International Journal of Development and Sustainability
ISSN: 2186-8662 – www.isdsnet.com/ijds
Volume 15 Number 2 (2026): Pages 165-181
https://doi.org/10.63212/IJDS25080302

South African School Administration and Management Systems (SA-SAMS) in rural schools: A qualitative case study of use, constraints, and governance implications

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Abstract

This study critically examines the implementation of the South African School Administration and Management System (SA-SAMS) as a digital tool for enhancing data-driven decision-making, educational governance, and school management efficiency in rural contexts. While the Department of Basic Education (DBE) envisaged SA-SAMS as a comprehensive school-level information management system to support planning, policy implementation, and accountability, its practical application in under-resourced schools has revealed mixed outcomes. Adopting a qualitative case study design, the research was conducted across four rural public schools in KwaZulu-Natal. Data were collected through semi-structured interviews (n=12). The findings reveal a complex landscape: although SA-SAMS supports improved reporting, data access, and compliance monitoring, several implementation challenges persist, including poor digital infrastructure, limited training, and inconsistent data quality. These barriers undermine the system's potential to promote equitable, transparent, and efficient school management. The study recommends targeted digital capacity building, continuous technical support, and the adoption of locally responsive data systems that align with rural realities. By addressing these systemic challenges, SA-SAMS can be repositioned as a transformative tool for school leadership and evidence-based educational improvement.

Keywords: SA-SAMS; School Management; Digital Administration; Education Policy; ICT In Education

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Cite this article as: Dlomo, S.S. and Ajani, O.A. (2026), "South African School Administration and Management Systems (SA-SAMS) in rural schools: A qualitative case study of use, constraints, and governance implications", *International Journal of Development and Sustainability*, Vol. 15 No. 2, pp. 165-181.

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1. Introduction

The rapid digitalisation of education management systems has profoundly reshaped how schools operate, particularly in developing contexts where efficiency, equity, and accountability remain elusive aspirations. In South Africa, the School Administration and Management System (SA-SAMS) was developed by the Department of Basic Education (DBE) to provide a centralised, data-driven platform for managing school-level information (Dlomo et al., 2024). As schools increasingly migrate from traditional paper-based processes to digital platforms, SA-SAMS is positioned as a transformative tool to improve administrative accuracy, enhance decision-making, and in turn support better educational outcomes. However, despite its conceptual promise, the empirical realities of SA-SAMS implementation, especially in under-resourced, rural settings, remain contested and under-theorised.

South Africa's educational landscape is still grappling with the historical legacies of apartheid, which left deep structural inequalities in school infrastructure, human capacity, and resource allocation (Bush and Glover, 2016). In such contexts, the implementation of digital school management systems is not merely a technical intervention but a profoundly political and pedagogical one. SA-SAMS, introduced to streamline reporting, planning, and monitoring processes in public schools, is heralded as a potential equaliser that can improve educational governance, data reliability, and service delivery (Department of Basic Education, 2018). However, the extent to which SA-SAMS meets these expectations, particularly in schools with weak digital readiness, necessitates critical scrutiny. The promise of data-driven decision-making in schools, underpinned by tools such as SA-SAMS, is increasingly supported in the global literature. Authors such as Ajani (2025), Zindi and Majam (2025) argue that educational technologies can play a vital role in tracking learner performance, allocating resources efficiently, and promoting evidence-informed planning. In the South African context, SA-SAMS offers an integrated suite of modules encompassing finance, learner attendance, staff management, assessment records, and more. However, as Maremi (2022) observes, uneven implementation across provinces, digital skills deficits among school personnel, and infrastructural barriers have undermined the system’s efficacy. This study has combined the TAM, STS, and Herzberg frameworks to interpret rural digitalisation dynamics, a combination not used in earlier works by Hoadley (2025), Pillay (2020) or Dekeza-Tsomo et al. (2025).

