The Influence of Teachers' Competence on Academic Performance in Mathematics of Upper Primary Pupils in Uganda

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***Abstract*—This study examined the influence of teachers' competence on the academic performance of upper primary pupils in Mathematics in Nkozi Sub-County, Mawokota County, Mpigi District, Uganda. Specifically, it investigated the effects of teachers' educational qualifications, teaching experience, and pedagogical skills on pupils' Mathematics achievement, as well as factors affecting teacher competence. A parallel mixed-methods descriptive design was employed. Data were collected from a sample of 439 representative participants selected from a target population of 1,449 using purposive, stratified, and simple random sampling techniques. The study used Survey, interviews, focus group discussions as methods of data collection. Qualitative and Quantitative data were analyzed using SPSS, while qualitative data were analyzed thematically. The findings revealed those teachers' educational qualifications, teaching experience, and instructional skills significantly influenced pupils' academic performance in Mathematics. Pupils taught by qualified and experienced teachers generally achieved better learning outcomes. The study also identified inadequate instructional materials, ineffective teaching methods, limited professional development opportunities, unconducive school environments, and insufficient supervision as key factors constraining teacher competence. The study concludes that teacher competence is a critical determinant of Mathematics achievement among upper primary pupils. It recommends continuous professional development, adequate provision of teaching resources, strengthened instructional supervision, and enhanced teacher capacity-building initiatives to improve learning outcomes and educational quality.**

***Index Terms*—Teacher Competence, Mathematics Performance, Teacher Qualifications, Teaching Experience.**

I. INTRODUCTION

Mathematics is a fundamental discipline that underpins scientific literacy, technological advancement, and economic development (Ganorkar, 2025). At the primary school level, proficiency in Mathematics equips learners with critical thinking, problem-solving, and analytical skills that are essential for success in subsequent levels of education. Despite its importance, pupils' achievement in Mathematics remains a challenge in many developing countries, including Uganda, where national assessment reports have consistently indicated unsatisfactory performance among primary school learners (Manzi et al., 2022).

Among the factors influencing pupils' academic achievement, teacher competence has received considerable attention in educational research. Teacher competence encompasses professional qualifications, pedagogical knowledge, teaching experience, classroom management skills, and the effective use of instructional resources (Hong et al., 2026). Competent teachers are more likely to employ learner-centered approaches, adapt instruction to learners' needs, and create conducive learning environments that enhance academic performance. Consequently, improving teacher competence has become a central strategy for raising educational quality and learning outcomes.

Although previous studies have reported positive relationships between teacher competence and learner achievement, much of the existing evidence has focused on urban schools, secondary education, or single dimensions of teacher competence. Limited

empirical research has examined the combined influence of teachers' educational qualifications, teaching experience, and instructional skills on Mathematics performance in upper primary schools within rural and semi-rural contexts (Costello, 2026). Furthermore, little is known about the contextual factors that shape teacher competence and effectiveness in Nkozi Sub-County, Mpigi District, in Uganda

The present study was motivated by the persistent poor performance of pupils in Mathematics despite ongoing educational interventions aimed at improving learning outcomes (Rouky et al., 2026). The study addresses an important gap by providing context-specific evidence on how various dimensions of teacher competence influence pupils' academic performance in Mathematics. Its novelty lies in integrating teachers' qualifications, experience, pedagogical skills, and contextual challenges within a single analytical framework using a mixed-methods approach (Pranjol & Amir, 2025). The findings contribute to the growing body of knowledge on teacher effectiveness and provide practical insights for policymakers, school administrators, and teacher educators seeking to improve Mathematics achievement and educational quality in Uganda.

II. METHODOLOGY

This study adopted parallel mixed-methods that enabled collection of both qualitative and quantitative data (Akotia et al., 2023), (Adu & Miles, 2023). The study also used descriptive a case research design to examine the influence of teachers' competence on pupils' academic performance in Mathematics in upper primary schools in Nkozi Sub-County, Mawokota County, Mpigi District, Uganda. The design enabled deeper understanding of the variables under investigation (Hübner, 2024). The mixed-methods approach enabled the collection and integration of both quantitative and qualitative data, thereby providing a comprehensive understanding of the phenomenon under investigation. A case study design was employed to facilitate an in-depth exploration of the relationship between teacher competence and pupils' Mathematics achievement within the study context of Uganda.

