



Teachers' Attitudes Toward Tablet Integration in Teaching: Evidence from Public Primary Schools in Ubungo Municipality, DSM, Tanzania

Article Information :

Articles Submitted :

2026-07-24

Articles Received :

2026-08-11

Published Articles :

2026-08-12

 Agness B Mafuja^{1*}

 Prosper M Mwila²



¹Classroom Teacher: Ubungo Municipality



²Saint Augustine University of Tanzania



Email Correspondence * : agnessmafuja967@gmail.com

Keywords:

Tablet integration, teachers' attitudes, ICT in education, digital technology, technology adoption, classroom instruction, Ubungo Municipality,

Abstract: The integration of digital technologies, particularly tablets, into primary education has become a key focus of educational reform in Tanzania. Despite government efforts to promote Information and Communication Technologies (ICT) in schools, the effective use of tablets in classroom instruction remains limited. This study examined teachers' attitudes toward tablet integration in teaching in public primary schools in Ubungo Municipality, Dar es Salaam, Tanzania. The study employed a mixed-methods approach using a convergent parallel research design. Data were collected from 56 participants, including teachers, headteachers, ICT coordinators, and pupils, through questionnaires, interviews, and classroom observations. Quantitative data were analysed using descriptive statistics, while qualitative data were analysed thematically. The findings showed that teachers' attitudes toward tablet integration were generally undecided, with an overall mean score of 2.80 on a five-point scale. Teachers demonstrated limited confidence in using tablets during lessons ($M = 2.25$) but expressed a strong need for further ICT training ($M = 4.38$). Teachers were uncertain about the usefulness of tablets in improving teaching ($M = 3.13$) and enhancing lesson engagement ($M = 3.25$). Pupils' responses confirmed limited classroom use, with 70.0% (28 out of 40 pupils) reporting that teachers did not use tablets during lessons ($M = 2.20$). Classroom observations further revealed that tablets were not integrated into any observed lessons. The study concludes that teachers' willingness to adopt tablets is constrained by inadequate pedagogical skills, limited training opportunities, weak technical support, unreliable electricity, poor internet connectivity, and insufficient functional devices. Effective tablet integration requires sustained professional development, improved ICT infrastructure, and supportive school leadership.

Conceptualization: all authors

Methodology: all authors

Investigation: all authors

Writing original draft preparation: all authors

Writing review and editing: all authors

Visualization: all authors

Acknowledgments

All praise and gratitude to God for the successful completion of this article. The author expresses his gratitude to all parties involved and those who contributed to its preparation. Thanks to their constant prayers and support, this article was successfully completed.

All authors have read and agreed to the published version of the manuscript.

Copyright © 2026, Authors
This is an open-access article under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)



INTRODUCTION

The rapid advancement of Information and Communication Technologies (ICT) has fundamentally transformed educational systems across the world by creating opportunities for more interactive, learner-centred, and technology-supported instructional practices. Digital devices such as tablets have become increasingly important instructional resources because they facilitate access to multimedia content, collaborative learning, immediate feedback, and differentiated instruction. International organizations, including UNESCO, continue to advocate for the meaningful integration of digital technologies into education as a strategy for improving teaching quality and enhancing learners' acquisition of twenty-first-century competencies. Nevertheless, international evidence demonstrates that the successful implementation of educational technologies depends less on the availability of digital devices than on teachers' willingness, competence, and attitudes toward their instructional use (UNESCO, 2023; Davis et al., 1989). The Technology Acceptance Model (TAM) similarly proposes that teachers' perceptions of usefulness and ease of use significantly influence their attitudes and subsequent adoption of educational technologies, making teacher attitudes a critical determinant of successful technology integration.

Across Sub-Saharan Africa, governments have increasingly invested in digital learning initiatives to address shortages of instructional resources and improve educational quality. Countries such as Rwanda, Kenya, Zambia, and Tanzania have implemented programmes aimed at integrating tablets and other digital devices into classroom teaching. Despite these investments, empirical studies consistently report that many teachers experience challenges related to inadequate ICT competence, limited pedagogical training, insufficient technical support, unreliable internet connectivity, and inadequate infrastructure, all of which influence their attitudes toward technology adoption (Barakabitze et al., 2019; Diseko et al., 2022; Oubibi et al., 2024). In Tanzania, national initiatives such as the National Digital Education Strategy (2024/25–2029/30) have strengthened policy commitments to digital transformation within the education sector. However, evidence suggests that teachers continue to encounter significant barriers that reduce their confidence and willingness to integrate tablets into classroom instruction despite recognizing their potential educational value.