Understanding the challenges and enablers of SA-SAMS requires contextualised analysis. While urban schools may have better access to ICT infrastructure, rural schools often struggle with unreliable electricity, poor connectivity, and limited digital training (Adu & Zondo, 2024; Sithole, 2025). These disparities render nationwide SA-SAMS implementation uneven, casting doubt on the scalability and sustainability of a one-size-fits-all approach. Moreover, teachers and principals, tasked with data entry, validation, and usage, often express frustration over the time-consuming nature of the system, diverting attention from core pedagogical responsibilities (Nkosi & Moyo, 2025; Dekeza-Tsomo et al., 2025). This study interrogates the extent to which SA-SAMS is fulfilling its intended objectives in the South African school system, especially in disadvantaged settings. It draws on empirical and policy literature to assess how the system is used, perceived, and supported at the ground level. The analysis is guided by an interpretivist paradigm that privileges the experiences of school managers, administrators, and educators as key actors navigating the digitalisation of school governance (Thanh and Thanh, 2015). In doing so, the study contributes to debates around digital equity, educational leadership, and school-level data governance.

A critical lens is also applied to the assumptions embedded within SA-SAMS. While its design implies a logic of accountability, transparency, and rationalised management, scholars such as Hoadley (2025), Pillay (2020) and Makgati et al. (2020) caution against techno-optimism in contexts marked by systemic exclusion. In many cases, the administrative burden of SA-SAMS, particularly when not accompanied by sufficient training and support, can reinforce existing inequalities rather than mitigate them. This suggests a need to reconceptualise digital systems not merely as neutral tools, but as socio-technical assemblages that reflect and reproduce institutional logics. Furthermore, the study foregrounds the role of school leadership in mediating the success of digital systems. According to Botha (2022) and Daly et al. (2025), principals play a crucial role in promoting digital cultures, building staff capacity, and aligning administrative tools with pedagogical priorities. However, in the absence of targeted leadership development and responsive policies, even the most advanced digital tools may fall short. The SA-SAMS experience offers a microcosm for understanding broader tensions between digital policy aspirations and ground-level realities.

The present study also interrogates the extent to which SA-SAMS enables or hinders stakeholder engagement. Maremi (2022) argue that improved data quality and access can enhance parental involvement, district oversight, and learner support services. However, if SA-SAMS data remains inaccessible, poorly visualised, or disconnected from actionable decision-making, its utility is compromised. This underscores the importance of a user-centred design approach that aligns technical functionality with educational purposes. Importantly, this research does not seek to dismiss SA-SAMS but to engage constructively with its strengths and limitations. A nuanced evaluation of its impact on school governance and educational accountability is timely, given the post-pandemic push towards digital transformation. As schools confront new realities of blended learning, remote administration, and increased reliance on data dependency, platforms like SA-SAMS must evolve to remain fit-for-purpose and equitable. This study, therefore, seeks to address the following key research questions:

- To what extent has SA-SAMS improved administrative efficiency and data management practices in rural South African schools?
- What contextual and organisational factors enable or constrain the effective implementation and utilisation of SA-SAMS in rural educational settings?
- How do school stakeholders perceive the role of SA-SAMS in strengthening educational governance and accountability, and what indirect effects does it have on teaching and learning practices?

Through a systematic and critical engagement with existing literature and empirical evidence, this introduction sets the stage for a comprehensive investigation of SA-SAMS as a case of digital education reform. In doing so, it aims to provide insights that inform future policy design, implementation strategies, and capacity-building initiatives for digitally enabled school management in South Africa and beyond.

2. Literature review

The South African School Administration and Management System (SA-SAMS) represents a significant technological intervention in the post-apartheid education system. As a digital platform, SA-SAMS aims to support school administration, monitoring, and decision-making through improved data management and reporting mechanisms (Department of Basic Education, 2018). The advent of SA-SAMS reflects a broader global trend towards data-driven governance and school accountability systems (Siyaya & Ajani, 2026; White et al., 2025). Within the South African context, this system has become a critical tool for addressing long-

standing educational inequalities and inefficiencies exacerbated by apartheid-era policies (Van der Berg et al., 2025).

