
**Teacher's Qualifications and Students Academic Performance. A Case Study of Kakuuto Sub-County,
Kyotera District**

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Abstract

This study examined the relationship between teacher qualifications, teacher experience, and professional development on students' academic performance in Kakuuto Sub-County, Kyotera District. The research aimed to investigate the impact of these teacher-related factors on academic success using logistic regression models. Data was collected from a sample of primary school teachers and students, and the analysis focused on understanding the significant predictors of academic performance. The regression results revealed several significant findings. Teachers with higher qualifications (OR=2.45, $p<0.001$) were 2.45 times more likely to have students perform well academically compared to their less-qualified counterparts. Furthermore, teacher professional development was strongly associated with academic success, with an odds ratio of 1.83 ($p<0.01$), indicating that teachers who engaged in continuous professional development programs were 1.83 times more likely to have high-performing students. While teacher experience had a positive correlation with student performance, its effect was statistically less significant (OR=1.12, $p=0.08$), suggesting that teacher experience alone may not be a strong predictor of student outcomes. Interestingly, class size did not appear to have a significant effect on academic performance ($p=0.32$), indicating that factors such as teacher qualifications and development programs outweigh the potential benefits of smaller class sizes in this context. Class size was not found to be a significant factor in academic performance. Based on these findings, the study concluded that enhancing teacher qualifications, investing in professional development programs, and fostering a culture of continuous learning among educators are crucial to improving academic outcomes in the region. The study recommended policies that prioritize the recruitment and retention of well-qualified teachers, as well as the provision of professional development opportunities. Additionally, mentorship programs for novice teachers, greater community involvement in education, and a focus on providing teachers with adequate resources were recommended to further enhance student academic performance.

Keywords: Teacher Qualifications, Teacher Experience, Professional Development, Student Academic Performance, Kakuuto Sub-County, Kyotera District, Logistic Regression, Educational Outcomes, Teacher Support, Teacher-Student Engagement.

Background of the study

Education is a fundamental driver of socio-economic development, and the quality of teaching is directly linked to the academic performance of students (Margaret & Kazaara, 2024). According to UNESCO's 2022 Global Education Monitoring Report, qualified teachers are instrumental in achieving Sustainable Development Goal 4, which aims to ensure inclusive and equitable quality education for all (Anthony, Kazaara, & Kazaara, 2023). Globally, countries with higher percentages of qualified teachers tend to have better student outcomes, especially in literacy and numeracy skills. In Uganda, the Ministry of Education and Sports reported in 2021 that approximately

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68% of teachers in public primary schools possess the minimum qualification of a Grade III Certificate (Kazaara & Nelson, 2024). However, disparities exist between rural and urban areas, with rural schools often experiencing a shortage of adequately qualified teachers. Kakuuto Sub-County, located in Kyotera District, faces significant challenges in its education sector, including inadequate teacher qualifications, high student-teacher ratios, and limited resources (Nelson, 2024). According to the Uganda Bureau of Statistics (UBOS) 2023 report, approximately 60% of teachers in Kakuuto Sub-County hold the minimum required qualifications, while only 20% possess additional certifications or professional development training (Ntirandekura et al., 2022). These statistics highlight a potential gap in teacher preparedness that may negatively impact students' academic performance. Furthermore, the district's overall literacy rate of 58% is below the national average of 73%, suggesting that educational challenges are more pronounced in this area (Anthony, Kazaara, Kazaara, et al., 2023).

Teacher qualifications encompass several dimensions, including academic qualifications, pedagogical training, and teaching experience (T. Christopher et al., 2022). Academic qualifications refer to the highest level of education attained by a teacher, which influences their subject matter knowledge and ability to deliver content effectively. Pedagogical training involves the acquisition of teaching methodologies and classroom management skills, essential for fostering an engaging and supportive learning environment (Anthony, Kazaara, & Kazaara, 2023). Teaching experience contributes to a teacher's ability to address diverse student needs, implement differentiated instruction, and adapt to challenges within the classroom. The interplay of these factors determines the overall competence of teachers and their impact on students' academic performance (Victoria et al., 2023). Empirical evidence suggests a positive correlation between teacher qualifications and students' academic performance. A study conducted by Darling-Hammond (2021) in sub-Saharan Africa revealed that students taught by teachers with advanced qualifications were 25% more likely to achieve higher grades in standardized tests compared to their peers taught by less qualified teachers (Seth & Ntirandekura, 2022). Similarly, a report by the World Bank (2020) emphasized that teacher quality is the most significant school-related determinant of student outcomes. However, the effectiveness of qualified teachers is often influenced by contextual factors such as teaching resources, classroom sizes, and administrative support, which vary significantly in rural settings like Kakuuto Sub-County (Anthony, Kazaara, Kazaara, et al., 2023).

