as a key social determinant, are crucial to advancing quality education, since they drive change and constitute a large portion of the human input in an education system.

As stated by Government of Kenya (2019), the Government has made substantial investments in supporting the education sector, particularly basic education. Nevertheless, low school attendance, poor performance and high dropout rates among pupils have been reported. To be specific, the Gross Enrolment Rate (GER) for public primary schools was 106.4% in 2017 and increased to 111.2% in 2019, while the Net Enrolment Rate (NER) rose from 81.0% in 2017 to 87.2% in 2019. During the same period, however, completion rates dropped from 78% to 71%. This troubling dropout rate indicates that quality education in Kenyan primary schools is under threat and that a viable solution must be reconsidered. This is the reason the study sought to determine whether teachers' competency, as a social determinant, influences quality education. Fayemi (2011) and Abe (2014) found that, regardless of how school funding is provided, what facilities exist, what content is taught, where the school is located or what kind of pupils the teacher is assigned, the essential role of the teacher as a social determinant cannot be overstated. Muli (2015) examined Machakos County and discovered that teachers' competency is linked to the quality of education there, although information on the subject remains limited. He further observed that, even though measures have been taken to improve quality, the improvements have been modest. Kieti (2017) holds the same view and cautions that children's right to education in the county's public primary schools will be jeopardized unless the value of that education is evaluated. These arguments explain why the study needed to examine whether teachers' competency, as a social determinant, influenced quality education in public primary schools in Machakos County, Kenya.

Rationale of the Study

Both national progress and personal empowerment depend on education of good quality. Through measures like Free Primary Education (FPE), the Kenyan government has made considerable efforts to expand access to education, but concerns persist regarding the quality of education actually provided, particularly in public primary schools. Among the numerous social determinants that influence educational quality, teachers' competency ranks as one of the most significant, since teachers are part of learners' educational experience every day. Teachers play a key role in delivering the curriculum, involving learners and developing the foundational skills required for further education and lifelong learning. As in many other areas of Kenya, educational outcomes in public primary schools in Machakos County vary considerably, and these differences frequently mirror disparities in teachers' competency as a social determinant. Even though the personnel hold qualifications on paper, it remains unclear whether teachers possess and apply the competencies required to deliver quality education effectively. These encompass command of subject content, pedagogical skills, classroom management, use of instructional materials, and the capacity to assess and respond to learners' needs. The study thus examined the extent to which teachers' competency, as a social determinant, affects the quality of education in public primary schools in Machakos County. Policymakers, school administrators and teacher training institutions must grasp this relationship, as it can inform interventions to enhance teacher training, professional development and overall school performance. The study further contributes to existing literature by offering local insights into the Kenyan education context, in a region that combines rural and peri-urban characteristics. Pinpointing the competency areas with the strongest impact on educational quality underpins evidence-based decisions that enhance learner outcomes and move the country closer to Sustainable Development Goal 4, which advocates inclusive and equitable quality education for all.

Objective of the Study

The primary aim of this study was to determine how teachers' competency, regarded as a social determinant, influences quality education in public primary schools of Machakos County, Kenya.

Materials and Methods

The study adopted a descriptive design that incorporated both qualitative and quantitative methods. Kerlinger (2013) argues that this kind of design suits preliminary and exploratory work, as it allows researchers to gather information and then summarize,

present and interpret it for clarification. Teachers' competency served as the independent variable. It was regarded as a social determinant and operationalized through four indicators: the teacher's mastery of teaching content, ability to satisfy evaluation requirements, use of teaching methodologies and classroom management ability. The dependent variable was quality of education. MOE (2019) reports that Machakos County has 8 sub-counties and 909 public primary schools, with 403 of these schools located in rural areas. The study drew from these rural schools a total of 403 head teachers, 2,015 Standard 8 teachers and 756 Standard 8 pupils, which produced a target population of 3,174 and a sample of 343 respondents. Questionnaires, interviews, Focus Group Discussions (FGDs), observation schedules and document analysis were the instruments used to collect data. The qualitative material was arranged according to themes and presented in narrative form. Before entry into SPSS software version 26.0 for descriptive analysis, the quantitative raw data were cleaned, sorted and coded, after which regression analysis was carried out. The study had a particular interest in Goodness of Fit (GOF). It explains how closely a statistical model matches a set of observations by summarizing the gap between observed values and those the model would predict (Kombo & Tromp, 2009). GOF was measured using the R-Square statistic, whereas the F-test examined the significance of the independent variable against the dependent variable, given that the sample exceeded 30. With the study objectives as a guide, the researcher conducted a multiple linear regression in order to obtain the mathematical model that explains how the dependent variable relates to the significant independent variable already identified by the correlation analysis. The results were then interpreted so as to reach conclusions, and the researcher provided suggestions and recommendations on those interpretations.