The literature consistently emphasises the potential of SA-SAMS to improve administrative efficiency, facilitate transparency, and enhance school-level decision-making (Dlomo et al., 2024; Dekeza-Tsomo et al., 2025). However, studies have also highlighted practical challenges that impede the system's effectiveness, particularly in rural and under-resourced schools (Adu & Zondo, 2024; Ajani, 2025; Siyaya & Ajani, 2026; White et al., 2025). These include inadequate digital infrastructure, poor training and capacity among school personnel, and issues related to data accuracy and consistency. Significantly, research by Zindi and Majam (2025), Buthelezi & Ajani (2023) highlight the disjunction between policy intentions and implementation realities. While the SA-SAMS policy framework envisions a robust data ecosystem for schools, on-the-ground realities often reveal systemic barriers to the utilisation of real-time data. For instance, many schools struggle with connectivity issues, outdated hardware, and insufficient technical support (Sithole, 2025; Siyaya, 2022). These infrastructural deficiencies not only hinder data entry but also limit the system's analytic utility.

Furthermore, SA-SAMS is increasingly viewed through the lens of educational accountability and instructional leadership. Scholars such as Bush and Glover (2016) argue that the effective use of administrative data systems, such as SA-SAMS, can reinforce instructional leadership by enabling school leaders to make evidence-based decisions. However, this potential remains unrealised mainly in the South African context due to persistent capacity gaps among school managers (Botha, 2022; Mafikeng, 2024). Recent work by Ajani and Dlomo (2024); Nkosi and Moyo (2025) also explores the evolving role of SA-SAMS in promoting digital inclusion within school governance structures. Their findings indicate that while SA-SAMS has improved administrative coherence in some settings, its impact on digital transformation remains uneven. As such, SA-SAMS risks reinforcing digital inequalities if broader systemic support for digital literacy and infrastructure is not simultaneously provided.

Comparative studies provide further insights into SA-SAMS' unique challenges and opportunities. For example, Bush and Glover's (2016) systematic review compares South Africa's school management systems with those in similarly situated contexts in the Global South. They conclude that while South Africa has made considerable progress in institutionalising digital tools, implementation fidelity remains a concern. The potential of SA-SAMS to support inclusive education is also gaining scholarly attention. Studies by Grace and Lastrapes (2024) and Villaver et al. (2024) suggest that administrative data systems can play a pivotal role in tracking equity-related indicators such as learner support needs, attendance, and academic performance across demographic categories. However, these capacities depend on the quality and granularity of data captured within the system (Hoang et al., 2024).

Notably, the thematic convergence in the literature underscores the need to rethink SA-SAMS not merely as a technical system but as a socio-technical tool embedded in broader institutional and policy frameworks (Hoadley, 2025; Maremi, 2022; Pillay, 2020). This reframing requires attention to issues of leadership, training, stakeholder engagement, and policy alignment. Importantly, Braun and Clarke's (2006) thematic analysis framework has guided many studies seeking to interpret how school stakeholders experience SA-SAMS. Their approach facilitates a nuanced understanding of patterns and contradictions in stakeholder experiences, which are essential for policy responsiveness and reform.

While the literature affirms SA-SAMS' relevance, there is limited empirical research focused on its actual impact on administrative efficiency and governance outcomes in rural schools. This study addresses this gap

by examining the perspectives of various education stakeholders, including principals, administrators, and district officials, on the opportunities and constraints of SA-SAMS in rural settings.

3. Theoretical framework

The theoretical framing of this study draws on the Technology Acceptance Model (TAM), the Socio-Technical Systems (STS) theory, and Herzberg's Two-Factor Theory of Motivation. These frameworks provide a multi-dimensional lens through which to interpret the uptake, utility, and institutional implications of SA-SAMS in South African schools. The Technology Acceptance Model (TAM), developed by Davis (1989), serves as a foundational framework for understanding users' attitudes towards digital technologies. TAM posits that perceived usefulness and perceived ease of use are the primary factors influencing technology adoption. In the context of SA-SAMS, this model helps explain variations in uptake among school personnel. For instance, studies by Legris et al. (2003) and Venkatesh and Davis (2000) confirm that when school administrators perceive SA-SAMS as functional and user-friendly, adoption is more likely.