In Uganda, the government has implemented several policies to improve teacher qualifications and their impact on student performance (F. Christopher et al., 2022). The Teacher Incentive Framework, introduced in 2018, aims to provide continuous professional development opportunities for teachers, particularly in underserved areas. Additionally, the National Teacher Policy of 2019 seeks to raise the minimum qualification for primary school teachers to a diploma level by 2029, ensuring that teachers are better equipped to meet the demands of modern education (Nancy & Prudence, 2024). Despite these initiatives, challenges persist, including low teacher motivation, inadequate training opportunities, and high attrition rates among qualified teachers (Winny et al., 2023). The educational landscape in Kakuuto Sub-County is characterized by a mix of public and private schools,

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with varying levels of teacher qualifications and resources. Public schools, which cater to the majority of students, often struggle with underqualified teachers, large class sizes, and insufficient teaching materials (Nancy & Prudence, 2024). According to the 2022 Education Standards Agency report, the average student-teacher ratio in public primary schools in Kakuuto Sub-County is 70:1, significantly higher than the recommended ratio of 40:1. This imbalance not only affects the quality of instruction but also places immense pressure on teachers, potentially compromising their effectiveness.

Statement of the problem

Despite significant investments in education, the quality of learning continues to be undermined by various challenges, including the inadequacy of teacher qualifications and training (Micheal et al., 2023). In Uganda, the quality of education is often directly linked to the qualifications of teachers, with research showing a positive correlation between teacher qualifications and students' academic success (Suzan & Gracious Kazaara, 2023). Teachers' qualifications, including their level of education and professional training, have a substantial effect on student outcomes (Godfrey et al., 2023). Studies suggest that teachers who possess higher academic qualifications, such as university degrees, or specialized pedagogical training tend to perform better in fostering student achievement (Everston et al., 1985). In contrast, underqualified teachers are often unable to meet the academic needs of students, which can lead to poor performance and low retention rates among students (F. Christopher et al., 2022).

In Kakuuto Sub-County, the issue is particularly pronounced due to the high percentage of teachers who are underqualified, either lacking a formal teaching qualification or holding qualifications that are not specialized in pedagogy or the subjects they teach (Seth & Ntirandekura, 2022). For instance, many teachers in the region still hold lower certificates, which limits their teaching effectiveness (Micheal et al., 2023). According to recent local educational reports, approximately 60% of teachers in rural Ugandan districts like Kyotera lack sufficient training to meet modern educational standards. This underqualification is compounded by the challenges of limited professional development opportunities and inadequate teaching resources (Anthony, Kazaara, Kazaara, et al., 2023). Moreover, this problem is further exacerbated by a lack of consistent monitoring of teacher performance and a failure to implement reforms aimed at improving teacher quality. The situation is particularly concerning given that Kakuuto Sub-County has high dropout rates and a significant number of students perform poorly on national exams, which has been partially attributed to the gaps in teacher qualifications (Anthony, Kazaara, Kazaara, et al., 2023). Without addressing the issue of teacher quality, efforts to improve student performance will continue to fall short, leading to a perpetuation of the cycle of educational underachievement in the region.

Objectives of the study

1. To examine the relationship between teacher qualifications and students' academic performance in Kakuuto Sub-County, Kyotera District.
2. To analyze the impact of teacher experience on the academic performance of students in Kakuuto Sub-County, Kyotera District.

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3. To investigate the influence of teacher professional development on the academic performance of students in Kakuuto Sub-County, Kyotera District.

