

Teachers' perceptions and integration of information, communication, and technology tools in lesson delivery among selected secondary Schools in Busiki County, Namutumba District. A cross-sectional study.

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Abstract

Background:

This study examined the relationship between teachers' perceptions and the integration of Information Communication and Technology (ICT) tools in lesson delivery among selected secondary schools in Busiki County, Namutumba District, Uganda.

Methodology:

The study adopted a descriptive cross-sectional survey design with a correlational approach using mixed methods. Data were collected from a sample of 60 respondents comprising 54 teachers selected through simple random sampling and 6 head teachers selected purposively from six secondary schools in Busiki County. Quantitative data were analyzed using SPSS version 25.0 through descriptive statistics, Pearson correlation, and regression analysis, while qualitative data were analyzed thematically.

Results:

Findings revealed a high response rate of 92.6% among teachers and 100% among head teachers. Male respondents constituted 54%. Most teachers (50%) had teaching experience ranging from 6 to 10 years. Results showed that teachers generally held positive perceptions toward ICT integration, with 58% strongly agreeing that ICT improves teaching effectiveness and 50% indicating that ICT enhances student engagement. A strong, positive, significant relationship was established between teachers' perceptions and ICT integration in lesson delivery ($r = 0.652$, $p = 0.000$). Regression results further indicated that teachers' perceptions significantly predicted ICT integration ($\beta = 0.52$, $p = 0.000$).

Conclusion:

The study indicates that positive teachers' perceptions significantly enhance ICT integration in lesson delivery.

Recommendation:

Schools should carry out regular ICT training, teacher mentorship programs, and improved institutional support to strengthen teachers' confidence, attitudes, and effective use of ICT in teaching and learning processes.

Keywords: Information Communication Technology (ICT), teachers' perceptions, ICT integration, Busiki County.

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Background

The integration of Information Communication Technology (ICT) in education has become a global priority aimed at improving the quality, accessibility, and effectiveness of teaching and learning. Worldwide, education systems are increasingly adopting digital technology to support learner-centered approaches, enhance instructional delivery, and prepare lessons with 21st-century skills such as critical thinking, creativity, and digital literacy. Information and Communication Technology has become central to modern education systems with digital technologies transforming

teaching, learning, and access to knowledge globally (UNESCO, 2023). This emphasizes the importance of ICT in transforming education systems and bridging knowledge gaps across regions. In sub-Saharan Africa, efforts to integrate ICT in education have gained momentum over the past two decades, which has been driven by the need to improve educational technological advancements. However, the adoption of ICT in many developing countries remains uneven due to challenges such as limited infrastructure, inadequate funding, and insufficient technical expertise.

These challenges often result in a gap between policy intentions and actual classroom practice.

In Uganda, ICT has been identified as central to curriculum reforms and national transformation efforts in education (UNESCO, 2025). The government has recognized the importance of ICT in education and has introduced several initiatives to promote its integration. The Ministry of Education and Sports had developed policies and programs aimed at equipping schools with ICT infrastructure, integrating ICT in the curriculum, and enhancing teachers' digital competencies. Despite these efforts, the level of ICT integration in lesson delivery remains relatively low, particularly in rural and under-resourced schools like those in Busiki County, Namutumba District. Key barriers to ICT integration in Uganda include inadequate infrastructure, limited teacher competence, and poor internet connectivity challenges (UNESCO, 2026). Effective ICT integration depends largely on teacher preparedness, and inadequate teacher training in ICT limits the realization of expected educational outcomes (UNESCO, 2025). Consequently, teachers play a central role in the successful implementation of ICT in education. Their perceptions, attitudes, and competencies significantly influence whether and how ICT is integrated into teaching practices. According to the Technology Acceptance Model (TAM), individuals are more likely to adopt technology if they perceive it as useful and easy to use. Therefore, teachers' perceptions of ICT can either facilitate or hinder its effective use in lesson delivery. Although previous studies have highlighted infrastructural and institutional challenges affecting ICT integration, there is still limited empirical evidence on how teachers' perceptions specifically influence ICT use in Ugandan classrooms, more so in the selected area of study. This gap underscores the need for a focused investigation into the relationship between teachers' perceptions and the integration of ICT in lesson delivery. This study examined the relationship between teachers' perceptions and the integration of Information Communication and Technology (ICT) tools in lesson delivery among selected secondary schools in Busiki County, Namutumba District, Uganda.