1) Population and Sample

The study targeted a population of 1,449 participants comprising headteachers, Mathematics teachers, and upper primary pupils. A sample of 439 respondents was selected using purposive, stratified, and simple random sampling techniques (Board, 2023a). Headteachers and Mathematics teachers were purposively selected due to their direct involvement in instructional processes, while pupils were selected through stratified and simple random sampling procedures to ensure adequate representation.

2) Data Collection Instruments

Data were collected using questionnaires, interview schedules, focus group discussion guides, classroom observation checklists, and document review checklists. Structured questionnaires containing both closed- and open-ended items were administered to headteachers and Mathematics teachers (Allibang, 2020). Semi-structured interviews were conducted with pupils to obtain detailed insights into their learning experiences. Classroom observations were undertaken to assess instructional practices, the availability of teaching and learning materials, and the overall learning environment. In addition, ten focus group discussions were conducted with upper primary pupils, each comprising six participants drawn from Primary Five, Primary Six, and Primary Seven classes (Oyanedel et al., 2023). Documentary analysis involved the review of Primary Leaving Examination (PLE) results, school assessment records, pupils' exercise books, teachers' schemes of work, lesson plans, and school inspection reports.

3) Validity and Reliability

The research instruments were pre-tested in three primary schools with characteristics similar to those of the study schools (Mandal et al., 2022). Feedback obtained during the pilot phase was used to refine the instruments and enhance their content validity. Reliability was established through repeated administration of the instruments, which yielded consistent responses across administrations, indicating acceptable levels of reliability.

4) Data Analysis

Quantitative data were edited, coded, and analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, and measures of central tendency, were

generated and presented in tables and figures (Badr & Lhoussaine, 2024). Qualitative data obtained from interviews, focus group discussions, observations, and document reviews were analyzed using thematic content analysis. Emerging themes were categorized and interpreted in relation to the study objectives and existing literature.

5) Ethical Considerations

Ethical approval for the study was obtained through an introductory letter issued by the Faculty of Education. Permission to conduct the study was granted by the respective school authorities, and informed consent was obtained from all participants (AlDhaen et al., 2025). Respondents were assured of confidentiality, anonymity, and the voluntary nature of their participation. All information collected was used solely for academic purposes.

6) Study Limitations

The study encountered logistical and financial constraints during data collection. Limited transport infrastructure within the rural study area posed challenges to fieldwork, while financial constraints restricted the engagement of research assistants (Giudice, 2020). These challenges were mitigated through careful planning, adherence to a structured research schedule, and the use of locally available transportation to facilitate access to the sampled schools.

III. RESULTS

Supervision is a very important aspect in any organization. It does not only ensure confidence to the teacher but helps one to achieve organizational objectives as well. The teachers' opinions were sought on the supervision of teaching and learning of Mathematics by different supervisory bodies. Their responses are as shown in table 4 below.

Table 1: Supervision in Teaching and Learning of Mathematics

Supervising Authority	Number of respondents		
	Yes	No	Total
School authority	30	9	39
District Inspector	06	33	39
Ministry of Education and Sports	03	36	39

(Source: Primary data from the field, 2026)

The above table 1, clearly indicates that, 30 out of 39 (76.9%) of respondents were supervised and monitored during the teaching process by the school authority. According to the table, only 6 out of 39 (15.4%) respondents reported to have been supervised by an Inspector of schools from the District and the Ministry of education and Sports in Uganda (Arshi et al., 2025). Those who said that they were supervised by an official from the Ministry of Education Inspectorate were only 39 out of 39 (7.8%) of the respondents.

Table 2: Teachers' Level of Education and Experience in Teaching Mathematics

Teachers Level of Education	Duration in Service	Responses	Percentages %
Certificate	-10 years	20	51.2%%
Diploma	11 - 15 years	14	35.8%
Degree holders	16- 20 years	4	10.2%
Masters Holders	21 - above	1	2.5%
Total		39	100%

(Source: Primary data from the field, 2026)

The findings in Table 2: Indicates that, majority of the teachers had limited experience in the teaching of Mathematics. The findings show that, 20 out of 39 (51.2%) of respondents had served from 1 to 10 years in the teaching service. The findings further show that 14 out of 39 (35.8%) of the respondents had 10 to 15 years teaching experience, 4 out of 39 (10.2%) had served from 15 to 20 years and only 1out of 39 (2.5%) had served over 21 years in the teaching profession (Abbott & Conant, 2024).