However, TAM alone is insufficient to explain the complexities of digital adoption in education. Therefore, this study also engages with the Socio-Technical Systems (STS) theory, which emphasises the interplay between human, organisational, and technological elements in system implementation. According to STS theory, the success of SA-SAMS is not only a function of its technical design but also of its alignment with school-level practices, capacities, and institutional culture (Ajani, 2025; Hoadley, 2025; Pillay, 2020). STS theory enables a deeper interrogation of the contextual variables affecting SA-SAMS implementation, including infrastructure, leadership, and stakeholder dynamics. This theoretical approach is supported by scholars like Dekeza-Tsomo et al. (2025) and Sithole (2025), who underscore the importance of capacity-building and institutional readiness in determining the success of digital school management systems. Herzberg's Two-Factor Theory, formulated initially to understand workplace motivation, provides an additional layer of analysis. The theory distinguishes between hygiene factors (e.g., working conditions and policies) and motivators (e.g., achievement and recognition). In applying this to SA-SAMS, the study explores how school personnel's motivation to engage with the system is shaped by both systemic enablers and constraints. For instance, the availability of training and technical support serves as a hygiene factor, while the system's contribution to professional efficacy functions as a motivator (Herzberg, 1959; Daly, Resnikoff and Litke, 2025).

To strengthen the theoretical integration of the study, a theoretical mapping table (Table 1**)** was added to align each of the five emergent themes with relevant constructs from the Technology Acceptance Model (TAM)**,** Socio-Technical Systems Theory (STS)**,** and Herzberg's Two-Factor Theory**.** This addition was made to demonstrate how the theoretical frameworks informed both the analysis and interpretation of the qualitative data. For example, the theme on *Usability and Ease of Use* corresponds to TAM's constructs of perceived ease of use and perceived usefulness. At the same time, *System Integration and Infrastructure Challenges* reflect key ideas from STS, particularly the interaction between human and technical subsystems. Similarly, the theme *User Motivation and Training* aligns with Herzberg's motivation and hygiene factors, showing how professional development influences system adoption and satisfaction.

Table 1. Theoretical mapping of themes and framework constructs

Theme	Technology Acceptance Model (TAM)	Socio-Technical Systems Theory (STS)	Herzberg's Two-Factor Theory
1. Usability and Ease of Use	Perceived Ease of Use; Perceived Usefulness	–	–
2. System Integration and Infrastructure Challenges	–	Interaction between technical systems and organisational structures	–
3. Data Reliability and Information Quality	Perceived Usefulness	System–Human Interface; Data Flow Processes	–
4. User Motivation and Training	Attitude Toward Use	Organisational Support and Work Environment	Motivation and Hygiene Factors
5. Administrative Efficiency and Accountability	Behavioural Intention to Use	Alignment of Human Roles and Technological Functions	Job Satisfaction and Achievement

The integration of these theories enables a nuanced analysis of SA-SAMS adoption and its institutional ramifications, as illustrated in Fig. 1. TAM offers insight into individual perceptions, STS situates these within broader systemic and contextual realities, and Herzberg's theory addresses the motivational dimensions of user engagement.

