

Tablet adoption and mobile learning impact in high school

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ABSTRACT

This study examines the challenges of integrating mobile learning and tablet adoption in Tshwane West high schools, where inconsistent device availability, infrastructure limitations, and varying digital confidence hinder effective use. It explored how educators prepare learners for mobile learning, the effectiveness of training programmes for tablet adoption, and strategies to optimize mobile learning. Using a qualitative approach, data were collected from nine educators across three urban and township schools through semi-structured interviews, classroom observations, and document analysis. Findings show generally positive attitudes toward tablets, with noted improvements in lesson delivery and student engagement. However, sustained integration requires reliable technology access, continuous educator-focused professional development, and robust technical and administrative support. The study recommends incorporating collaborative projects, quizzes with immediate feedback, and multimedia presentations in lessons to enhance learner motivation and performance. For future research, longitudinal studies are suggested to evaluate the lasting effects of mobile learning on academic outcomes and to investigate institutional and infrastructural barriers in varied educational contexts. These insights will inform more effective policies and practices to advance digital education transformation in South African schools.



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INTRODUCTION

The integration of mobile learning technologies, particularly tablet devices, in educational settings has rapidly increased over the past decade, driven by the promise of enhancing teaching and learning processes. Mobile learning offers the flexibility of accessing educational content anytime and anywhere, fostering interactive and student-centered pedagogical approaches (Cagiltay et al., 2015; Isaacs, 2012). In South Africa, educational policies have increasingly recognized the potential of Information and Communication Technologies (ICT) to bridge gaps in educational quality and access, aligning with the Department of Basic Education's 2030 vision to improve ICT proficiency among teachers and learners (DBE, 2020). However, the effective implementation of mobile learning remains uneven, especially in high schools located in diverse socio-economic contexts such as Tshwane West, where infrastructural limitations and varying levels of teacher readiness pose significant challenges.

Research urgency emerges from persistent inequalities in device availability, internet connectivity, and digital literacy skills, which can hinder the equitable adoption and impact of

mobile learning interventions (Mtebe & Raisamo, 2014). While some studies have explored general attitudes toward mobile technology use in South African classrooms (Ng'ambi et al., 2016; Jong et al., 2018), there remains a scarcity of localized, empirical investigations focusing specifically on the acceptance and practical effectiveness of tablet devices among high school teachers within the Tshwane West region. This gap is critical to address because teacher acceptance and proficiency directly influence the success of technology integration in pedagogy (Ifenthaler & Schumacher, 2016). Alternative solutions such as desktop-based e-learning platforms or purely online learning systems have been studied but often face limitations related to infrastructure and learner engagement in the South African context (Atilola et al., 2021). In contrast, mobile learning using tablets holds promise due to portability, ease of use, and the ability to support interactive and multimodal learning experiences (Sharples et al., 2016). Nonetheless, empirical data on how these benefits translate into classroom practice, especially in township schools with constrained resources, are limited.

The novelty of this research lies in its focused examination of both the effectiveness of mobile learning and the acceptance of tablet devices by teachers in Tshwane West high schools, utilizing qualitative methods including direct classroom observations and semi-structured interviews. While previous international and national studies have documented mobile learning adoption and its challenges broadly (Kukulska-Hulme & Shield, 2008; Scoot, 2023), this study differentiates itself by contextualizing teacher experiences and infrastructural factors within a tri-school setting representing urban and township environments. Previous studies emphasize the increasing demand and potential of integrating Information and Communication Technology (ICT) in South African classrooms to improve teaching and learning outcomes. For example, the study by Kgosi et al., (2023) in the Tshwane West District highlights that while ICT makes lessons more interesting and improves learner engagement, many educators experience challenges such as poor technical support, lack of adequate infrastructure, frequent power outages, and insufficient devices for all learners. The study also points out that educators employ team building as a strategy to implement ICT effectively, but infrastructural constraints like load shedding significantly hamper efforts. These findings underline persistent infrastructural and resource challenges that this study can further explore, especially in relation to mobile learning's effectiveness and device acceptance in resource-constrained environments.