Methodology. Research Design

A descriptive cross-sectional survey with a correlational approach research design was adopted for this research. The survey for the study was carried out using both quantitative and qualitative techniques. The quantitative component allows for measuring relationships between teachers' perceptions and ICT integration using structured questionnaires, while the qualitative component captures an in-depth understanding of teachers' lived experiences through interviews. This design is appropriate as it addresses both measurable variables (e.g., perceived usefulness scores, ICT integration frequency) and subjective experiences (Creswell & Creswell, 2018). The mixed-methods design ensured triangulation of data, increasing validity and providing a holistic understanding of how teachers' perceptions influence ICT integration in lesson delivery in rural secondary schools.

Study Area.

The study was conducted in Busiki County, Namutumba District, located in Eastern Uganda within the Busoga sub-region. Busiki County lies approximately between latitude 0.85°N to 1.05°N and longitude 33.75°E to 34.05°E. The area is predominantly rural and characterized by limited infrastructural development, particularly in the education sector. The county was selected because it represents typical rural school contexts where teachers face challenges in integrating ICT in lesson delivery, including limited access to computers, unreliable electricity supply, inadequate ICT infrastructure, and weak internet connectivity. These conditions directly affect lesson preparation, presentation, learner participation, and the effective use of digital tools in classroom instruction. Conducting the study in this area enabled the researcher to capture teachers' real experiences and perceptions regarding ICT integration in a setting that reflects the realities of many rural secondary schools in Uganda. The findings, therefore, provided context-specific insights that may contribute toward improving ICT integration in similar resource-constrained educational environments. The study was carried out in the following selected secondary schools: Kisiiki College Namutumba, Bukonte Seed Secondary School, Kaswabuli Secondary School, Namutumba Seed Secondary School, Bugobi High School, and Namutumba Central Secondary School.

Table 1: Sampled Schools.

S/No.	SCHOOL	NUMBER OF TEACHERS.
1	Kisiiki College Namutumba	49
2	Bukonte Seed SS	24
3	Kaswabuli SS	18
4	Namutumba Seed SS	25
5	Bugobi High School	28
6	Namutumba Central SS	22
	TOTALS	166

Study Population.

The study population comprised 6 head teachers and 166 teachers from six selected secondary schools in Busiki County, Namutumba District. Teachers were considered an appropriate population for the study because they are directly involved in lesson delivery and are key implementers of ICT integration in classroom teaching and learning processes. Their experiences, attitudes, and perceptions were therefore relevant in examining how teachers' perceptions influence the integration of Information Communication and Technology (ICT) tools in lesson delivery. Head teachers were involved in the study because they play a central role in the implementation, supervision, and support of ICT integration in schools. As chief administrators, head teachers are responsible for policy implementation, allocation of ICT resources, staff supervision, and promoting the use of technology in teaching and learning. They also influence teachers' attitudes and practices through administrative support, training opportunities, and the provision of ICT infrastructure. Their involvement enabled the researcher to obtain administrative and managerial perspectives regarding the integration of ICT tools in lesson delivery, including the challenges teachers face, and the strategies schools use to promote ICT adoption. In addition, head teachers were considered information-rich participants because of their broader understanding of school ICT policies, teacher performance, and institutional factors affecting ICT integration. Therefore, their views complemented the information obtained from teachers and enhanced the credibility and depth of the study findings. The selected schools were considered suitable for the study because they

exhibited variations in ICT exposure, infrastructure, and resource availability, thereby providing a broader understanding of ICT integration practices within rural secondary school settings in Busiki County.

Sample Size and Sampling Techniques.

The study involved a sample size of 60 respondents selected from six secondary schools in Busiki County, Namutumba District. The sample comprised 54 teachers (9 from each school) and 6 head teachers. The sample size was considered appropriate based on Roscoe's Rule of Thumb as cited in Sekaran (2003), which states that a sample size larger than 30 and less than 500 is suitable for most social science research studies. Teachers were selected because they are directly involved in lesson delivery and the implementation of ICT in teaching and learning processes, while head teachers were included because they oversee school administration and ICT policy implementation within their schools. This combination enabled the researcher to obtain both quantitative and qualitative data regarding teachers' perceptions and ICT integration in lesson delivery. Simple random sampling was used to select the 54 teachers to ensure that each teacher had an equal chance of participating in the study, thereby minimizing bias and improving the representativeness of the findings. On the other hand, purposive sampling was used to select the 6 head teachers because they were considered knowledgeable and information-rich participants with administrative experience related to ICT integration in schools.