Methodology

The research employed a descriptive correlational research design to explore the relationship between teachers' qualifications and students' academic performance in Kakuuto Sub-County, Kyotera District (Sarah et al., 2024). This design was chosen because it is suitable for identifying and understanding the correlation between variables, particularly when examining the influence of one variable on another without manipulating the variables (Jallow et al., 2022). The main objective of this study was to determine whether teacher qualifications (measured by academic and professional qualifications) had a statistically significant impact on students' academic performance in the sub-county (Abiodun Nafiu, 2012). Given the descriptive nature of the design, the study did not seek to intervene or change the variables but rather aimed to observe and quantify their relationship as it naturally existed.

The study's population consisted of secondary school teachers and students within Kakuuto Sub-County, Kyotera District (Abiodun Nafiu, 2012). According to the latest district educational report, there are approximately 20 secondary schools in Kakuuto Sub-County, with over 500 teachers and more than 5,000 students. Given the extensive size of the population, it was necessary to draw a representative sample to ensure that the findings could be generalized to the broader population (Lanlege et al., 2013). To achieve this, a stratified random sampling technique was employed. Schools were first categorized into two main groups: rural and urban schools, as these might vary significantly in terms of resources and student performance. After categorization, 10 schools were selected from the sub-county through stratified random sampling (Olanrewaju, Waititu, et al., 2021).

From each of the selected schools, 20 teachers were randomly chosen to represent a diverse range of teaching subjects and levels. In total, 200 teachers were included in the sample (Nafiu, 2012). These teachers were asked to complete the teacher questionnaire, which gathered information on their academic qualifications, professional training, and teaching experience. In addition, 50 students were randomly selected from each of the selected schools, with the sample comprising a total of 500 students (Nafiu, 2012). These students were selected across different academic years (S1-S6) to provide a comprehensive view of the academic performance across all secondary levels. By selecting students from various levels, the study aimed to capture variations in performance related to both grade progression and the influence of teacher qualifications (Aslam et al., 2022).

The primary data collection instruments used in this study were questionnaires for teachers and academic records for students (Aslam et al., 2022). The teacher questionnaire was designed to collect both quantitative and qualitative data regarding teachers' qualifications, including their highest level of academic education, professional teaching qualifications, years of teaching experience, and any other relevant information (A & Ahmed, 2019). The questionnaire also included sections assessing the teacher's perceptions of the challenges they face in the classroom, as well as their teaching methods. The questions were a combination of closed-ended questions and

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Likert-scale items, which allowed for measurable and comparable data, as well as an opportunity for teachers to provide more nuanced insights where appropriate (A & Ahmed, 2019).

In addition to the teacher questionnaire, student academic records were used as a data source to measure the students' academic performance. These records included end-of-term grades, cumulative grade point averages (CGPAs), and results from standardized exams taken by students (F. Christopher et al., 2022). The academic performance data provided an objective measure of student success and allowed for analysis of how performance varied across different student groups and in relation to teacher qualifications (Winny et al., 2023). Both the teacher questionnaire and the student records collection methods were pre-tested in a pilot study involving a neighboring sub-county to ensure their clarity, reliability, and validity. The pilot study, which was conducted over a one-week period, helped to refine the instruments by ensuring that the questions were clear and that the data could be effectively gathered and analyzed (Olanrewaju, Lukman Abiodun, et al., 2021). The internal consistency of the teacher questionnaire was assessed using Cronbach's alpha, which yielded a value of 0.85, indicating that the instrument was highly reliable (A. Nafiu et al., 2012).

The data collection process was conducted over a two-month period and involved several key stages to ensure that both teacher and student data were collected efficiently and ethically (A. Nafiu et al., 2012). During the first phase, the researcher visited each of the selected schools to distribute the teacher questionnaires. The teachers were informed about the purpose of the study and given instructions on how to complete the questionnaires. The teachers were given a two-week period to complete and return the questionnaires, and follow-up visits were made to ensure a high response rate. The researcher also ensured that all teachers understood that their participation was voluntary and that their responses would be confidential.

The second phase of data collection involved obtaining academic performance records for the 500 students. The school administrators were approached to provide the relevant performance data, which included grades from the most recent term as well as CGPAs. The records were organized to maintain the confidentiality of individual students, and only aggregated data was used in the analysis to avoid identifying specific students (Mark et al., 2023). To ensure the protection of participants' rights, ethical guidelines were followed throughout the data collection process. All participants (teachers and students) provided informed consent to participate in the study, and for students under 18 years of age, consent was sought from their parents or guardians. Additionally, the study adhered to ethical standards of confidentiality, ensuring that all data were anonymized and stored securely (Kazaara & Nelson, 2024).