1) Teachers' Teaching Experience and Skills in Relation to Pupils Performance in Mathematics Subject

During the focus group discussions about the relationship between teachers' experience and skills in the teaching of Mathematics as a subject, the respondents said that the experienced teachers were better in the teaching process (Ahmad et al., 2024). They demonstrated a number of skills as they could illustrate and solve mathematical problems with ease.

This implies that pupils were comfortable with experienced and skilled teachers of Mathematics.

It was also observed during the researcher's interactions with the pupils that experienced teachers could employ better approaches and active teaching methods which had a positive influence on pupils' academic performance in the subject. According to the responses given it was discovered that pupils preferred skilled and experienced male to female teachers (Amanda et al., 2021). The reason given for their preference was that female teachers were harsh and rude as compared to their male counterparts. According to the researcher's observation; teachers who had served for a long time in the teaching profession could deliver better than those who had not served for long time in teaching profession. Besides the teachers level of education, it was also observed that experienced teachers had better skills in teaching the subject (Peña-Acuña et al., 2025). Such teachers had good command of Mathematical language; teaching approaches and they could employ relevant examples. Above all they could use accessible instructional materials in the school environment.

2) Factors Affecting the Teaching and Learning of Mathematics in Nkozi Sub –County

The researcher investigated the factors that affect the teachers' competence in the effective teaching of Mathematics in Nkozi Sub-County, Mpigi district. According to the research findings, the success in the teaching and learning of Mathematics falls on both sides, that is the teachers and pupils (Amanda et al., 2021).

The teacher- related factors that affect ones teaching competence

- Pupils' low morale in learning Mathematics
- Poor motivation strategy that is put in place in the process of teaching and learning Mathematics.
- The inadequate relevant instructional materials.
- Poor school infrastructure (Buildings)

Table 3: Teachers' challenges in teaching Mathematics

Measurable Term	Frequency		
	Yes	No	Total
Low pupils' morale in Mathematics	29	10	39
Lack of adequate teaching materials	36	03	39
Lack of motivation to teaching of Mathematics	34	05	39
Not being able to apply valuable media for effective teaching	08	31	39
Poor planning by the school administration	23	16	39

(Source: Primary data from the field, 2026)

The table 3, above indicate that 29 out of 39 (74.3%) of the respondents (teachers) said that the pupils have low morale towards learning Mathematics as a subject. Other respondents 36 out of 39 (92.3%) said that they had inadequate teaching materials while 34 out of 39 (87.1%) said that they were poorly motivated. Finally, 23 out of 39 (58.9 %) of the respondents said that there was poor planning by the school administration (Arshi et al., 2025).

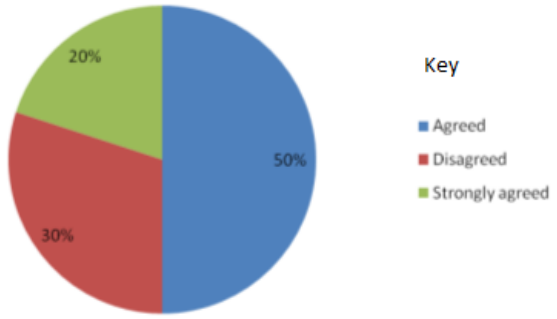
3) Headteachers' Strategies for Motivating Teaching Staff

Study findings indicated that the headteachers use persuasive language to maintain the teachers' interest in the subject. It was established that motivating a teachers who works under a lot of strain with limited resources can hardly be achieved by mere verbal persuasion (Peña-Acuña et al., 2025). It is therefore not surprising that school administrators' revelation is in line with the researcher's findings in areas of competence and performance in Mathematics. Reliance on persuading teachers to teach can cause a serious negative effect on performance. More so, the findings on the performance of learners in Mathematics from 2022 to 2026 revealed that there is little emphasis on syllabus coverage and inadequate teaching due to poor motivation (Amanda et al., 2021). The above was an indication that curriculum coverage and supervision had not been taken seriously. This was attributed to poor supervision by both the school administration and Ministry of Education and Sports (Arshi et al., 2025). It is not only money that is essential in motivating teachers but also a healthy working environment which cannot be easily attained, unless there is serious motivation that enhances performance, which in turn generates good results and better performance.