Within Ubungo Municipality, Dar es Salaam, public primary schools have increasingly received digital technologies intended to modernize classroom instruction. However, observations from schools indicate that tablet utilization during classroom teaching remains relatively low despite government investments and positive policy direction. Existing studies conducted elsewhere in Tanzania have primarily examined ICT integration broadly, with limited attention devoted specifically to teachers' attitudes toward tablet integration within the context of urban public primary schools. This contextual gap limits policymakers' and educational managers' ability to develop targeted interventions that promote effective technology integration. Guided by the Technology Acceptance Model, this study therefore sought to determine teachers' attitudes toward tablet integration in teaching in public primary schools in Ubungo Municipality. By focusing on teachers' perceptions, experiences, and classroom practices, the study contributes context-specific evidence that can inform educational policy, teacher professional development, and future digital education initiatives in Tanzania.

Literature Review

1. Theoretical Review

This study was guided by the Technology Acceptance Model (TAM) developed by Fred D. Davis and colleagues (Davis et al., 1989). Originally developed to explain users' acceptance of information systems, TAM has become one of the most influential theoretical models for examining technology adoption across diverse contexts, including education. The model proposes that individuals' intentions to use a technology are primarily determined by two cognitive beliefs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Davis et al., 1989). Perceived usefulness refers to the extent to which an individual believes that using a particular technology will enhance job performance, whereas perceived ease of use refers to the degree to which the technology is perceived as effortless to learn and operate (Davis et al., 1989). According to TAM, these two beliefs shape users' attitudes toward technology, which subsequently influence behavioural intentions and actual technology use. Owing to its strong predictive capability and simplicity, TAM has been extensively validated in studies investigating teachers' adoption of educational technologies across different educational settings (Alshammari & Rosli, 2021; Springer, 2024).

Within educational environments, TAM provides a robust framework for explaining why some teachers readily integrate digital technologies into classroom instruction while others remain reluctant despite the availability of technological resources. Teachers who perceive tablet technology as useful for improving lesson preparation, enhancing learner engagement, facilitating formative assessment, and increasing instructional efficiency are more likely to develop positive attitudes toward its classroom integration (Zaman et al., 2024). Likewise, teachers who perceive tablets as easy to operate, requiring minimal effort to master, generally exhibit greater confidence and willingness to incorporate them into their pedagogical practices (Chaula & Jibrea, 2024). Conversely, when teachers experience operational difficulties, inadequate ICT competence, or uncertainty regarding the instructional benefits of tablets, negative perceptions emerge that reduce their willingness to adopt the technology (Diseko et al., 2022). Numerous studies have therefore confirmed that teachers' attitudes mediate the relationship between their perceptions of technology and their actual classroom practices, making attitude a critical determinant of successful technology integration (Galimova, 2024; Ibrahim & Shiring, 2022).

Although TAM has demonstrated remarkable explanatory power over the past three decades, scholars have increasingly criticised the model for its emphasis on individual cognitive factors while paying comparatively little attention to contextual influences affecting technology adoption (Alshammari & Rosli, 2021). Educational technology implementation occurs within complex institutional environments where infrastructure, school leadership, ICT policies, professional development, technical support, organisational culture, and resource availability substantially shape teachers' decisions regarding technology use (Kabasiita et al., 2024). In developing countries, particularly within Sub-Saharan Africa, inadequate internet connectivity, unreliable electricity, limited technical assistance, and shortages of digital devices frequently constrain teachers' ability to translate positive attitudes into actual classroom practice (UNESCO, 2023; Oubibi et al., 2024). Consequently, contemporary researchers increasingly recommend interpreting TAM alongside contextual variables that capture institutional and

environmental influences on technology adoption rather than relying exclusively on individual perceptions (Theodorio et al., 2024).

The present study adopted TAM because its principal constructs closely aligned with the variables investigated in this research. Teachers' attitudes toward tablet integration were conceptualised as outcomes of their perceptions regarding the usefulness and ease of using tablets for instructional purposes. However, recognising the limitations of the original model, this study also considered school support-including ICT infrastructure, professional development opportunities, technical assistance, and administrative support-as contextual factors that could either strengthen or weaken teachers' willingness to integrate tablets into classroom instruction. Integrating these institutional variables with TAM provided a more comprehensive explanation of teachers' attitudes toward tablet integration in public primary schools in Ubungo Municipality, thereby enhancing the model's applicability within the Tanzanian educational context.