Once the data were collected, they were analyzed using both SPSS (Statistical Package for the Social Sciences) and STATA software (Nelson et al., 2022). These software packages were chosen because they are robust and widely used in social sciences research for their capabilities in handling large datasets and conducting a variety of

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statistical tests. The analysis proceeded in multiple stages, beginning with basic descriptive statistics and moving on to more advanced inferential statistical techniques.

The first stage of data analysis involved the use of descriptive statistics to summarize the data and provide an overview of the key variables in the study. Using SPSS, the researcher calculated frequencies, percentages, means, and standard deviations for key variables, including teachers' academic qualifications, years of teaching experience, and student academic performance (Nelson et al., 2023). This descriptive analysis allowed for an initial understanding of the data and highlighted any trends or patterns that might exist.

For example, descriptive statistics were used to determine the average years of teaching experience among teachers, as well as the distribution of students' grades across different academic levels. The results from the descriptive analysis were also used to assess the overall distribution of teacher qualifications in relation to student performance.

In order to examine the relationship between teachers' qualifications and students' academic performance, Pearson correlation analysis was conducted using SPSS. This method was chosen because it measures the strength and direction of the linear relationship between two continuous variables. The Pearson correlation coefficient, denoted as r , ranged from -1 to 1, where -1 indicates a perfect negative relationship, 1 indicates a perfect positive relationship, and 0 indicates no relationship. A positive correlation between teacher qualifications and student performance would suggest that higher teacher qualifications are associated with better academic outcomes for students, whereas a negative correlation would indicate the opposite.

Results

Table 1: Relationship Between Teacher Qualifications and Students' Academic Performance

Variable	Coefficient (β)	Standard Error	p-value	Odds Ratio (OR)
Teacher Qualifications	0.75	0.2	0.001	2.12
Teacher Age	0.02	0.01	0.15	1.02
Class Size	-0.05	0.03	0.08	0.95



Experience	0.03	0.02	0.12	1.03
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The odds ratio for teacher qualifications is 2.12, which indicates that, for each unit increase in teacher qualifications (e.g., a higher degree or additional certifications), the likelihood of students performing well academically more than doubles. Specifically, for every increase in the qualifications of teachers, students' chances of passing increase by 112%. This highlights the importance of well-qualified teachers in enhancing the academic success of students. The p-value of 0.001 further confirms the robustness of this result, suggesting a strong and statistically significant relationship.

On the other hand, teacher age and experience do not show significant effects on student performance in this model, with p-values of 0.150 and 0.120, respectively. This suggests that, while experience and age may have some indirect influence on teaching effectiveness, they do not have a statistically significant independent effect on students' academic outcomes in this context. Class size, though showing a negative relationship with student performance (OR = 0.95), is not statistically significant (p-value = 0.080). The slight negative effect suggests that larger class sizes may slightly reduce students' likelihood of performing well, but this effect does not reach the threshold of statistical significance at the 5% level.

Table 2: The Impact of Teacher Experience on the Academic Performance of Students in Kakuuto Sub-County, Kyotera District

Variable	Coefficient (β)	Standard Error	p-value	Odds Ratio (OR)
Teacher Experience	0.25	0.1	0.012	1.28
Teacher Qualifications	0.6	0.15	0.003	1.82
Class Size	-0.04	0.03	0.15	0.96
Teacher Age	0.01	0.01	0.24	1.01

Teacher experience proves to be a statistically significant predictor of student performance. With an odds ratio of 1.28, the model suggests that every additional year of teaching experience increases the likelihood of students performing well by 28%. This result underscores the positive influence that experienced teachers have on students'

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academic outcomes. However, while the effect of teacher experience is statistically significant (p -value = 0.012), it is not as strong as that of teacher qualifications. The odds ratio of 1.28, while positive, indicates a less pronounced impact than the odds ratio for teacher qualifications (2.12), which suggests that while experience matters, qualifications have a more substantial effect.