Kgosi et al., (2023) investigated educators' views on the application of educational technologies in selected Tshwane West secondary schools and found that despite the Department of Basic Education's efforts to provide tablets, laptops, and smartboards, many teachers feel underprepared due to limited professional development opportunities and inadequate technical support. Their study revealed issues such as poor maintenance of educational technology, lack of relevant digital teaching materials, infrastructural limitations, including unreliable internet connectivity, and concerns about teacher readiness to integrate these technologies into pedagogical practices. These gaps point to the critical need for contextualized training and sustained technical support, themes that resonate with this study's emphasis on teacher preparedness and professional development in mobile learning.

Kgosi et al., (2023) studies complement this research by providing empirical evidence of the systemic challenges affecting ICT adoption in Tshwane West schools and highlighting gaps in teacher training, infrastructure, and resources. Kgosi et al., (2023) work emphasizes educator perceptions and readiness; this study narrows in on mobile learning and tablet acceptance specifically within high school contexts, incorporating theoretical frameworks such as the Technology Acceptance Model (TAM) and TPACK. This specificity allows this research to address the nuanced dynamics of mobile device acceptance and pedagogical integration more explicitly.

Therefore, this study fills an important gap by deepening the understanding of how educators prepare learners for mobile learning, the effectiveness of specific training programs on tablet acceptance, and by proposing targeted strategies for mobile learning optimization in high schools. By dovetailing with prior studies, this research offers critical insights relevant to policymakers, educators, and stakeholders aiming to realize sustainable mobile technology integration tailored to the unique infrastructural and socio-economic realities of South African public schools. It also

contributes to the field by providing nuanced insights into the real-world integration of tablets in curricula aligned to South Africa's CAPS framework, highlighting both opportunities and constraints that have not been extensively reported in prior research.

The objective of this study is therefore to investigate how effective mobile learning is in enhancing teaching and learning outcomes, and to assess the level of acceptance of tablet devices among teachers in Tshwane West high schools. Through this, the study aims to inform policy and practice concerning the strategic deployment of educational technology to foster equitable, quality education in South Africa. The research aims to answer important questions about the application and integration of contemporary mobile technologies into the educational environment of South African high schools. The focus of this study is on examining how educators get learners ready for mobile learning. This entails comprehending the teaching techniques and technology instruments that instructors use, such as interactive EduBoards, laptops, and tablets, to improve the educational experience. The research acknowledges that preparation includes not only the installation of devices but also the integration of digital citizenship instruction to give learners the fundamental abilities they need. For example, ethical conduct in online contexts, internet security, and personal data management. The goal is to emphasize how these preparation activities affect learners' participation and comprehension of course content in classrooms that use technology.

In addition to getting ready, the study examines the efficacy of training courses aimed at helping educators embrace mobile learning and accept tablets as instructional aids. It analyses formal initiatives by the Department of Basic Education, such as seminars and planned meetings, as well as the function of school-integrated Professional Learning Communities (PLCs), which encourage peer mentoring and cooperative learning. The focus is on how these courses help educators develop their technological, pedagogical, and content expertise, which in turn promotes their confidence and preparedness in incorporating these technologies. The study aims to ascertain the degree to which these training treatments result in practical classroom methods, while also pinpointing obstacles like huge class sizes. Resource restrictions and sizes that hinder consistent execution.

Last but not least, the study aims to propose strategic strategies for improving the efficient use of mobile learning. The necessity of upgrading and modernizing mobile technology laboratories to offer useful, accessible, and engaging learning environments is highlighted by these approaches. They also support thorough, ongoing professional development that is contextualized to the unique requirements of educators and schools and in line with national frameworks for digital learning competency. The study also emphasizes the necessity of ongoing pedagogical mentorship and technical assistance to ensure that educators stay motivated and competent throughout their careers. The study's goals are to provide useful insights that can inform infrastructure investment, policy creation, and educator training programs, with the aim of creating a just and equitable society. Resources-restricted instructional environments that support sustainable mobile learning ecosystems.

METHOD

Type of Research

The population for this study consisted of the thirty-eight (38) high schools located in the Tshwane West District of Gauteng Province, South Africa. These schools collectively represent the broader educational community from which relevant information about mobile learning and the acceptance of tablet devices was sought. The research targeted high schools actively engaged in the use of mobile learning technologies, particularly focusing on educators involved in teaching Grades 7 to 12.