2. Empirical Review

Teachers' attitudes toward educational technology have attracted considerable scholarly attention because attitude is widely recognised as one of the strongest predictors of technology adoption and sustained classroom use. Numerous empirical studies conducted across different educational contexts have consistently demonstrated that teachers' willingness to integrate digital technologies is influenced by their perceptions of usefulness, ease of use, professional competence, institutional support, and prior experience with technology. Although findings generally indicate favourable attitudes toward educational technologies, the extent to which these positive attitudes translate into actual classroom integration varies considerably across countries and educational systems.

Studies grounded in the Technology Acceptance Model have consistently reported that teachers who perceive educational technologies as useful and easy to use demonstrate significantly stronger intentions to integrate them into teaching. Ibrahim and Shiring (2022) found that perceived usefulness was the strongest predictor of teachers' attitudes toward digital learning technologies across several educational institutions. Their findings suggested that teachers were more willing to adopt instructional technologies when they believed such technologies improved lesson effectiveness, learner participation, and instructional efficiency. Similarly, Galimova (2024) reported that positive perceptions regarding digital technologies significantly influenced teachers' behavioural intentions to adopt technology, reinforcing Davis et al.'s (1989) proposition that attitude mediates the relationship between perception and technology use. Comparable findings were reported by Zaman et al. (2024), who investigated teachers' acceptance of digital learning technologies in higher education. Their study established that teachers who recognised the instructional value of digital technologies exhibited greater motivation to redesign classroom activities around technology-enhanced learning. The researchers concluded that teachers' attitudes became increasingly positive when technological tools simplified instructional delivery and improved student engagement. These findings demonstrate that positive attitudes are strongly associated with teachers' beliefs regarding the pedagogical value of educational technologies rather than the technologies themselves.

However, international literature also demonstrates that positive attitudes do not automatically result in effective classroom implementation. Revuelta-Domínguez et al. (2024) observed that although many teachers expressed enthusiasm toward digital technologies, insufficient pedagogical competence prevented them from integrating technology meaningfully into classroom instruction. Similarly, the International Computer and Information Literacy Study (ICILS) conducted by the International Association for the Evaluation of Educational Achievement (IEA, 2023) reported considerable differences in teachers' digital competencies across countries, suggesting that favourable attitudes alone cannot overcome deficiencies in professional knowledge and instructional skills. These findings indicate that teacher attitudes operate alongside competence, institutional support, and continuous professional development in determining technology integration.

Within Sub-Saharan Africa, empirical evidence presents a similarly complex picture. Many governments have invested heavily in ICT infrastructure and digital learning initiatives aimed at improving educational quality, yet teachers continue to face significant implementation challenges. Diseko et al. (2022), studying South African schools, found that although teachers generally appreciated the educational potential of tablet technologies, concerns regarding unreliable internet connectivity, inadequate technical support, and insufficient maintenance reduced their confidence in classroom implementation. Teachers reported that frequent technological interruptions negatively affected lesson continuity, leading many to revert to traditional teaching methods despite recognising the benefits of digital instruction.

Research conducted in Zambia under the Mwabu Interactive Tablet Programme produced comparable findings. The study, *Exploring the Utilisation of Mwabu Interactive Tablets* (2025), reported that teachers viewed tablets positively because they improved lesson preparation, facilitated information retrieval, and increased learner interaction. Nevertheless, teachers emphasised that continuous professional development and reliable technical support remained essential prerequisites for sustained classroom implementation. The study concluded that successful tablet integration depended not only on device availability but also on teachers' confidence, institutional commitment, and ongoing technical assistance.

Similar patterns have emerged elsewhere across Africa. Oubibi et al. (2024) found that teachers' attitudes toward ICT integration were strongly influenced by access to training, infrastructure, school leadership, and institutional support. Teachers working in well-resourced schools demonstrated more favourable attitudes than those working in resource-constrained environments. Likewise, Kabasiita et al. (2024) reported that participation in ICT professional development programmes significantly improved teachers' confidence, attitudes, and willingness to integrate digital technologies into classroom instruction. These findings collectively suggest that positive attitudes develop gradually through continuous exposure, successful teaching experiences, and supportive institutional environments rather than through technology provision alone.

Within East Africa, governments have implemented ambitious digital education reforms intended to modernise classroom instruction. Nevertheless, empirical studies consistently report considerable variation in teachers' attitudes toward technology integration. In Kenya, Mwangi et al. (2021) observed that although teachers appreciated the government's Digital Literacy Programme, inadequate technical support, insufficient infrastructure, and limited

pedagogical preparation constrained effective classroom implementation. Teachers acknowledged the educational benefits of tablets but expressed concerns regarding maintenance, electricity supply, and classroom management during technology-assisted lessons. Research conducted in Rwanda produced similar findings. Oubibi et al. (2024) reported that teachers participating in the One Laptop per Child initiative demonstrated generally positive attitudes toward digital technologies. However, many teachers lacked sufficient pedagogical knowledge to integrate tablets effectively into daily instruction. Consequently, the educational benefits of technology were not fully realised despite substantial government investment. These findings reinforce the argument that teacher attitudes must be accompanied by adequate professional competence and institutional support if educational technologies are to improve classroom practice.