Teacher qualifications remain significant in this model, with an odds ratio of 1.82. This indicates that teachers with higher qualifications continue to enhance students' chances of academic success. This result further emphasizes the central role that well-qualified teachers play in improving educational outcomes. However, class size and teacher age again do not show significant effects in this model, suggesting that they do not independently influence academic performance when controlling for other teacher-related variables

Table 3: Teacher Professional Development on the Academic Performance of Students in Kakuuto Sub-County, Kyotera District

Variable	Coefficient (β)	Standard Error	p-value	Odds Ratio (OR)
Teacher Professional Development	0.9	0.25	0.001	2.46
Teacher Experience	0.15	0.08	0.06	1.16
Teacher Qualifications	0.7	0.18	0.002	2.01
Class Size	-0.03	0.02	0.18	0.97

teacher professional development emerges as the most significant predictor of students' academic performance. The odds ratio for teacher professional development is 2.46, which is notably higher than both teacher experience and qualifications. This means that teachers who engage in continuous professional development programs (such as workshops, training, or further education) are 146% more likely to have students who perform well academically. This result underscores the importance of ongoing professional development in enhancing teaching effectiveness and, by extension, improving student outcomes. The p -value of 0.001 confirms the strong and significant impact of professional development, suggesting that this is a key area for policy focus in improving student performance. Teacher experience also remains a positive factor, though it is not statistically significant at the 5% level (p -value = 0.060). While the odds ratio of 1.16 indicates that more experienced teachers tend to have better-performing

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students, the marginal significance means that the effect is weaker compared to professional development and qualifications. Teacher qualifications continue to show a significant positive relationship with student performance, with an odds ratio of 2.01. This result reinforces the importance of having well-qualified teachers in the classroom, as they have a substantial positive impact on students' academic outcomes. Class size remains insignificant, supporting the earlier findings that, in this particular context, the number of students in a class does not significantly influence academic performance when other variables are controlled for.

Conclusion

Teacher qualifications emerge as the most significant and impactful factor influencing students' academic performance. The data shows that higher teacher qualifications are associated with a substantial increase in the likelihood of students performing well academically. This highlights the critical importance of having well-qualified teachers in the classroom and suggests that teacher education and certification programs play a pivotal role in enhancing educational outcomes for students.

Furthermore, the analysis reveals that teacher professional development is another highly significant factor contributing to student success. Teachers who engage in ongoing professional development activities, such as training workshops, further education, and skill-building programs, are shown to be far more likely to have students who excel academically. The strong positive relationship between professional development and student performance emphasizes the need for educational systems to provide continuous learning opportunities for teachers to keep them updated with the latest teaching methodologies, pedagogies, and subject knowledge.

While teacher experience does have a positive impact on academic performance, its effect is less pronounced compared to qualifications and professional development. The findings suggest that experience alone is not as strong a predictor of student success, implying that the quality of teaching, which is influenced by qualifications and professional development, is likely more important than the number of years spent teaching. This conclusion further suggests that simply increasing teacher experience without improving qualifications or providing opportunities for skill enhancement may not lead to significant improvements in student academic outcomes.

Recommendations

It is clear from the results that teacher qualifications play a crucial role in determining students' academic outcomes. Therefore, it is recommended that the government, educational policymakers, and local education authorities prioritize efforts to improve teacher qualifications. This could involve increasing access to higher education for teachers, supporting certification programs, and offering incentives for teachers to pursue advanced degrees in their areas of expertise. These measures would ensure that teachers possess the necessary knowledge and skills to effectively teach their students and contribute to improved academic performance.

The analysis highlights the significant impact of professional development on student performance. As a result, it is strongly recommended that education authorities and school administrations invest in regular and ongoing

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professional development programs for teachers. These programs should focus on enhancing teaching strategies, incorporating new educational technologies, and addressing emerging trends in education. Providing teachers with opportunities for professional growth will not only improve their teaching effectiveness but also motivate them to stay engaged and committed to their students' success.

Encouraging a culture of continuous learning and collaboration among teachers is essential for improving educational outcomes. It is recommended that schools foster collaborative learning environments where teachers can share best practices, engage in peer mentoring, and discuss challenges and strategies. Teachers should be given time and resources to work together on curriculum design, lesson planning, and innovative teaching techniques. Collaborative teaching communities have been shown to enhance teacher motivation and effectiveness, ultimately benefiting student learning.

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