4) Poor Schools Infrastructure

From the findings, poor school infrastructure was also found to be another factor that affects the teaching and learning process of Mathematics in the sampled schools. Most of the respondents (teachers) indicated that the school infrastructure were not conducive for effective teaching of Mathematics (Awrejcewicz et al., 2020). One of the respondents had this to say "I cannot display pupils work or learning materials for incidental learning in such un-conducive class''. Basing on the findings from the data collected from respondents, it was revealed that many pupils were in agreement with the assertion of parents' contributions towards building fee which was minimal to cause a viable improvement on schools' infrastructure.

Figure I Response of Parents' Contribution towards School Infrastructure



(Source: Primary data from the field, 2026)

From figure (I) above, 50% of the respondents agreed that parents do not like to contribute towards school infrastructure in order to improve on the teaching and learning environment of their children. The findings indicated that 30% of the respondents disagreed with the parents' contribution. It was only 20% who strongly agreed with parents' contribution towards the wellbeing of their school infrastructure (Peña-Acuña et al., 2025).

The Pupils- related factors that affect the teachers' teaching competence

The pupils' feelings, willingness and interests to study Mathematics were identified as important factors in this study. The respondents went further to identify other factors such as:

- Teacher's sex and character.
- The pupils' lack of basic learning mathematics materials.
- Lack of mid-day meals (lunch)

5) Pupils' Feelings towards the Learning of Mathematics

The findings from across sectional survey conducted in schools of Nkozi Sub-County indicated pupils' feelings about learning Mathematics. The researcher found out that many pupils were interested in the learning Mathematics (Board, 2023b). The researcher interviewed a total of 200 (pupils) of Upper Primary and their responses were summarized in the table as shown below.

Table 4: Pupils' Feelings towards the Learning Mathematics

Responses	Number of Pupils	Position	Percentage
I like Math very much	107	1	53.5 %
I like Mathematics	64	2	32.0%
I dislike Mathematics	10	4	05.5%
I dislike Mathematics very much	09	5	04.5%
I don't know math	11	3	05.5%
Total	270		100.00%

(Source: Primary data from the field, 2026)

The above table 4, clearly shows that most of the pupils interviewed 107out of 200 (53.5%) liked Mathematics very much and they had a positive attitude towards the subject. The researcher's findings in the table above also revealed that 9 out of 200 (4.5%) did not like Mathematics.

Table 5: Pupils' Reasons for Choices taken in Question One.

Measurable Terms	Frequency	Percentage
Natural interest in Mathematics subject	120	60.0%
Natural weakness in Mathematics subject	31	15.5%

Family likes Mathematics subject so do I.	17	8.5%
Family hates Mathematics subject so do I.	08	4.0%
Poor foundation in earlier levels of education.	24	12.0%
Total	200	100.0%

(Source: Primary data from the field, 2026)

The above table 5 clearly indicates that, 120 out of 200 (60 %) of respondents interviewed had a natural interest in Mathematics subject. while 31 out of 200 (15.5%) of respondents did not like Mathematics subject because they had a poor foundation in the subject at their early age (Brekhus & Ignatow, 2019). Others 24 out of 200 (12.0%) liked Mathematics because they had good foundation while 17 out of 200 (8.5%) was due to their family background.

Table 6: The Influence of Mathematics Knowledge to the Learning of other Science Subjects

Measurable Term	Frequency	Percentage
Increases one's knowledge of other subjects	105	52.5%
Improves one's rate of understanding generally	46	23.0%
Increases concentration in other subjects	31	15.5%
Has no effect on other subjects	13	6.5%
Lowers your concentration	5	2.5%
Total	200	100.0%

(Source: Primary data from the field, 2026)

Table 6 above reveals that 105 out of 200 (52.5 %) of the respondents said that Mathematics increases one's knowledge in other science related subjects. It is also clearly shown by the table that 46 out of 200 (22%) of the respondents agreed that the learning of mathematics, increases one's rate of understanding. A small number of 5 out of 200 (2.5 %) said that the learning of Mathematics subject lowers concentration.