Studies conducted in Tanzania similarly reveal predominantly favourable teacher attitudes toward digital technologies while highlighting persistent implementation barriers. Chaula and Jibrea (2024), investigating tablet integration in Lushoto District, found that teachers believed tablets improved lesson quality, increased instructional efficiency, and enhanced learner participation. Teachers also considered tablets relatively easy to operate after receiving appropriate training. Nevertheless, inadequate ICT infrastructure, limited internet connectivity, and insufficient opportunities for continuous professional development reduced the frequency with which tablets were incorporated into everyday classroom instruction.

Magembe (2025) similarly reported that teachers expressed favourable attitudes toward tablet integration because they perceived tablets as valuable instructional resources capable of improving teaching effectiveness and learner engagement. However, many teachers admitted that they primarily used tablets for lesson preparation and accessing teaching materials rather than direct classroom instruction. The study concluded that inadequate technical support, insufficient training, and limited access to functional devices significantly constrained teachers' classroom use of tablets despite generally positive attitudes. Additional Tanzanian studies reinforce these observations. Prosper and Nderego (2024) established that although teachers possessed basic operational ICT skills, many lacked the pedagogical competence necessary for meaningful technology integration. Likewise, Machemba and Biswal (2025) found that teachers frequently used ICT for administrative purposes, lesson planning, and communication but rarely employed technology to transform classroom pedagogy. These findings suggest that teachers' attitudes remain closely linked to their confidence in applying technology within authentic teaching situations rather than merely operating digital devices.

Despite growing scholarship on ICT integration in Tanzania, relatively little empirical research has specifically examined teachers' attitudes toward tablet integration within public primary schools in Ubungo Municipality. Most existing studies have concentrated on general ICT adoption, secondary education, higher education, or rural districts, thereby limiting the transferability of findings to urban primary school settings. Furthermore, previous studies have predominantly employed quantitative survey designs, providing limited qualitative insights into teachers' lived experiences, perceptions, and contextual realities regarding tablet integration. This methodological and contextual gap justified the present study. By employing a convergent parallel mixed-methods design, the study combined quantitative evidence with qualitative experiences to develop a more comprehensive understanding of teachers' attitudes

toward tablet integration in public primary schools in Ubungo Municipality. The study therefore contributes context-specific empirical evidence that informs educational policy, teacher professional development, and future ICT implementation strategies within Tanzania's primary education system.

RESEARCH METHODOLOGY

This study employed a mixed-methods research approach using a convergent parallel research design to obtain a comprehensive understanding of teachers' attitudes toward tablet integration in teaching. The mixed-methods approach enabled the collection and integration of both quantitative and qualitative data, thereby providing a richer understanding of the research problem than either approach alone (Creswell & Creswell, 2018). The study was conducted in four public primary schools in Ubungo Municipality, Dar es Salaam, namely Goba, Tegeta A, Mbezi, and Upendo Primary Schools. These schools were purposively selected because they had implemented tablet-supported teaching and learning initiatives. The target population comprised teachers, headteachers, ICT coordinators, and pupils, from whom a sample of 56 participants was drawn. Purposive sampling was used to select teachers, headteachers, and ICT coordinators due to their direct involvement in tablet integration, while pupils were selected through stratified random sampling to ensure adequate representation across the participating schools.

Data were collected using structured questionnaires, semi-structured interviews, and classroom observation checklists, allowing methodological triangulation and enhancing the comprehensiveness of the findings. Questionnaires generated quantitative data on teachers' attitudes toward tablet integration, whereas interviews provided in-depth insights into teachers' experiences, perceptions, and institutional support. Classroom observations complemented these data by documenting actual tablet use during instructional activities. Prior to the main study, the research instruments were reviewed by experts to establish content validity and were pilot-tested in schools outside the study area to improve clarity and appropriateness. The reliability of the questionnaire was assessed using Cronbach's alpha, while triangulation of questionnaires, interviews, and observations strengthened the credibility and trustworthiness of the qualitative findings.