Table 2: Sample size and sampling technique

Category	Target Population	Sample Size	Sampling Technique
Teachers	166	54	Simple Random Sampling
Head Teachers	6	6	Census Sampling
Total	172	60	

Source: Field Data (2026) and Roscoe's Rules of Thumb (as cited in Sekaran, 2003).

Data Collection Methods and Instruments.

The study adopted a mixed-methods approach in order to obtain both quantitative and qualitative data on teachers' perceptions and the integration of Information Communication Technology (ICT) tools in lesson delivery. This approach was considered appropriate because it allows for triangulation of findings, thereby improving the validity and reliability of the results (Creswell, 2014). The main methods used were the questionnaire method and the interview method, each supported by specific data collection instruments.

Questionnaire Method.

The questionnaire method was used to collect quantitative data from 54 secondary school teachers drawn from the selected schools. This method was preferred because it

enables the collection of standardized data from a relatively large number of respondents within a short period of time and minimizes researcher bias (Sekaran & Bougie, 2016). The main instrument used under this method was a structured self-administered questionnaire. The questionnaire contained both closed-ended and a few open-ended items, though greater emphasis was placed on closed-ended questions to allow for quantitative analysis. The closed-ended items were designed to capture teachers' perceptions of ICT usefulness, ease of use, perceived barriers, and the extent of ICT integration in lesson delivery. A five-point Likert scale was employed to measure respondents' attitudes and perceptions. The scale was structured as follows: 5 = Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree, and 1 = Strongly Disagree. According to Boone and Boone (2012), Likert scales are

widely used in educational research because they allow researchers to quantify subjective opinions and measure the intensity of attitudes. This scaling technique enabled the researcher to convert qualitative perceptions into measurable data for statistical analysis, thereby facilitating comparison across respondents and schools.

The use of questionnaires ensured that data collected from teachers across different schools were consistent and comparable, making it possible to identify common trends in ICT integration practices.

Interview Method

The interview method was used to collect qualitative data from 6 head teachers selected from the same schools. This method was considered appropriate because interviews allow for in-depth exploration of complex issues, especially those related to institutional practices and decision-making processes (Kvale & Brinkmann, 2015).

The instrument used under this method was a semi-structured interview guide consisting of open-ended questions. The guide enabled the researcher to explore issues such as institutional support for ICT integration, availability of ICT infrastructure, teacher training, and administrative leadership in promoting ICT use. Semi-structured interviews were particularly useful because they provided flexibility to probe further into emerging issues during the interview process.

Responses from the head teachers were recorded with permission and later transcribed for analysis. This method provided rich qualitative insights that complemented the quantitative data obtained from teachers' questionnaires. It also helped to explain the institutional and contextual factors influencing ICT integration in lesson delivery, thereby strengthening the overall interpretation of the study findings (Creswell, 2014).

Data Collection Procedures.

The data collection process followed a systematic sequence to ensure ethical compliance, accuracy, and reliability of the information gathered. The procedures were guided by research ethics principles and aimed at minimizing disruption to school activities while maximizing response quality. The first step involved obtaining research permits and ethical approval. The researcher secured official permission from the District Education Officer of Namutumba District and obtained ethical clearance from the university research ethics committee. In addition, informed consent was sought from all respondents prior to participation. This ensured that the study was conducted in accordance with ethical research standards, safeguarding the rights, confidentiality, and voluntary participation of all respondents. After obtaining the necessary approvals, the researcher scheduled visits to the selected secondary schools in consultation with school administrators. Coordination with head teachers and teachers ensured that data collection activities were conducted at convenient times, thereby

minimizing disruption to teaching and learning processes and enhancing participant cooperation. The third step involved administering questionnaires to the 54 teachers. The researcher personally distributed the questionnaires and provided clear instructions on how to complete them. Follow-ups were made to ensure that all questionnaires were completed and returned. This approach helped to improve the response rate and ensured the accuracy and completeness of the quantitative data collected on teachers' perceptions and ICT integration practices.