From this population, a purposive sampling technique was employed to select three schools that met specific inclusion criteria: they offer Grade 7 to 12 instruction, actively implement mobile learning in their curricula, and serve as training centres for educators utilizing educational technologies. This intentional selection ensured that the sampled schools provided rich, relevant contexts for investigating the phenomenon.

Within each selected school, three educators were purposively chosen to participate in the study, resulting in a total sample size of nine teachers. These educators were selected to represent diverse subject streams, including general subjects, languages, mathematics, and science, thus capturing a range of perspectives related to mobile learning practices. The sampling approach focused exclusively on educators due to the study's emphasis on teacher experiences and readiness, intentionally excluding learners from the sample.

Overall, the purposive sampling design ensured that participants possessed direct, relevant experience with mobile learning technologies, enabling an in-depth qualitative exploration of their perceptions, practices, and challenges within their specific educational contexts. This approach facilitated comprehensive insights into the integration and acceptance of tablets and mobile learning in Tshwane West high schools.

Time and Place of Research

The research was conducted over a three-month period from March to May 2025. The study took place in three purposively selected high schools within the Tshwane West district in Gauteng province, South Africa. The use of purposive sampling in the study is justified due to several important reasons drawn from the research context and methodology described: the study aimed to investigate the effectiveness and acceptance of mobile learning and tablets specifically in high schools of Tshwane West. Purposive sampling allowed the researcher to deliberately select three schools that met particular inclusion criteria, such as providing instruction in Grades 7-12, actively using mobile learning in senior-phase instruction, and serving as training hubs for teachers on educational technology. This ensured the sample was highly relevant to the research questions. Three teachers were deliberately chosen from each school, representing general, language, Mathematics, and science subjects, focusing on educators knowledgeable and experienced in using mobile learning (a total of nine participants). This ensured data was collected from individuals with direct and relevant experience with the phenomena under study. The qualitative multiple case study approach required rich, in-depth data rather than statistically generalizable findings. Purposive sampling facilitated an intense, contextualized exploration of educator preparedness, training effectiveness, and strategic use of technology within actual school environments. The selection of Tshwane West District was also due to the researcher's residence in the area, enhancing access and the feasibility of data collection. Among the 38 schools in the district, only three met the set criteria for active mobile learning use and training roles, making purposive sampling an appropriate sampling strategy. The interpretive qualitative paradigm assumes reality is socially constructed and context-specific, so purposive sampling fits, as it aims to understand participants' subjective experiences deeply within their settings rather than aiming for statistical representativeness. Therefore, purposive sampling was employed strategically to select information-rich cases that directly address the research questions, enable detailed examination of mobile learning integration in relevant secondary school contexts, and ensure the feasibility and rigor of the qualitative study design. The schools included one urban school and two township schools representing different socio-economic quartiles (Quartile 3 urban, Quartiles 2 and 3 township schools), providing diverse contexts for data collection.

Research Targets and Objectives

The main objective of this study was to investigate how effective mobile learning is in improving teaching and learning in Tshwane West high schools and to assess the acceptance of tablet devices among teachers. Specific objectives included exploring teacher attitudes towards tablets, examining infrastructural support and constraints, evaluating pedagogical integration, and analysing student engagement as observed through mobile learning practices.

Research Subjects

The study includes all 38 high schools in the Tshwane West District of South Africa's Gauteng Province. These schools serve as the pool from which the sample schools were chosen for the study on the effectiveness of mobile learning and the acceptance of tablet devices. Purposeful sampling is the method utilized for sampling. The justification for this approach was that the

research sought to choose schools that satisfied certain requirements that were pertinent to the topic's targets. The schools were chosen using the following inclusion criteria: schools offering instruction for Grades 7 through 12, schools that actively use mobile learning in their senior-phase instruction, and schools serving as instructional technology training hubs for teachers.

For the reason that they met these requirements, just three schools were purposely chosen to make sure that students had direct experience with tablet device adoption and mobile learning. A total sample of nine educators was selected from each chosen school, representing three distinct subject streams: mathematics, science, language, and general topics. With this approach to sampling, participants were guaranteed to have real-world experience and pertinent knowledge of the subject being studied.