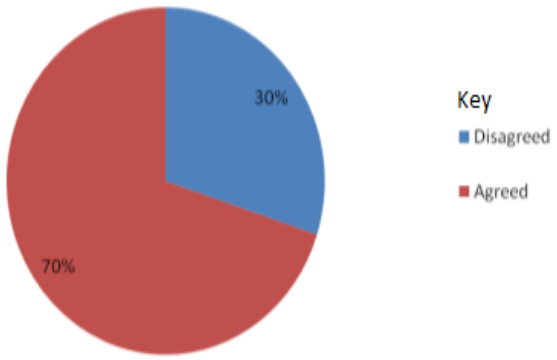
6) Identification of Preferred Teachers of Mathematics

The respondents (pupils) were asked to identify the teachers of their preference by gender and character. Most of the respondents indicated that they preferred male teachers to teach them Mathematics for better academic performance (Peña-Acuña et al., 2025). Surprisingly some of the girls observed that they would prefer male teachers. Respondents gave reasons such as male teachers being more committed and they were not as harsh as female teachers. The study further revealed that 127 out of 200 (63.5%) of respondents preferred male teachers while 73 out of 200 (36.5 %) preferred females to male teachers.

7) Parents' Provision of Basic Mathematics Learning Materials to their Children

According to the data collected from respondents, it was revealed that the majority of the pupils were not provided with all the basic necessities and relevant learning materials as required by the Mathematics teachers (Ahmad et al., 2024). The responses of pupils in relation to their parents' provision of the basic Mathematics learning materials and other subjects were summarised and represented in the pie-chart below.

Figure II:Provision Basic Mathematics Learning Materials

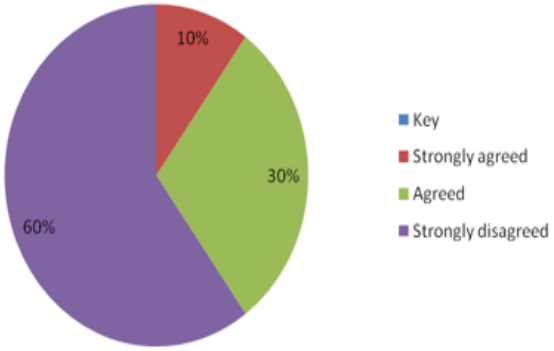


(Source: Primary data from the field, 2026)

Figure (II) above clearly shows that the majority of the respondents 70% agreed with the assertion that parents do not provide them with all the basic Mathematics learning materials such as Mathematics exercise books, Mathematical sets, pens and other necessities (Pranjol & Amir, 2025). It is only 30% of

the respondents that agreed that their parents do provide them with the basic Mathematics learning materials.

Figure III: Provision of Mid-day Meals to Pupils



(Source: Primary data from the field, 2026)

From figure (iii) above, 10% of the respondents strongly agreed that they were provided with lunch at school. On the other hand, 30% agreed that their parents could pack for them mid-day food and 60% strongly disagreed and said that their parents did not cater for their lunch. The high level of respondents' disagreement indicates that most pupils were not able to have lunch at schools (Arshi et al., 2025).

8) Academic Performance of Pupils in Mathematics in Nkozi Sub-County

A critical data analysis of pupils' academic records for the last four years indicated that the majority of pupils scored low marks in Mathematics. This implies that pupils perform poorly in the subject. The poor performance of the pupils in Mathematics affected their general performance (Knoop et al., 2022). This was observed as a challenge to teachers of Mathematics requiring using various methods of teaching, selection of visual aids as well as giving regular assessment tests.