Finally, semi-structured interviews were conducted with 6 head teachers after the administration of questionnaires. These interviews allowed the researcher to obtain in-depth qualitative information on institutional support, ICT policy implementation, and challenges affecting ICT integration in schools. Participants were encouraged to freely express their views, experiences, and suggestions, and responses were recorded for later analysis.

The use of multiple data collection procedures enhanced data triangulation by drawing information from different sources and methods. This strengthened the validity and reliability of the findings and ensured a comprehensive understanding of teachers' perceptions and ICT integration in lesson delivery.

Validity and Reliability

Content Validity

Validity refers to the extent to which the research instrument measures what it is intended to measure, ensuring that the findings are credible and trustworthy. In this study, the content validity of the questionnaire was established using the Content Validity Index (CVI). The instrument was reviewed by a panel of three experts in education and research methodology who assessed each item for relevance, clarity, and representativeness in relation to the study objectives.

Each item was rated using a four-point scale where 1 = Not relevant, 2 = Somewhat relevant, 3 = Quite relevant, and 4 = Highly relevant. Items rated 3 or 4 were considered relevant. The Item-Level Content Validity Index (I-CVI) was computed by dividing the number of experts who rated an item as relevant (3 or 4) by the total number of experts.

The Scale-Level Content Validity Index (S-CVI) was then obtained by averaging all I-CVI values across the instrument. The results showed that the questionnaire achieved a high level of content validity, with an S-CVI value of 0.86. Since this value is above the recommended threshold of 0.70, it indicates that the instrument was valid, appropriate, and suitable for collecting data for the study.

Reliability

Reliability refers to the consistency and stability of a research instrument in producing similar results under consistent conditions. It ensures that the data collected is dependable and free from random error. In this study, the reliability of the questionnaire was tested using Cronbach's

Alpha coefficient to determine the internal consistency of the items in the instrument. Cronbach's Alpha is widely used in social science research to assess how closely related a set of items is as a group (Gliem & Gliem, 2003). After running the reliability test, the questionnaire yielded a Cronbach's Alpha coefficient of 0.82, which is above the acceptable benchmark of 0.70. This indicates that the instrument had a high level of internal consistency and was therefore reliable for collecting data on teachers' perceptions and ICT integration in lesson delivery.

Measurement of variables

The study used both quantitative and qualitative measurements to achieve the research objectives. Quantitative measurements used a Likert scale that presented respondents with a statement and asked them to indicate their level of agreement or disagreement on a symmetrical scale using only a 4 - point scale: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. This was used to assess teachers' perception of ICT usefulness, level of ICT integration, factors influencing ICT integration, and the relationship between teachers' perception and ICT integration in lesson delivery. Demographics such as gender, teaching experience, and subjects taught were also recorded. Qualitative measurements involved coding interview transcripts. These generated themes capture teachers' experiences, coping strategies, and challenges. The combination of numerical data and qualitative narratives provided a holistic view. Quantitative trends were linked with qualitative explanations to understand both "what" and "why" of ICT adoption. This dual measurement ensured the study addressed the research objectives comprehensively, capturing both patterns and context-specific insights.

Data Analysis

Quantitative Analysis

Questionnaire data were entered into SPSS for statistical analysis. Descriptive statistics such as frequencies and percentages in table form were used to summarize teachers' perceptions and ICT integration in lesson delivery. The quantitative analysis identified trends and patterns across the sample. Findings highlighted which perceptions most strongly influenced ICT adoption and indicated areas for intervention in rural schools. This analysis ensured that teachers' attitudes and ICT practices were quantified and statistically validated. Pearson Product-Moment Correlation analysis was employed to establish the relationship between teachers' perception and ICT integration. Regression analysis was further used to determine the predictive influence of teachers' perception on ICT integration. Data analysis was conducted using SPSS version 25.0 at a 0.05 level of significance.

Qualitative Analysis

Qualitative data from key informants were analyzed using thematic analysis following Braun and Clarke (2006). The steps included familiarization, coding, theme generation, reviewing, defining, and reporting. Themes were aligned with the study objectives, focusing on perceived usefulness, level of integration, factors influencing ICT integration, and the relationship between teachers' perceptions and ICT integration practices. This approach provided an in-depth understanding of teachers' lived experiences and context-specific challenges. Triangulation with quantitative results ensured comprehensive interpretation, linking numerical trends with participants' experiences. The integration of methods allowed the study to present a complete picture of ICT adoption in rural secondary schools.