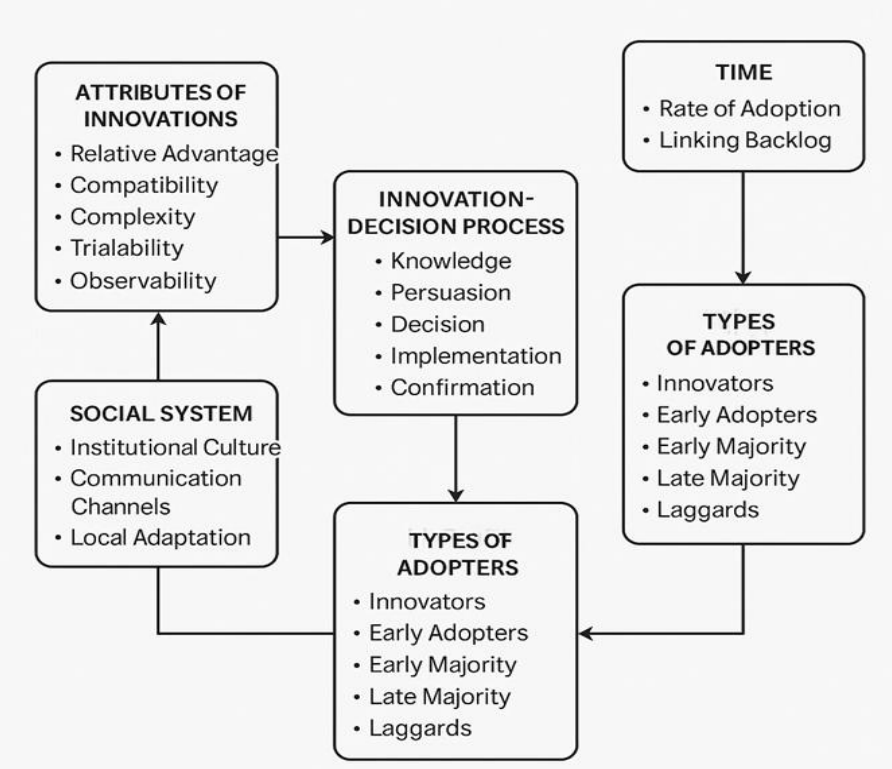


Figure 1. The conceptual framework guiding this study (Authors, 2025)

In summary, this theoretical triangulation enables the study to move beyond simplistic accounts of technological adoption. It foregrounds the interdependence of technical design, organisational culture, user motivation, and contextual infrastructure (Ajani and Dlomo, 2024). Such a comprehensive lens is essential for understanding how SA-SAMS can be optimally leveraged to advance school administration, accountability, and educational equity in South Africa.

4. Research methodology

This study adopts a qualitative case study approach to investigate the adoption and implementation of the South African School Administration and Management System (SA-SAMS) in rural educational contexts. The methodology is underpinned by an interpretivist paradigm, which recognises the subjective meanings individuals assign to social phenomena (Thanh and Thanh, 2015). Such a stance enables an in-depth understanding of the lived experiences of school leaders, teachers, and administrative staff, whose perceptions are crucial to unpacking the affordances and constraints of SA-SAMS in everyday school management. The case study design, as articulated by Yin (2018), allows for an intensive, holistic examination of a bounded system—in this instance, the use of SA-SAMS in under-resourced rural schools in South Africa. The methodology seeks to explore how socio-technical dynamics, user motivation, and systemic challenges interact within the institutional realities of school governance. Case studies are particularly appropriate for examining complex processes, especially where the boundaries between phenomenon and context are blurred (Creswell and Poth, 2018).

Purposive sampling was used to select four rural public schools in the KwaZulu-Natal Province where SA-SAMS had been operational for at least 3 years. This sampling technique, as recommended by Etikan et al. (2016), ensures that participants possess sufficient experiential knowledge to provide rich, credible insights. School principals, deputy principals, department heads, and administrative clerks were deliberately selected for their active roles in implementing and using SA-SAMS. This strategic selection facilitated the triangulation of perspectives across various stakeholder roles. Data collection drew upon semi-structured interviews, focus group discussions, and document analysis. The use of semi-structured interviews enabled flexibility to probe emergent themes while ensuring consistency across participants. The number of schools (4) in the iLembe District, 12 participants (4 principals, four admin clerks, four departmental heads), and data-collection dates (April–June 2024). Interviews were guided by an instrument that included open-ended questions addressing user experiences, perceived usefulness, ease of use, technical challenges, and institutional support. Braun and Clarke's (2006) reflexive approach to data generation was adhered to, ensuring that the interviews facilitated the co-construction of meaning between the researcher and participants.

Focus group discussions complemented individual interviews by fostering collective reflection and dialogue among administrative staff and teachers. These discussions unearthed shared challenges, group norms, and collective strategies for navigating SA-SAMS-related issues. The group format helped to validate and enrich the data by revealing commonalities and points of divergence, particularly concerning capacity development, digital literacy, and infrastructural barriers (Bush and Glover, 2016; Sithole, 2025). Document analysis served as a third data source, focusing on usage logs, school improvement plans, departmental circulars, and training manuals. This method provided contextual evidence on how SA-SAMS had been integrated into school administrative routines, aligning with the principles of data triangulation (Creswell and

Poth, 2018). The documents enabled the researcher to assess the coherence between policy directives and actual practice, as well as to identify systemic support or gaps in implementation.