Because the study's goal was to acquire an in-depth understanding of specific contexts where mobile learning was actively used, rather than to draw general conclusions, purposive sampling was the way to go to every school in the district. This method made it possible to gain in-depth, context-specific understandings that were in line with qualitative case study techniques. The study employed purposive sampling to select participants, deliberately choosing teachers who actively use tablet devices in their classrooms and who had undergone CAPS-related mobile learning training. This intentional selection ensured that participants could provide rich, relevant data reflecting experienced use of mobile learning tools in varied school contexts. The sample comprised nine teachers drawn from three high schools in Tshwane West, representing a mix of urban and township environments (one urban school, two township schools of different socio-economic quartiles). This variation was purposeful to capture diverse infrastructural and socio-economic influences on mobile learning acceptance and effectiveness. Recruitment was facilitated through school management and the Subject Management Teams (SMTs), who identified teachers meeting the inclusion criteria and consented to participate. Sampling terminated upon reaching sufficient data saturation when additional interviews and observations no longer yielded new themes.

Procedure

Data collection began with securing permission from school management and the relevant educational authorities. Following ethical clearance and informed consent processes, semi-structured interviews were conducted with the teachers to probe their perceptions, acceptance levels, and experiences with mobile learning and tablet use. Direct classroom observations were scheduled to document actual tablet usage, pedagogical practices, and student engagement during lessons. Additionally, document analysis and open-ended questionnaires complemented the qualitative data, enabling triangulation of findings. Below is the research procedure.

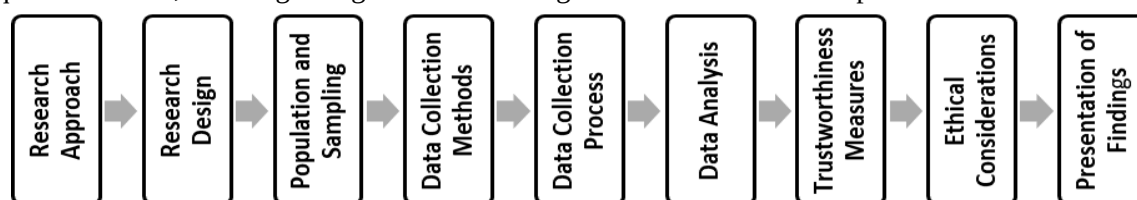


Figure 1. Research Procedure Chart

Data Collection Techniques and Instruments

Multiple qualitative instruments were utilized to collect data, namely, Semi-structured interviews: Developed to explore teachers' attitudes, challenges faced, training received, and perceptions of mobile learning effectiveness. The guide focused on indicators such as digital competence, troubleshooting skills, and integration strategies. Classroom Observation: Focus areas included device usage frequency, pedagogical integration, classroom management during tablet use, infrastructure challenges (connectivity and power), and student interaction. Specific observable indicators were identified to ensure systematic data gathering. Document analysis: School policies, maintenance records, and digital resource inventories were reviewed to

contextualize infrastructural support, and finally, Open-ended questionnaires provided additional qualitative data on teachers' self-reported experiences and perceptions.

Data Analysis Techniques

The collected data were analysed using thematic content analysis. Interview transcripts, observation notes, and document excerpts were coded iteratively to identify recurring themes related to mobile learning effectiveness and tablet acceptance. Data segments were categorized under emergent themes such as teacher digital competence, infrastructural barriers, pedagogical practices, and student engagement. Constant comparison methods were employed to validate findings across data sources, enhancing credibility and dependability. Reflexive journaling and peer debriefing sessions were also conducted to maintain research trustworthiness, ensuring confirmability and consistency of interpretations.