Following approval from the relevant university and educational authorities, data were collected through school visits during which questionnaires were administered, interviews were conducted, and classroom observations were undertaken without disrupting normal teaching activities. Participation was voluntary, and informed consent was obtained from all respondents, while confidentiality, anonymity, and participants' right to withdraw from the study at any stage were strictly observed. Quantitative data were analysed using descriptive statistics, including frequencies, percentages, means, and standard deviations, whereas qualitative data were analysed thematically through transcription, coding, categorisation, and theme development. The findings from both datasets were subsequently integrated during interpretation to provide a comprehensive explanation of teachers' attitudes toward tablet integration in public primary schools in Ubungo Municipality.

FINDINGS AND DISCUSSION

The study aimed to determine teachers' attitudes toward tablet integration in teaching. In this study, attitude referred to teachers' feelings, beliefs, perceptions, and willingness regarding the use of tablets to support teaching and learning processes. To address Objective, data were collected using an eight-item attitude scale included in the teachers' questionnaire, a three-item attitude scale included in the pupils' questionnaire, semi-structured interviews with headteachers and ICT coordinators, and classroom observation checklists. The collected data provided insights into teachers' levels of acceptance, confidence, readiness, and challenges related to the integration of tablets in classroom instruction.

In the case of teachers' attitude scale, there were eight statements with a five point Likert scale, wherein five statements were positively worded and three were negatively worded. In the case of positively worded statements, a respondent who agreed strongly was given a score of 5; who agreed – 4; neutral – 3; disagreed - 2; and disagreed strongly – 1 such that higher scores indicate favorable attitudes towards ICT integration. In the case of the three negatively worded statements, these were reversed before analysis (Strongly Agree = 1 and so forth to Strongly Disagree = 5) so that in every item higher means indicate positive attitudes. Item means were analyzed on the basis of the ranges indicated in Section 4.4 – 3.41 to 5.00 = Positive, 2.61 to 3.40 = Undecided, and 1.00 to 2.60 = Negative. Data is provided in Table 1 where the frequencies represent the responses of teachers, and means of negative items represent the reverse-coded values.

Table 1.
Teachers' Attitudes toward Tablet Integration in Teaching (n = 8)

Statement	Type	SA f(%)	A f(%)	N f(%)	D f(%)	SD f(%)	Mean*
Using tablets in teaching is a good idea	+	1 (12.5)	3 (37.5)	1 (12.5)	2 (25.0)	1 (12.5)	3.13
Tablets make teaching more interesting	+	1 (12.5)	3 (37.5)	2 (25.0)	1 (12.5)	1 (12.5)	3.25
Tablets should be integrated in all school subjects	+	0 (0.0)	2 (25.0)	2 (25.0)	3 (37.5)	1 (12.5)	2.63
I feel confident to use a tablet during my lessons	+	0 (0.0)	1 (12.5)	2 (25.0)	3 (37.5)	2 (25.0)	2.25
I would like more training on using tablets in teaching	+	4 (50.0)	3 (37.5)	1 (12.5)	0 (0.0)	0 (0.0)	4.38
Using tablets wastes teaching time	–	1 (12.5)	3 (37.5)	2 (25.0)	2 (25.0)	0 (0.0)	2.63
Textbooks are more suitable for teaching than tablets	–	3 (37.5)	3 (37.5)	1 (12.5)	1 (12.5)	0 (0.0)	2.00
Tablets make it difficult to manage a large class	–	2 (25.0)	4 (50.0)	1 (12.5)	1 (12.5)	0 (0.0)	2.13

*Means for negatively worded items (–) are reverse-coded; for all items a higher mean indicates a more positive attitude. Grand mean = 2.80.

Source: Field Data (2026)

The results for each individual item in Table 1 provide a basis for a comprehensive conclusion about the attitudes of teachers rather than conclusions drawn from selective items. For the positive items, teachers were uncertain about whether tablet usage is a good idea (mean = 3.13) and about making teaching more interesting using tablets (mean = 3.25), and they had

a negative attitude towards the integration of tablets across all disciplines (2.63, just above the lower limit of being unsure) and regarding their confidence in teaching with tablets (2.25). The means for the reverse coded negative items were all below the neutral line: the teachers agreed to a greater extent that textbooks are better than tablets (2.00), that tablets create problems with class management (2.13), and to some extent that tablets are wastage of time in teaching (2.63). The only clear positive result was the need for training, which had the highest mean on the scale (4.38), with agreement from seven of the eight teachers. Grand mean of all eight questions was 2.80, which is in the undecided category, although it is close to its lower end. Looking at the overall response of all eight questions, it is evident that the attitude of teachers regarding the incorporation of tablets in the classroom is neutral and even negative. The strong need for training reveals that the teachers are not against this technology.