Results

Teachers' Competency as a Social Determinant and Quality Education

This section examines how teachers' competency, conceptualized as a social determinant, affects quality education in public primary schools in Machakos County, Kenya. Teachers evaluated a series of statements describing professional and social competency, namely commitment, subject mastery, use of instructional resources, classroom management, assessment literacy and participation in continuous professional development, by stating how strongly they agreed or disagreed. In the Focus Group Discussions (FGDs), Standard 8 pupils also gave their views on teachers' competency, providing a learner-level perspective on how this social determinant is experienced in the classroom. Descriptive analysis of the responses was carried out first. Correlation and regression analyses came next, in order to demonstrate how strong the relationship between teachers' competency and quality education is and whether it is statistically significant.

Descriptive Analysis of Teachers' Competency

On average, teachers agreed that they are fully committed to their work (Mean = 4.23, SD = 0.804), manage their time well within the school (Mean = 4.20, SD = 0.823) and have adequately mastered the content of the subjects they teach (Mean = 4.16, SD = 0.769). Average agreement was also recorded for managing classes well (Mean = 4.11, SD = 0.824), consistently preparing professional documents (Mean = 4.08, SD = 0.908), possessing the required professional skills (Mean = 4.08, SD = 0.869), being conversant with assessment procedures (Mean = 4.06, SD = 0.900) and using teaching and learning resources during lessons (Mean = 4.00, SD = 0.935). Attendance at professional development courses such as seminars and workshops was the single area with weaker agreement (Mean = 3.50, SD = 1.131). The item “Teachers in my school are fully committed to their work” recorded the highest mean response (Mean = 4.23, SD = 0.804), while “I often attend professional development courses such as seminars and workshops” recorded the lowest (Mean = 3.50, SD = 1.131). This discrepancy warrants consideration. It implies that the social and relational aspects of teacher competency, specifically commitment, classroom presence, and daily professional conduct, are robust, whereas the institutional and developmental aspect, defined as consistent access to continuous professional development, is relatively weaker. This shapes the extent to which teachers' competency, as a social determinant, is strengthened or constrained by support systems outside an individual teacher's control.

Table 1: Descriptive Analysis of Teachers' Competency

Teachers' Competency	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dvn.
Teachers in my school are fully committed to their work	1.90%	2.30%	5.10%	52.10%	38.60%	4.23	0.804
I believe I have adequately mastered the teaching content of my subjects	1.40%	2.80%	6.00%	58.10%	31.60%	4.16	0.769
I always use teaching and learning resources while teaching	3.70%	3.30%	11.60%	52.60%	28.80%	4.00	0.935
I always manage my classes well	2.30%	2.80%	6.50%	58.10%	30.20%	4.11	0.824
I believe I am conversant with all the assessment procedures	3.30%	3.70%	7.00%	56.30%	29.80%	4.06	0.900
Teachers in the school always prepare professional documents	4.20%	1.90%	6.50%	56.30%	31.20%	4.08	0.908
All teachers in my school have the required professional skills	2.80%	4.20%	4.70%	59.10%	29.30%	4.08	0.869
I often attend professional	6.00%	16.30%	16.30%	44.70%	16.70%	3.50	1.131

Teachers' Competency	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dvn.
development courses such as seminars and workshops							
I believe I always manage my time well while in the school	2.80%	1.40%	4.70%	54.90%	36.30%	4.20	0.823
Average						4.05	0.885

Correlation between Teachers' Competency and Quality Education

A correlation analysis was conducted to determine whether teachers' competency, as a social determinant, is significantly associated with quality education in public primary schools in Machakos County, Kenya. Table 2 reveals a positive and statistically significant correlation between the two (r = 0.245, p = 0.000, p < 0.05). Teachers' competency thus functions as a significant social determinant within the education system: it moves in tandem with quality education outcomes rather than existing independently of them.

Table 2: Correlation between teachers' competency and quality education

		Teacher Competency	Quality of Education
Teacher competency	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	215	
Quality of education	Pearson Correlation	.245**	1
	Sig. (2-tailed)	.000	
	N	214	214

*** Correlation is significant at the 0.01 level (2-tailed).*

Regression Analysis of Teachers' Competency and Quality Education

Regression analysis was employed to determine how teachers' competency, as a social determinant, is related to quality education in public primary schools in Machakos County, Kenya, and to measure the extent of this determinant's influence. The following hypothesis was tested: $H0_4$: There is no significant relationship between teachers' competency, as a social determinant, and quality education in public primary schools in Machakos County, Kenya. Model Summary for Teachers' Competency

The model summary indicated that teachers' competency, as a social determinant, accounted for a modest yet statistically meaningful portion of the variation in quality education. An R Square of 0.060 shows that teachers' competency by itself explains 6% of that variation. The remaining 94% was ascribed to factors excluded from this model, including other social, economic and institutional determinants. This strengthens the idea that quality education is determined by multiple interacting factors, and that teachers' competency is one important contributor rather than the sole driver.