To add a comprehensive research instrument table that aligns with the research questions, data collection instruments, applicable frameworks, and emerged themes from the study, the following [Table 1](#) can be constructed using the detailed methodology and thematic focus described in the document:

Table 1. Research Instrument

No.	Research Question	Data Collection Instrument	Applicable Frameworks	Emerged Themes/Focus Areas
1	How do educators prepare learners for mobile learning?	Document Analysis, Non-participant Observation	Technology Acceptance Model (TAM), TPACK	Use of EduBoards, laptops, and tablets in lessons; Digital citizenship instruction; Lesson planning and preparation
2	How effective are training programmes to assist educators with mobile learning and the acceptance of tablet devices?	Semi-structured Interviews, Open-ended Questionnaires	TAM, TPACK	Attendance at DBE training workshops, Professional Learning Communities (PLCs), and the Integration of mobile learning in classrooms
3	Which strategies can be put in place for the effective use of mobile learning?	Open-ended Questionnaires	TAM, TPACK	Renovation of mobile labs; Comprehensive teacher training and ongoing support; Infrastructure and policy support

This table synthesizes the study's research questions with the instruments used to gather data, the theoretical frameworks guiding the analysis, and key thematic findings related to each question.

Data Security

To protect participant confidentiality and maintain the integrity of data, multiple security protocols were implemented throughout the research process. All participants were assigned numeric codes and pseudonyms in transcripts and reports to anonymize identifying information. Audio recordings of interviews were stored securely on a password-protected computer accessible only to the principal researcher and supervisors. Digital files were regularly backed up using encrypted storage. Physical documents, including consent forms and observation notes, were locked in a secure cabinet within the researcher's office. Data access was strictly limited to the research team, and any data shared in presentations or publications omitted personal identifiers. After completion of the study, audio recordings and sensitive data will be permanently deleted in accordance with institutional data retention policies.

Ethical Considerations

Ethical approval was duly obtained from the Tshwane University of Technology Research Ethics Committee before commencing the study. Permission to conduct research within the schools was secured from the Department of Basic Education and the relevant School Governing Bodies (SGBs). Participation was entirely voluntary, with teachers informed of their right to withdraw at any time without penalty. Before data collection, informed consent was obtained in writing, detailing the purpose of the study, procedures, confidentiality assurances, and intended dissemination of findings. The researcher was sensitive to power dynamics, ensuring that participation decisions were free from coercion or undue influence. During classroom observations, efforts were made to minimize disruption, and participants' and learners' anonymity was respected by not including personal data or identifiable images. Ethical principles of beneficence, respect, and justice guided all interactions, safeguarding the dignity and rights of participants throughout the study.

RESULTS AND DISCUSSION

Results

The study's results on the effectiveness of mobile learning and the acceptance of tablet devices among teachers in Tshwane West high schools revealed several key themes. This study aimed to explore and understand the use of mobile learning and tablet acceptance among educators in Tshwane West high schools. The objectives of this study were to determine how educators prepare learners for mobile learning, to assess the effectiveness of training programs designed to assist educators with mobile learning and tablet device acceptance, and to recommend strategies for the effective use of mobile learning in schools.

The study involved nine high school teachers selected from three purposively sampled schools in Tshwane West. The participants represented a mix of genders, ages, qualifications, and teaching experience:

Table 2. Biographical Information, Showing that All Respondents had Participated in Mobile Learning Training Programs

No.	Teacher	Gender	Age Range	Years Teaching	Qualifications	Attended Mobile Learning Training
1	A	Female	30-35	7	B.Ed (Computer Sciences) HONS	Yes
2	B	Female	30-35	7	B.Ed (Computer Sciences) HONS	Yes
3	C	Female	50-55	23	B.Ed (FET)	Yes
4	D	Female	25-30	6	B.Ed (FET)	Yes
5	E	Male	45-50	17	B.Ed (GET)	Yes
6	F	Male	25-30	6	B.Ed (Mathematics)	Yes
7	G	Male	45-50	11	B.Ed (Physical Sciences)	Yes
8	H	Female	35-40	10	B.Ed (Technology Education)	Yes
9	I	Female	55-60	24	B.Ed (English)	Yes

While gathering the necessary data, these are some of the responses given by the participants: Teacher A emphasized how tablets facilitate learning through interactive apps that support instant feedback and corrections. Teachers B and C noted that mobile learning makes teaching easier by enabling engagement even when learners are off-premises and by providing more interactive, personalized learning experiences. Teacher E explained the use of AI-enhanced editing exercises learned in workshops and implemented with learners. Teacher H described using gamification via tablets and EduBoards to make mathematics lessons more engaging and fun. These responses showed that educators are willing to use mobile learning, and some responded that it made teaching easier.