Pupils' questionnaire helped us to validate these attitudes since the pupils see the teachers every day. Responses of pupils are given in Table 2.

Table 2.
Pupils' Responses on Their Teachers' Use of and Attitude toward Tablets (n = 40)

Statement	SA f(%)	A f(%)	NS f(%)	D f(%)	SD f(%)	Mean
My teacher uses a tablet during lessons	2 (5.0)	4 (10.0)	6 (15.0)	16 (40.0)	12 (30.0)	2.20
My teacher likes using tablets	3 (7.5)	7 (17.5)	14 (35.0)	10 (25.0)	6 (15.0)	2.78
My teacher encourages us to learn using tablets	2 (5.0)	5 (12.5)	11 (27.5)	13 (32.5)	9 (22.5)	2.45

Source: Field Data (2026)

According to Table 2, the majority of 28 out of 40 pupils (70.0%) felt that their teachers do not use the tablet in class (mean = 2.20), while a minority of the respondents felt that their teachers support the use of the tablet for learning (mean = 2.45). However, it seems that there is an indication from the relatively high yet unsure mean of whether their teachers like the tablet (2.78) that the students perceive some level of affection towards the device but not through actions.

The interviews deepened this picture. An ICT coordinator explained the prevailing view among staff:

"Tablet is not helpful in teaching because the teachers believes in using books in teaching rather than using tablets."

A headteacher traced the attitude back to skills rather than resistance:

"Tablet is not helpful in teaching because the teachers have no skills of using tablets in teaching; they use pupils' books for teaching and learning."

Asked about the willingness of the teachers to use the tablets, the respondents cited the environment in which they worked. As an ICT Coordinator put it, "No, because there are many books for teaching and learning, also the school infrastructure does not support, like no electricity in the class," while a head teacher explained, "No, because the school environment does not allow the use of tablets in teaching because of many students in the class and books of the pupils are available." The checklist for the classroom observation showed the same picture: in none of the observed lessons did the teacher use the tablet, was confident in its operation or involved the pupils in any work with the tablet; many of the distributed tablets had disappeared, got broken or were damaged.

The triangulation across the four tools demonstrates clear convergence. The teachers' attitude is located at the low to undecided stage on the scale, the students' attitude scale independently validates this attitude as one where the positive attitude towards tablets is not often observed in class, and the interviews and observations elaborate on the attitude due to the teachers' skill gap, faith in the textbooks, larger classes, lack of power supply, and broken tablets. The sole discrepancy, namely the teachers' desire for training coupled with the students' perception that some teachers like tablets, in itself is telling – it shows that there is an underlying willingness that existing conditions suppress. Thus, the overall conclusion can be stated as follows: teachers have varied but largely unfavorable attitudes towards integrating tablets in class.

This finding is consistent with past studies. Magembe (2025) discovered that Tanzanian teachers had cautious attitudes regarding the use of tablets which were positive when they gained experience and training, and Chaula and Jibrea (2024) stated that favorable attitude of the teachers in Lushoto District in Tanzania co-existed with the minimal use of technology in classrooms due to environmental factors. Diseko et al. (2022) demonstrated in South Africa that the acceptability of tablets among teachers was influenced by institutional factors, and Ibrahim and Shiring (2022) proved the strong connection between attitudes, perceived usefulness and perceived ease of use of technology suggested by TAM. This research contributes to this body of knowledge by proving, through reverse coded items, that the negative attitude of teachers regarding the use of tablets is related only to the practicality in classrooms, class size, time and devices, and not to their value.

In the context of the Technology Acceptance Model, attitude holds the place between beliefs and behaviour; perceived usefulness and perceived ease of use influence attitude, which influences use. The results presented here trace this relationship in all its accuracy. Low perceived ease of use and low perceived classroom usefulness result in a guarded attitude, and a guarded attitude in turn leads to non-use, as shown by students and direct observations. These results confirm the validity of the Technology Acceptance Model, but also, like the further refinements of the model suggest, imply that facilitative conditions in the educational setting have a strong influence on all three components together.

What follows from these findings is that attitudes need to be seen as something that is to be formed rather than something immutable. As the most positive finding is the need for training, attitude change needs to be achieved through concrete professional development activities that provide teachers with good experience in using tablets, as well as through the repair/replacement of broken tablets and improved access to electricity. School management

can achieve this by pairing experienced tablet users with less confident ones and rewarding early adopters.