Table 7: Analysis of Mathematics Results from 2005 to 2008 of Nkozi Sub-County

YEAR	NO. Div1	%	NO. Div2	%	NO. Cs 3,4,5,6	%	NO. Pass 7&8	%	NO. U	%	Total
2022	4	0.7	46	8.2	113	20.4	262	47.2	130	23.4	555
2023	3	0.5	34	5.8	117	19.9	231	39.4	171	29.2	586
2024	2	0.3	27	3.9	284	41.7	117	25.1	251	36.9	681
2025	0	00	17	2.1	101	12.2	308	37.3	399	48.4	825
Total	9		124		695		918		951		2647

(Source: Primary data from the field, 2026)

From table 7 above analysis of results record for four years, it was observed that 133 out of 2647 (5.0%) of pupils passed Mathematics with distinction for the last four years, while 695 out of 2647 (26.3%) scored credits and 951/2647 (35.9%) failed Mathematics. This indicates the number pupils who passed Mathematics for the last four years.

9) General Academic Performance of the Pupils in Nkozi Sub-County in PLE from 2022 to 2025.

Table 8: Annual Analysis of Primary Leaving Examination for the Last 4 Years

Year	Div.1	%	Div.2	%	Div.3	%	Div.4	%	Div.U	%	Total
2022	27	4.9	113	20.4	188	33.9	125	22.5	102	18.4	555
2023	14	2.4	128	21.8	242	41.3	108	18.4	94	16.0	586
2024	12	1.8	131	19.2	257	37.7	172	25.3	109	16.0	681
2025	9	1.1	206	25.0	262	31.8	230	27.9	118	14.3	825
Total	62		578		947		635		423		2647

(Source: Primary data from the field, 2026)

Table 8 above shows the number of pupils who sat for PLE from 2022 to 2025. The study findings indicate 62 out of 2647 (2.3%) of the pupils were able to pass in division one and 578 out of 2647 passed in division

two. The majority good number of the pupils 947 out of 2647 (35.8%) passed in division three while 423 out of 2647 (16.0%) of the children failed. According to the analysis of the pupils' results and scores, it was observed that Mathematics was the major problem to these candidates and affected their overall performance.

Table 1Annual Analysis of PLE Results of Sampled Schools in Nkozi Sub-County for 2026

School	D1	%	D2	%	D3	%	D4	%	DU	%	Total
S_1	01	2.7	17	45.9	11	29.7	04	10.8	04	10.8	37
S_2	03	4.6	20	31.2	36	56.2	08	12.5	--	--	64
S_3	00	00	38	52.8	23	31.9	01	1.4	10	13.9	72
S_4	00	00	39	49.4	10	12.7	26	32.9	04	5.1	79
S_5	02	2.8	48	66.7	12	16.7	10	13.9	--	--	72
S_6	00	00	32	42.1	07	8.9	30	39.5	07	9.2	76
S_7	01	4.8	14	66.7	06	28.6	--	--	--	--	21
S_8	02	2.6	35	44.9	21	27.0	18	13.1	02	2.6	78
S_9	00	00	08	19.0	34	81.0	--	--	--	--	42
S_{10}	00	00	07	14.3	21	42.9	10	20.4	11	22.4	49

(Source: Primary data from the field, 2026)

Table 9; above shows the PLE results of selected schools in Nkozi Sub-County in the year 2026. It was observed that only 9 out of 825 (1.1%) Candidates passed in division one. The results revealed that 258 out of 825 (31.2%) passed in second division, then 147 out 825 (17.8 %) passed in third Grade. The analysis further indicates 107 out of 825 (13 %) passed in four division while 38 out of 825 (4.6%) Candidates failed.

Table 10: Suggestions on how to improve the teaching service

Item	Possible solutions	Frequency	Percentage (%)
1.	Teachers' salaries be increased	6	60
2.	Government to revise funding policy	5	50
3.	Making planning strategies at school	5	50
4.	Curriculum required to be revised	3	30
5.	Government intervention	3	30

(Source: Primary data from the field, 2026)

From the table 10, structured questionnaires, the respondents were asked to come up with the possible solutions to address the challenges that affect the teaching and learning of Mathematics. Some of the respondents suggested increment in teachers' salaries 6 out of 10 (60%). The respondents who suggested that government should revise some policies were 5 out of 10(50%) respondents who proposed planning strategies by school administration were out of 10 (50%). A small number of respondents 3 out of 10 (30%) suggested that the school curriculum needed to be revised in order to make it more relevant to the Pupils and suit the Uganda education system today.