Teacher Acceptance and Digital Competence

Teachers generally exhibited positive attitudes toward the use of tablets in the classroom. All participants had received CAPS-aligned mobile learning training, equipping them with the basic digital competence necessary for integrating technology into their teaching. Teachers reported that tablets improved lesson delivery by providing interactive and up-to-date content, which promoted more student-centred instructional approaches. However, some teachers expressed occasional discomfort with troubleshooting technical issues, indicating a need for ongoing professional development to enhance digital confidence.

Infrastructure and Device Availability

The availability of devices was inconsistent across the schools. Urban schools had comparatively better access to tablets and more reliable infrastructure, while township schools faced significant challenges such as limited device numbers, unreliable internet connectivity, and frequent power outages. These infrastructural constraints limited the regular and effective use of tablets in classrooms, especially in township settings. Maintenance of devices was reported as irregular in some schools, further impacting device usability during lessons.

Pedagogical Integration and Usage

Teachers who effectively integrated tablet use with traditional teaching methods, such as group discussions and interactive applications, observed higher student engagement. Tablets were used for diverse purposes, including immediate feedback, collaboration among students, and multimedia content delivery. Nonetheless, some teachers faced difficulties shifting from textbook-reliant teaching to digitally enhanced instruction, which affected the consistency and depth of mobile learning integration.

Student Engagement and Academic Outcomes

Most teachers observed increased student engagement when tablets were part of the lesson, particularly in science and technology subjects that benefited from interactive digital content. There was a perception of improved academic performance associated with mobile learning, though this was tempered by the irregular availability of devices. In addition, classrooms leveraging mobile learning reported better attendance and more timely submission of learning tasks, suggesting positive motivational effects of tablet use.

Discussion

This study aimed to investigate the effectiveness of mobile learning and the level of acceptance of tablet devices among teachers in Tshwane West high schools. The data revealed a generally positive perception of tablets as teaching tools, affirming that mobile learning has considerable potential to enhance instructional quality and student engagement. The teacher's point of view affects classroom technology. Given its potential for pedagogical benefit, looking at the digital world would not be unexpected ([Sulistyaningtyas, 2024](#)). These findings align with prior research emphasizing mobile learning's role in fostering interactive and learner-centred pedagogy ([Junior, 2025](#)). Teachers' acceptance was closely linked to their digital competence, consistent with [Ifenthaler & Schumacher \(2016\)](#) assertions that teacher readiness significantly affects technology integration success.

The positive attitudes toward tablet use underscore that once teachers receive proper CAPS-aligned training and develop foundational ICT skills, they are more inclined to incorporate digital tools effectively. This corroborates findings by [Dahri \(2023\)](#), who observed that adequate training boosts teacher confidence and adoption rates. However, despite the affirmative outlook, the study also highlights practical challenges, most notably, infrastructural deficits such as device shortages, unreliable internet connectivity, and frequent power outages in township schools. These barriers limit equitable access to mobile learning and constrain its consistent application, echoing concerns raised by [Mtebe & Raisamo \(2014\)](#) about infrastructural inequalities in African educational contexts.

The differences between urban and township schools in device availability and infrastructure suggest systemic inequities in resource distribution, which can perpetuate educational disparities

(Chikwe, 2024). This is a critical issue for educational administration and policy planning, indicating that without targeted investment in physical and digital infrastructure, mobile learning initiatives risk deepening rather than bridging educational gaps. In particular, the study's findings stress the need for sustainable infrastructure development plans that prioritize schools in lower socio-economic contexts, a concern aligned with South Africa's national strategies for education equity (DBE, 2020).

Pedagogically, the successful integration of tablets involved hybrid approaches where digital tools complemented traditional teaching methods, consistent with Isaacs (2012) emphasis on blended learning models. Teachers who combined tablets with group discussions and interactive apps observed enhanced student engagement and participation (Ahshan, 2021). This suggests that mobile learning is most effective when embedded thoughtfully within established instructional frameworks rather than used in isolation. Nonetheless, some teachers reported difficulty in moving away from textbook-centred pedagogy, indicating that ongoing professional development should focus not just on technical skills but on innovative pedagogical strategies that leverage mobile learning affordances.