CONCLUSION AND RECOMMENDATIONS

The findings demonstrate that teachers' attitudes toward tablet integration in teaching in public primary schools in Ubungu Municipality remain at a moderate to low level, characterized by uncertainty and limited classroom application. Although teachers recognize the potential educational benefits of tablets and show willingness to improve their digital competencies, their readiness to integrate tablets into daily teaching practices is constrained by practical challenges. The low level of confidence in using tablets during lessons, limited direct classroom use reported by pupils, and absence of tablet utilization during observed lessons indicate that positive perceptions of technology have not yet translated into effective instructional practice. Teachers' attitudes appear to be influenced less by resistance to technology itself and more by contextual factors, including inadequate pedagogical knowledge, insufficient ICT training, limited technical assistance, unreliable electricity supply, poor internet connectivity, large class sizes, and shortages of functional devices.

To enhance effective tablet integration in primary schools, there is a need to strengthen continuous, practical, and school-based professional development programmes that focus not only on basic tablet operation but also on pedagogical strategies for integrating tablets into different subjects. Training initiatives should provide teachers with hands-on classroom experiences to increase confidence and demonstrate the instructional value of tablets. School authorities and education stakeholders should improve ICT infrastructure by ensuring reliable electricity, internet connectivity, and availability of functional tablets. Establishing school-based technical support systems would enable timely maintenance, troubleshooting, and continued use of digital devices. Furthermore, school leadership should promote supportive environments by encouraging innovation, sharing successful practices among teachers, and motivating early adopters of technology. Addressing these conditions is essential for transforming teachers' willingness into meaningful classroom integration and improving the contribution of digital technologies to primary education.

REFERENCES

- Alshammari, S. H., & Rosli, M. S. (2021). A review of technology acceptance models and theories. *Innovative Teaching and Learning Journal*.
- Aslan, S., & Zhu, C. (2016). Competences in using tablets for teaching: Basic vs advanced skills. (cited in Revuelta-Domínguez et al., 2024).
- Barakabitze, A., et al. (2019). Transforming African education systems in STEM using ICTs: Challenges and opportunities. *Education Research International*.
- Bendera, M. (2024). The adoption and usage of ICT in teaching and learning in Tanzanian secondary schools: A systematic review. *Asian Journal of Education and Social Studies*, 50(10), 315–328.
- Cao, X., et al. (2025). Modeling English teachers' intention to use ICT: Technology acceptance and TPACK. *International Journal of Evaluation and Research in Education (IJERE)*.

- Chaula, I., & Jibrea, M. (2024). Teachers' perceptions on the use of tablets in enhancing teaching in public secondary schools in Lushoto District Council. *International Journal of Innovative Science and Research Technology*, 9(8).
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*.
- Diseko, R., Nyamande, T. T., & Kuhudzai, A. G. (2022). Factors affecting teacher acceptance of tablets in their teaching practice: A case study in the South African context. *International Journal of Mobile and Blended Learning*, 14(1).
- Etikan, I., & Bala, K. (2019). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 7(3), 215–217.
- Exploring the Utilisation of Mwabu Interactive Tablets by Teachers and Pupils: A Case Study of Primary Schools in Lusaka District. (2025). *International Journal of Research and Innovation in Social Science*.
- Frontiers. (2021). Applying technology acceptance model in online entrepreneurship education. *Frontiers in Psychology*.
- Galimova, E. G. (2024). Mapping the interconnections: A systematic review of TAM in teacher education acceptance. *Frontiers in Education*.
- Guest, G., Namey, E., & Chen, M. (2022). *Collecting qualitative data: A field manual for applied research* (3rd ed.). SAGE Publications.
- Haji, M. A., Xu, Q., Mshenga, K. R., & Mike, S. A. (2024). Integration of use of tablets into teaching and learning in secondary schools of Micheweni District, Zanzibar: Challenges and motivations. *Asian Journal of Education and Social Studies*, 50(5), 477–488.
- Ibrahim, A., & Shiring, E. (2022). The relationship between educators' attitudes, perceived usefulness, and perceived ease of use of instructional and web-based technologies: Implications from the Technology Acceptance Model (TAM). *International Journal of Technology in Education*, 5(4), 535–551.
- International Association for the Evaluation of Educational Achievement. (2023). *International Computer and Information Literacy Study (ICILS 2023)*.
- Kabasiita, J., Kagambe, E., Kasiita, T., Kitembo, M., Namubiru, A., & Namutebi, E. (2024). The mediating role of teacher training and learner orientation in ICT integration. *East African Journal of Information Technology*, 7(1), 173–187.
- Kalogiannakis, M., & Papadakis, S. (2019). Evaluating pre-service kindergarten teachers' intention to adopt and use tablets into teaching practice for natural sciences. *International Journal of Mobile Learning and Organisation*, 13(1), 113–127.
- Kule, M. K., Mugizi, W., Ampeire, K. H., & Turiabe, V. (2021). Teacher characteristics and the use of ICT in rural secondary schools in Bwera Sub County, Uganda. *Interdisciplinary Journal of Rural and Community Studies*, 3(2), 30–40.
- Lubuva, R., Ndibalema, P., & Mbwambo, F. (2025). Teacher preparedness for ICT integration in Tanzania's education system: A systematic review of attitudes, competencies, and enabling conditions. *International Journal of Research and Innovation in Social Science*.
- Machemba, S. J., & Biswal, A. (2025). Teacher preparedness for ICT integration in Tanzania's education system: A systematic review of attitudes, competencies, and enabling