IV. DISCUSSION

The findings of this study demonstrate that teacher competence is a significant determinant of pupils' academic performance in Mathematics in upper primary schools in Nkozi Sub-County. Specifically, teachers' educational qualifications, teaching experience, pedagogical skills, and the broader school environment emerged as critical factors influencing learners' achievement (Peña-Acuña et al., 2025). These findings reinforce the widely held view that teacher quality remains central to educational effectiveness and learner success.

With regard to teachers' educational qualifications, the study revealed that although all teachers were professionally trained, a substantial proportion (51.2%) possessed only Grade III qualifications. The findings suggest that limited academic preparation may constrain teachers' content knowledge and pedagogical competence, particularly in a subject such

as Mathematics that requires conceptual understanding and effective instructional strategies (D & Lamprini, 2025). This finding supports earlier studies which argue that higher levels of teacher education enhance subject mastery, confidence, and the ability to employ diverse learner-centered teaching approaches. The observed association between teachers' educational qualifications and pupils' Mathematics performance aligns with human capital theory, which posits that investment in teachers' knowledge and skills improves instructional effectiveness and learner outcomes (Cao et al., 2024). The results therefore suggest that merely possessing a teaching qualification may be insufficient; rather, the depth and quality of professional preparation are equally important in determining classroom effectiveness.

The study further established that teaching experience significantly influenced pupils' academic performance in Mathematics. More experienced teachers were perceived to possess stronger instructional skills, greater classroom management capabilities, and a better understanding of learners' needs than their less experienced counterparts (Kosel et al., 2024). This finding is consistent with existing literature indicating that teaching experience contributes to the development of pedagogical expertise and adaptive instructional practices. Experienced teachers are more likely to anticipate learners' difficulties, employ appropriate teaching strategies, and create supportive learning environments that facilitate mathematical understanding. Conversely, inexperienced teachers may struggle to translate theoretical knowledge into effective classroom practice, thereby limiting learners' opportunities for meaningful engagement with mathematical concepts (Peña-Acuña et al., 2025).

An important finding of this study concerns the quality of pedagogical practices employed in Mathematics classrooms. Classroom observations revealed that some teachers relied heavily on abstract instruction, with limited use of demonstrations, illustrations, and locally available teaching and learning materials (Amanda et al., 2021). Such practices are inconsistent with contemporary constructivist approaches to Mathematics education, which emphasize active learner participation, practical experiences, and the use of instructional resources to enhance conceptual understanding. The findings suggest that deficiencies in pedagogical skills may contribute to pupils' low interest, reduced motivation, and poor achievement in Mathematics. This reinforces previous research emphasizing that effective Mathematics instruction requires not only subject knowledge but also the ability to transform content into meaningful learning experiences (Ahmad et al., 2024).

Beyond teacher-related factors, the study identified several contextual conditions that influenced teacher competence and pupils' academic performance. These included inadequate instructional materials, limited professional development opportunities, insufficient support supervision, poor school infrastructure, and weak school management practices (Amanda et al., 2021). The findings indicate that teacher competence does not operate in isolation but is shaped by the broader educational environment within which teachers work. Schools with better resources, supportive leadership, and stronger supervision mechanisms tended to exhibit better academic outcomes than those lacking such conditions (Burns et al., 2022). This finding supports ecological perspectives of education, which emphasize the interaction between individual competencies and institutional factors in shaping educational outcomes.

The study also revealed that learner-related factors, including low motivation, inadequate learning materials, poor foundational knowledge, and lack of midday meals, contributed to poor performance in Mathematics. While some teachers attributed learners' poor achievement primarily to these factors, classroom observations suggested that instructional quality remained a critical concern (Ahmad et al., 2024). This finding highlights the complex and multidimensional nature of academic performance, which results from the interaction of teacher characteristics, learner attributes, and school-level conditions. Consequently, efforts to improve Mathematics achievement should adopt a holistic approach rather than focusing exclusively on either teachers or learners.

Overall, the findings demonstrate a synergistic relationship between teachers' educational qualifications, teaching experience, pedagogical competence, and supportive school environments in promoting Mathematics achievement (Pranjol & Amir, 2025). The study therefore contributes to the growing body of evidence indicating that improvements in learner performance require simultaneous investment in teacher capacity development, instructional resources, school

leadership, and learner support systems. Addressing these interconnected factors is likely to enhance the quality of Mathematics instruction and improve academic outcomes among upper primary pupils in Uganda.