Increased student engagement and improved academic outcomes in classes utilizing tablets point to positive motivational and cognitive effects, supporting evidence from Kukulska-Hulme & Shield (2008) who link mobile technology with active learning enhancement. The observed improvements in attendance and timely task submission may reflect higher student interest and accountability fostered by more interactive and relevant learning experiences. These findings contribute to academic economics by highlighting that investments in mobile learning can yield tangible educational benefits, potentially leading to better learner performance and retention, which are vital indicators of return on investment in educational technologies (Ghoulam & Bouikhalene, 2024).

From an educational leadership and management perspective, these results underscore the importance of holistic support structures comprising infrastructure, teacher development, and technical support to realize mobile learning's full potential. Educational leaders must ensure that schools have not only the devices but also reliable maintenance services and connectivity solutions. Furthermore, the involvement of stakeholder groups such as School Management Teams (SMTs) and School Governing Bodies (SGBs) in resource allocation and planning is paramount, as the study shows the value of collaborative governance in sustaining technology integration efforts.

Despite the insightful contributions, this research has limitations. The qualitative design and relatively small purposive sample of nine teachers from three schools, while providing rich contextual data, limit the generalizability of results beyond Tshwane West. Future research could employ mixed methods with larger, more representative samples to quantify mobile learning impacts and acceptance across more diverse school contexts. Additionally, this study did not include student perspectives or longitudinal measures of academic outcomes, which would provide further validation of the effectiveness noted by teachers. Investigating these areas could deepen understanding of mobile learning's broader educational effects.

There are several implications for practice and future research. Policymakers should prioritize addressing infrastructure inequalities and provide sustained, context-sensitive professional development that moves beyond technical training to include pedagogical innovation. Educational managers need to establish ongoing support mechanisms for device maintenance and troubleshooting to reduce classroom disruptions, thereby promoting more reliable use of mobile learning tools. Future research should explore scalable models of teacher training and infrastructural investment that can be adapted for other districts with similar socio-economic challenges.

In conclusion, this study contributes nuanced empirical insights into the realities of implementing mobile learning and tablets in a South African high school context marked by socio-economic and infrastructural disparities. It reinforces the critical interplay between teacher acceptance, infrastructural readiness, and pedagogical practice for effective technology integration. By illuminating both the promise and persistent barriers of mobile learning in Tshwane West, the findings provide valuable guidance for educational administrators, policy planners, and researchers

aiming to advance equitable, technology-enhanced education across South Africa and comparable contexts.

CONCLUSION

Based on the investigation of the effectiveness of mobile learning and the acceptance of tablet devices among teachers in Tshwane West high schools, it can be concluded that mobile learning is perceived as a valuable pedagogical tool that enhances student engagement and supports more interactive and student-centred teaching approaches. The findings show that teachers generally accept and appreciate the use of tablets, recognizing their potential to improve lesson delivery and motivate learners. However, the full benefits of mobile learning are constrained by infrastructural challenges, including inconsistent access to devices, unreliable internet connectivity, and power interruptions, particularly in township schools. Teacher digital competence, while adequately established through CAPS-aligned training, requires ongoing development focusing on both technical skills and innovative integration strategies to maximize tablet use in instruction. Operationally, this study suggests that educational policymakers and school leaders should prioritize investments to ensure equitable access to functional digital devices and stable connectivity across all schools in the region. Additionally, sustained and context-sensitive professional development programs are essential to empower teachers with both the confidence and pedagogical expertise needed for effective mobile learning implementation. Furthermore, establishing dedicated technical support systems will minimize classroom disruptions caused by device malfunction or connectivity issues. By addressing these factors, the educational system can more fully realize the transformative potential of mobile learning, advancing South Africa's goals for ICT proficiency and contributing to more equitable, quality education in high schools. Several recommendations for further research based on the study are to find best practices for increasing teacher capacity, evaluate the effectiveness and influence of several professional development strategies, including contextualized, mixed, and peer-supported ones. Study how variations in classroom size, infrastructure quality, teacher readiness, and socio-economic factors influence mobile learning adoption and effectiveness in diverse educational settings. Design and validate assessment instruments and training materials that are culturally and contextually relevant for mobile learning in South African and similar resource-constrained schools.

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