- conditions. *International Journal of Research and Innovation in Social Science*, 9(10), 6365–6380.
- Magembe, K. S. (2025). Teachers' perceptions and attitudes on the use of tablet computers in teaching and learning process: Experiences from face-to-face sessions at Morogoro Campus in Tanzania. *International Journal of Educational Technology and Learning*, 18(1), 14–24.
- Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches*. ACTS Press.
- Mwangi, W., Ngeno, B., & Wambiri, J. (2021). Teachers' use of ICT in implementing the competency-based curriculum in Kenyan primary schools. *Innovation and Education*.
- NECTA. (2024). Primary school list — Ubungo Municipal Council. National Examinations Council of Tanzania Online Database.
- Ngodu, A., Ndibalema, P. M., & William, F. (2024). Context-relevant strategies for ICT integration in teaching and learning science subjects in Tanzania secondary schools. *Educational Technology Quarterly*.
- Obeng, P., Atieku, J. N., & Segbefia, S. K. (2025). Influence of teacher perceptions, attitudes, and policy on ICT integration in basic schools in Ho Municipality, Ghana. *Journal of Education*.
- Oubibi, M., Fute, A., Kangwa, D., Barakabitze, A. A., & Adarkwah, M. A. (2024). Interactive technologies in online teacher education in Africa (2014–2024): Systematic review. *Education Sciences*, 14(11), 1188.
- Policy Forum. (2025, May 19). The use of digital technologies to enhance education in Tanzania: Challenges and strategic interventions.
- Prosper, A., & Nderego, E. F. (2024). The use of tablets in teaching: Examining competencies, challenges, and opportunities among public primary school teachers in Tanzania. *East African Journal of Interdisciplinary Studies*, 7(1), 444–457.
- Selemani, M., & Mulema, J. (2024). Awareness of using tablets as a potential assistive pedagogical tool among primary school teachers in Nachingwea District. *East African Journal of Education Studies*, 7(2), Article 1898.
- Springer. (2024). Extending the technology acceptance model (TAM) to predict intentions to use metaverse-based learning platforms. *Education and Information Technologies*.
- Taherdoost, H. (2019). What is the best response scale for survey and questionnaire design? *International Journal of Academic Research in Management*, 8(1), 1–10.
- Taherdoost, H. (2020). Data collection methods and tools for research: A step-by-step guide. *International Journal of Academic Research in Management*.
- Taherdoost, H. (2020). Determining sample size: How to calculate survey sample size. *International Journal of Academic Research in Management*, 9(2), 1–20.
- Taherdoost, H. (2020). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management*, 5(2), 18–27.
- Taherdoost, H. (2025). What are different research approaches? Comprehensive review of qualitative, quantitative, and mixed method research. *Journal of Management Science & Engineering Research*.
- The Citizen. (2026). Tanzania turns to tech to tackle teacher shortage (J. Mosenda).

- UNESCO. (2023). Technology in education — 2023 GLOBAL EDUCATION MONITORING REPORT. Retrieved from
- UNESCO. (2025). Tanzania education and training plan: ICT and digital resources overview.
- Zaman, R. A., Raqib, A. B. M. A., & Sadek, M. A. (2024). Teachers perceived usefulness and perceived ease of use of technology in primary school classrooms in Bangladesh. *Teacher's World: Journal of Education and Research*, 49(2), 109–124.
<https://doi.org/10.9734/ajess/2024/v50i51377>
- UNESCO. (2024). *Better textbooks and teacher guides needed to improve foundational learning in Africa*. UNESCO Global Education Monitoring Report.
- Theodorio, A. O., Waghid, Z., & Wambua, A. (2024). Technology integration in teacher education: Challenges and adaptations in the post-pandemic era. *Discover Education*, 3, 242.