Table 3: Model summary for the influence of teachers' competency on quality education

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.245a	.060	.055	29.465

a. Predictors: (Constant), Teacher competency

Analysis of Variance for Teachers' Competency

The analysis of variance indicated that the model connecting teachers' competency to quality education was statistically significant, with F (1, 212) = 13.516, p = .000, p < 0.05.

Table 4: Analysis of variance for teachers' competency

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11734.472	1	11734.472	13.516	.000b
	Residual	184059.920	212	868.207		
	Total	195794.393	213			

b. Predictors: (Constant), Teacher competency

Regression Coefficient for Teachers' Competency

Based on the regression coefficient output, teachers' competency had a positive

and significant influence on quality education (β = 11.230, t = 3.676, p = .000, p < 0.05).

Table 5: Regression Coefficient for teachers' competency

Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	192.898	12.518		15.410	.000
	Teacher competency	11.230	3.055	.245	3.676	.000

Discussion

The descriptive results indicate that most teachers held the appropriate professional qualifications and demonstrated a solid work ethic, as reflected in the high agreement scores for commitment, subject mastery and classroom management. The somewhat lower mean score for participation in professional development courses, on the other hand, reveals an inconsistency in the extent to which institutions reinforce this social determinant. At the individual level, competency indicators are robust, yet the systemic processes that build and renew that competency require greater attention. This is consistent with Morgan (2010), who observed that teacher training equips teachers with the knowledge and skills that enhance their teaching and, ultimately, performance and educational quality. Muli (2015) similarly reported that teacher training positively affected pupils' enrolment, class transition rate and performance, which further supports teachers' competency as a social determinant with measurable downstream effects. Bakare (2014) further noted that teachers should move beyond initial training and take part in continuous professional development, such as seminars, workshops and pre-service programs, so that their competency is maintained and enhanced over time. The FGDs with pupils likewise highlighted a need for capacity building among teachers, with computer studies singled out in particular. This suggests that teachers' competency, being a social determinant, must develop in step with curriculum changes and technological demands. UNESCO (2015) reported a comparable finding: trained teachers have the strongest influence on learning and on a broad range of other quality factors in schools. At the same time, other school-related challenges can constrain how effective teachers are as a social determinant and may weaken the otherwise positive effect of a teacher's competency on the teaching and learning of a subject. Teachers' competency and quality education are significantly correlated and change in the same direction, so this finding supports the view that teachers' competency is a true social determinant of educational quality rather than a peripheral or incidental factor. A similar pattern emerged in Wangila, Kafu, and Nyandusi (2012), who found a strong positive correlation between teacher training and learners' performance in final examinations, as well as between teacher training and transition rates, enrolment and

school attendance in Kenyan primary schools. These results echo the social-determinant framing used here. The regression coefficient further indicates that, holding all other factors constant, every unit increase in teachers' competency would raise quality education by 11.230 units. This demonstrates the concrete, measurable weight that the determinant carries within the broader education system. The analysis of variance also confirmed that teachers' competency was a statistically significant determinant of quality education in public primary schools in Machakos County, Kenya, and the model summary showed that it had a meaningful influence, although the modest R Square value reminds us that other social, institutional and resource-based determinants also matter. On the basis of these results, the null hypothesis was rejected, leading to the conclusion that teachers' competency, as a social determinant, significantly influences quality education. The model that was fitted was: Quality Education = 192.898 + 11.230 (Teachers' Competency).

Conclusion

To sum up, the competency of teachers functions as a notable social determinant of quality education in public primary schools within Machakos County, Kenya. The positive and statistically significant link between teachers' competency and quality education indicates that strengthening this determinant via focused training, mentorship and institutional support systems is essential for achieving better educational quality. It does not explain all the variation in quality education, yet its significant positive contribution means that education stakeholders cannot afford to disregard it. Therefore, investment in teacher development ought to be regarded by stakeholders in the education sector as a strategic, socially grounded path toward long-term educational goals and national development.

Recommendations

School administrators are urged to make sure that teachers sign up for continuous professional development courses and take part in seminars and workshops. Bolstering this social determinant of quality education produces better-prepared teachers and, in the end, better-prepared learners. Education policymakers and county education stakeholders are similarly encouraged to institutionalize structured, ongoing professional development pathways. Teachers' competency ought to be seen as a social determinant that demands continuous investment and reinforcement throughout a teacher's career, rather than a static, one-time qualification.

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