Ethical Considerations

Ethical issues in research majorly focus on participating groups and entities of a research activity, intellectual ownership, and plagiarism. The participating schools and individuals were guaranteed that the data obtained would be treated with utmost confidentiality and that the results of the findings would be used for research purposes only. Information provided by the respondents would not be disclosed by the researcher. Similarly, to ensure that the participants felt safe, they were not required to give their names, addresses, or cell phone numbers on the questionnaire for the study. Findings of the study were reported in such a way that the respondent's identity would not be traceable. However, ethical approval was sought from the University Research Ethics Committee before data collection began.

Results

Response Rate

The study involved two categories of respondents, namely 54 secondary school teachers who were issued with questionnaires and 6 head teachers who participated in interviews.

Out of the 54 teachers, 50 successfully completed and returned the questionnaires, while 4 did not respond. This represents a questionnaire response rate of 92.6%, which is considered very high and adequate for statistical analysis in social science research (Mugenda & Mugenda, 2003). The high response rate enhances the reliability and validity of the quantitative findings.

In addition, all the 6 selected head teachers participated in the interviews, representing a 100% interview response rate. This was attributed to prior scheduling and cooperation from the school administration.

Overall, the combined response rate from both teachers and head teachers was considered sufficient to support meaningful analysis and interpretation of the study findings.

Demographic Characteristics of Teacher Respondents

Table 3: Gender of Teacher Respondents

Gender	Frequency	Percentage (%)
Males	27	54.0
Females	23	46.0
Total	50	100

Source: Field Data (2026)

The data in Table 3 indicates that male teachers slightly outnumbered female teachers, with 27 males (54.0%) compared to 23 females (46.0%). This suggests a relatively balanced gender distribution among respondents, although

males had a marginal majority. The near parity in gender representation implies that the findings on ICT integration are not significantly biased toward one gender category.

Table 4: Teaching Experience of Respondents

Years of Experience	Frequency	Percentage (%)
0–5 years	7	14.0
6–10 years	25	50.0
11–15 years	10	20.0
Above 15 years	8	16.0
Total	50	100

Source: Field Data (2026)

Table 4 shows that half of the respondents (50.0%) had between 6 and 10 years of teaching experience, indicating that most teachers were moderately experienced in classroom instruction. Teachers with 11–15 years of experience accounted for 20.0%, while those with above 15 years and 0–5 years represented 16.0% and 14.0% respectively. This distribution implies that the respondents had adequate teaching experience and were therefore capable of providing informed and reliable views on ICT integration in lesson delivery.

Teachers’ Perceptions of ICT Integration in Lesson Delivery

This section presents findings on teachers’ perceptions of ICT integration in lesson delivery. The analysis is organized according to key constructs of perception, namely perceived usefulness, perceived ease of use, and teachers’ attitude toward ICT. Responses were measured using a five-point Likert scale and summarized using percentages and mean scores to allow for meaningful interpretation.

Table 5: Teachers’ Perceptions of ICT Integration in Lesson Delivery (n = 50)

Perception Construct	Statement	SA (%)	A (%)	D (%)	SD (%)	Mean	Std. Dev
Perceived Usefulness	ICT improves teaching effectiveness	58.0	22.0	8.0	12.0	3.26	0.88
	ICT enhances student engagement	50.0	32.0	10.0	8.0	3.24	0.82
	ICT makes lessons more interesting	48.0	34.0	10.0	8.0	3.22	0.81
Perceived Ease of Use	ICT is easy to use in lesson delivery	40.0	34.0	16.0	10.0	3.04	0.93
Teachers’ Attitude	I have a positive attitude toward ICT use in teaching	46.0	32.0	14.0	8.0	3.16	0.87

Source: Field Data (2026)

The findings in Table 5 indicate that teachers generally held a positive perception of ICT integration in lesson delivery across all constructs measured.

Under perceived usefulness, the majority of respondents strongly agreed that ICT improves teaching effectiveness (58%) and enhances student engagement (50%), suggesting

that teachers recognize ICT as an important tool for improving instructional delivery and learner participation. Similarly, 48% strongly agreed that ICT makes lessons more interesting, reinforcing the view that ICT enhances classroom interaction.

Regarding perceived ease of use, 40% of respondents strongly agreed that ICT is easy to use in lesson delivery, while 16% disagreed and 10% strongly disagreed. This indicates that although many teachers find ICT manageable, a notable proportion still experiences challenges in using ICT tools effectively.