V. CONCLUSION

This study examined the influence of teachers' competence on pupils' academic performance in Mathematics in upper primary schools in Nkozi Sub-County, Mpigi District, Uganda. The findings provide strong evidence that teacher competence is a central determinant of learners' achievement in Mathematics, operating through teachers' educational qualifications, teaching experience, and pedagogical skills, as well as the broader school environment.

The study concludes that teachers' educational qualifications significantly influence instructional effectiveness and pupils' learning outcomes. Teachers with higher levels of training demonstrate stronger subject mastery and are better able to apply appropriate teaching strategies. In addition, teaching experience plays a critical role in enhancing classroom effectiveness, as experienced teachers are more capable of managing instruction, addressing learners' difficulties, and improving conceptual understanding in Mathematics.

Furthermore, the study establishes that pedagogical competence is essential for effective Mathematics instruction. The use of learner-centered approaches, teaching aids, and practical illustrations is vital in improving learners' understanding and performance. However, deficiencies in instructional methods, limited professional development, and inadequate use of teaching resources were found to negatively affect learning outcomes.

The study also concludes that pupils' academic performance is influenced not only by teacher-related factors but also by contextual and institutional conditions, including inadequate instructional materials, weak supervision, poor school infrastructure, limited learner motivation, and socioeconomic challenges such as lack of school meals. These factors collectively interact with teacher competence to shape learning outcomes.

Overall, the study concludes that improving Mathematics performance requires a holistic approach that strengthens teacher competence while simultaneously addressing school-level and learner-related constraints. Enhancing teacher education and continuous professional development, improving instructional resources, and strengthening school supervision systems are essential for improving the quality of Mathematics education in upper primary schools.

The study therefore emphasizes that sustainable improvement in learners' academic achievement can only be realized through coordinated efforts by government, school administrators, teachers, and other education stakeholders aimed at strengthening both teaching capacity and the learning environment.

VI. IMPLICATIONS OF THE STUDY

The findings of this study have important theoretical, policy, and practical implications for improving Mathematics education in primary schools. Theoretically, the study reinforces the view that teacher competence is a multidimensional construct encompassing academic qualifications, teaching experience, and pedagogical skills, all of which interact to influence learners' academic performance. It further supports the argument that learner achievement is not determined by a single factor but by the interaction between teacher-related, learner-related, and contextual school factors.

From a policy perspective, the study highlights the need for education stakeholders to prioritize teacher quality as a central strategy for improving Mathematics outcomes. The persistent influence of teachers' qualifications and experience implies that recruitment, deployment, and promotion policies should emphasize academic upgrading and continuous professional development. This also suggests that strengthening teacher education institutions and in-service training programmes is essential for improving instructional quality.

Practically, the findings indicate that improving school environments, instructional resources, and supervision systems is critical for enhancing teacher effectiveness. Without adequate teaching materials and supportive school conditions, even competent teachers may struggle to achieve desired learning outcomes. The study therefore implies that improving learner performance requires a holistic approach that addresses both human resource capacity and institutional support systems.

VII. RECOMMENDATIONS

Based on the study findings the following recommendations are made:

First, the Ministry of Education and Sports of Uganda and district education authorities should strengthen teacher professional development programmes. Teachers, especially those with lower qualifications, should be supported to pursue further studies and continuous training to enhance their pedagogical and subject knowledge in Mathematics.

Second, school administrators should institutionalize regular in-service training, refresher courses, and peer mentoring sessions aimed at improving teachers' instructional practices and promoting learner-centered approaches in Mathematics teaching.

Third, Mathematics teachers should adopt practical, interactive, and learner-centered teaching methods. The use of teaching aids, real-life applications, and participatory strategies should be emphasized to improve learners' understanding and interest in Mathematics.

Fourth, key stakeholders, including government, school management committees, and parents, should collaborate to improve school infrastructure and provide adequate instructional materials. A conducive learning environment is essential for effective teaching and improved academic performance.

Finally, strengthened support supervision should be ensured at both school and district levels to monitor instructional quality, provide professional guidance, and promote adherence to teaching standards, particularly in rural primary schools.

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