In relation to attitude, 46% of teachers strongly agreed that they have a positive attitude toward ICT use in teaching, while 32% agreed. This reflects an overall favorable

disposition toward ICT integration among teachers in the study area.

The mean scores for all items (ranging between 3.04 and 3.26) further confirm a generally positive perception of ICT integration among teachers. However, the standard deviation values indicate some variation in responses, suggesting differences in experience, exposure, and competence in ICT use among teachers.

Table 6: Teachers' Self-Reported Confidence in Using ICT (n = 50)

Level of Confidence	Frequency	Percentage (%)
High	18	36.0
Moderate	24	48.0
Low	8	16.0
Total	50	100

Source: Field Data (2026)

The findings in Table 6 show that most teachers (48%) reported a moderate level of confidence in using ICT in lesson delivery, while 36% indicated high confidence. However, 16% reported low confidence, suggesting that a section of teachers still lacks sufficient competence in ICT use.

Overall, the results imply that while teachers generally possess acceptable confidence levels in ICT integration, there is still a need for continuous professional development and training programs to strengthen ICT competencies and improve effective integration in lesson delivery.

Relationship between Teachers' Perception and ICT Integration in Lesson Delivery

Inferential statistics were used to determine the relationship between teachers' perceptions and ICT integration in lesson delivery. Pearson Product-Moment Correlation Coefficient was used to examine the strength and direction of the relationship between the two variables, while regression analysis was used to determine predictive influence.

Table 7: Correlation between Teachers' Perception and ICT Integration (n = 50)

Variables	R-value	p-value	Interpretation
Teachers' perception and ICT integration	0.652	0.000	Strong positive and significant relationship

Source: Field Data (2026)

The results indicate a strong positive relationship between teachers' perception and ICT integration in lesson delivery ($r = 0.652$). This implies that teachers who hold positive perceptions toward ICT are more likely to integrate it into teaching and learning processes.

The relationship was statistically significant since the p-value (0.000) is less than 0.05. This indicates that the relationship is not due to chance but reflects a real association between teachers' perception and ICT integration in the study area. Based on these results, the null

hypothesis was rejected, confirming that teachers' perception significantly influences ICT integration in lesson delivery.

Regression Analysis Results of teachers' perception predict ICT integration.

Further analysis was conducted using multiple regression to determine the extent to which teachers' perceptions predict ICT integration in lesson delivery.

Table 8: Regression analysis.

Variable	Beta (β)	p-value	Interpretation
Teachers' perception	0.52	0.000	Significant positive influence

The regression results show that teachers' perception significantly predicts ICT integration ($\beta = 0.52$, $p = 0.000$).

This means that a positive change in teachers' perception leads to an increase in ICT integration in lesson delivery.

Qualitative Findings on the Relationship between Perception and ICT Integration

Qualitative data obtained from interviews with teachers and head teachers were analyzed using thematic analysis. The findings were organized into themes that explain the statistical relationship.

Most respondents indicated that teachers who perceive ICT as useful are more willing to integrate it into teaching. Teachers reported that ICT improves learner understanding and makes lessons more engaging.

One teacher stated:

“When a teacher believes ICT is useful, they try their best to use it even when resources are limited.”

Head teachers also confirmed that teachers with positive attitudes are more innovative and frequently use ICT tools in lesson delivery.

Some respondents reported that negative perceptions, especially fear of technology and lack of confidence, limit ICT use. Teachers who feel less competent tend to avoid using ICT tools in class.

A respondent explained:

“Some teachers fear using ICT because they think they might make mistakes in front of learners.”

Findings further revealed that teachers’ perception determines how frequently ICT is used in lesson delivery. Teachers with positive perceptions tend to use ICT for lesson preparation, presentations, and learner engagement, while those with negative perceptions use it rarely.

Discussions

Teachers’ perception and ICT integration in lesson delivery.

The findings revealed that teachers generally have a positive perception of ICT, with a representation of 56.7 %. This suggests that teachers believe ICT enhances teaching effectiveness, improves lesson delivery, and increases student engagement. The findings are in agreement with the Technology Acceptance Model (TAM), which posits that perceived usefulness significantly influences the adoption of technology. Teachers in this study perceive ICT as useful, which explains their favorable attitudes. The results are consistent with previous studies, which indicate that positive teacher attitudes are a key driver of ICT adoption in education. The findings agree with those of Mrosso et al. (2024). Teachers’ perceived usefulness of ICT refers to the extent to which educators believe that the integration of technology in teaching can enhance student learning outcomes and improve teacher efficiency (Mrosso & Ndibalema, 2024; Atukunda, 2024). Research suggests that when teachers perceive ICT as beneficial, they are more likely to incorporate computers, online resources, and multimedia tools in lesson preparation, presentation, and learner engagement activities (Kyeyune et al., 2025). However, while positive perception is necessary, it is not sufficient on its own to ensure full integration.

On the side of the relationship between teachers’ perception and ICT integration, the study established a strong positive correlation between teachers’ perception and ICT integration. This implies that teachers who have more positive attitudes toward ICT are more likely to integrate it into their lesson delivery. This strongly supports TAM, particularly the idea that attitude toward technology influences behavioral intention and actual use. The findings are in line with what Wambi (2024) stated. Negative perceptions often arising from infrastructural constraints, lack of devices, unreliable electricity, and inadequate institutional support directly inhibit ICT adoption (Mutesi & Namulondo, 2025). Even teachers who recognize the potential benefits of technology may avoid using ICT when they anticipate disruptions or lack confidence in managing technical challenges. However, since perception does not explain all the variations, this reinforces the argument that other contextual factors, such as infrastructure and policy support, also play critical roles.

Conclusion

The study concluded that most teachers had positive perceptions of ICT integration in lesson delivery. Teachers believed that ICT improves teaching effectiveness, enhances learner participation, simplifies difficult concepts, and makes lessons more interactive and interesting. Positive perceptions encouraged teachers to adopt ICT tools during teaching and learning processes. However, a few teachers still expressed negative perceptions due to inadequate ICT skills, fear of technology, and limited exposure to ICT training.

The study concluded that there is a significant positive relationship between teachers’ perceptions and ICT integration in lesson delivery. Teachers with positive attitudes toward ICT were more likely to integrate technology into classroom instruction compared to those with negative perceptions. The findings, therefore, confirmed that improving teachers’ perceptions and attitudes toward ICT can enhance the level of ICT integration in secondary schools.

Limitations of the study

Limited Sample Size. The study was conducted among a relatively small number of teachers in selected secondary schools, which limited the generalization of the findings to all schools in the study area.

Time Constraints. The research was conducted within a limited timeframe, which restricted the depth of data collection and analysis.

Limited Access to ICT Facilities. In some schools, inadequate ICT infrastructure made it difficult to observe actual ICT integration practices, thereby limiting the triangulation of data.

Financial Constraints. Limited financial resources restricted the scope of the study, particularly in terms of

covering a wider geographical area and accessing more respondents.

Technological Challenges. Challenges such as poor network connectivity and limited access to digital tools affected both ICT integration in schools and the data collection process.

Recommendation

Schools should organize regular ICT sensitization programs and professional development workshops to improve teachers' attitudes, confidence, and perceptions toward ICT integration in lesson delivery. Continuous exposure to ICT training can help teachers overcome the fear of technology and develop positive attitudes toward using digital tools in teaching.

Since teachers' perceptions significantly influence ICT integration, school administrators and education policymakers should strengthen programs that promote positive attitudes toward ICT use in education. This can be achieved through motivation, mentorship, recognition of innovative teachers, and continuous professional support aimed at encouraging effective ICT integration in teaching and learning.

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Lastly, I am indebted to all the authors and scholars whose works have been cited in this report.

List of abbreviations.

ICT – Information Communication Technology
TAM – Technology Acceptance Model
UNESCO – United Nations Educational, Scientific, and Cultural Organization
SPSS – Statistical Package for Social Sciences
CVI – Content Validity Index
I-CVI – Item-Level Content Validity Index

S-CVI – Scale-Level Content Validity Index

β – Beta Coefficient

r – Correlation Coefficient

Informed Consent:

Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

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Conflict of interest.

There is no conflict of interest.

Availability of data.

Data used in this study are available upon request from the corresponding author.

Authors contribution.

ZK designed the study, conducted data collection, cleaned and analyzed data, and drafted the manuscript.

PT supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

EB supervised all stages of the study from conceptualization of the topic to manuscript writing and submission

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