The data analysis process followed Braun and Clarke's (2006) six-phase thematic analysis framework: familiarisation with data, generation of initial codes, search for themes, review of themes, definition and naming of themes, and report writing. NVivo software was used to manage and code the data, facilitating systematic organisation and retrieval of text segments. Themes were generated inductively but interpreted through the theoretical frameworks guiding the study: The Technology Acceptance Model (TAM), Socio-Technical Systems Theory (STS), and Herzberg's Two-Factor Theory. Ethical considerations were rigorously addressed in accordance with institutional protocols and the South African National Ethics Guidelines. Ethical clearance for the study was obtained from the Research Ethics Committee. All participants were briefed on the study's purpose, and written informed consent was obtained. Anonymity and confidentiality were ensured, and pseudonyms were used in all transcripts and reporting to protect participants' identities.

During data analysis, the research team conducted initial coding of all interview and focus group transcripts using NVivo 14**.** A peer-reviewed codebook was developed to guide the categorisation of themes and subthemes, ensuring consistency and analytical depth. To further enhance dependability and confirmability**,** the coding framework and emerging themes were reviewed and refined through intercoder discussions with the research supervisor. This collaborative process helped to minimise bias, strengthen analytical rigour, and ensure that the final themes authentically represented participants' perspectives and experiences.

Trustworthiness in this qualitative research was ensured through the application of Lincoln and Guba's (1985) four criteria: credibility, dependability, confirmability, and transferability. Credibility was strengthened through prolonged field engagement, member checking, and peer debriefing, which allowed participants to validate interpretations and ensured that the findings reflected authentic experiences. Dependability and confirmability were enhanced by maintaining a detailed audit trail that documented all methodological decisions and data analysis steps. Thick, contextual descriptions were provided to support transferability to similar educational settings. Ethical clearance for the study was granted by the University of Zululand Research Ethics Committee (HSS/0867/2024) on 10 March 2024**.** All participants provided informed consent prior to data collection, and measures were taken to protect anonymity, including the use of pseudonyms and the removal of identifying details. Data were securely stored on a password-protected device and cloud repository accessible only to the researcher, ensuring confidentiality and compliance with ethical research standards.

The integration of multiple data sources and methods enhanced the robustness of the findings. By drawing on interviews, group dialogues, and documentary evidence, the study enabled methodological triangulation, which provided a nuanced and multifaceted understanding of SA-SAMS use in real school contexts (Ajani, 2025; Dekeza-Tsomo et al., 2025). This approach was instrumental in revealing both the enabling and inhibiting factors affecting system adoption (Dlomo and Ajani, 2022). The methodology also enabled a recursive, iterative research process. Data generation and analysis proceeded concurrently, permitting the refinement of focus and responsiveness to emerging issues. The researcher's reflexive stance ensured that interpretations were not only data-driven but also context-sensitive, acknowledging the influence of power, history, and institutional dynamics in shaping digital adoption in rural education (Ajani and Dlomo, 2025). Overall, the chosen methodology was well-suited to the study's exploratory and explanatory aims. By embedding the research in rich contextual detail, it provided a rigorous platform for understanding the

relational, technical, and organisational dimensions of SA-SAMS adoption. It also illuminated the intersection of digital innovation with educational leadership, policy implementation, and rural infrastructural realities.

5. Results

This section presents the thematic findings from the empirical investigation into the use and perceptions of SA-SAMS (South African School Administration and Management System) in rural South African schools. Using a thematic analysis approach, five dominant themes emerged: (1) Institutional Support and Infrastructure, (2) Capacity Building and Digital Literacy, (3) Usability and System Design of SA-SAMS, (4) Data-Driven Decision-Making, and (5) Policy and Accountability Alignment. Each theme is elaborated in depth using verbatim quotes from participants and supported by relevant literature from the study.

5.1. Theme 1: Institutional support and infrastructure

A persistent barrier identified by participants was the inconsistent availability of basic infrastructure — hardware, software, and stable internet access — necessary for the effective operation of SA-SAMS. This infrastructural disparity exacerbated the rural-urban digital divide, limiting SA-SAMS uptake in resource-constrained environments.

One principal remarked, *"We have the system installed, but we cannot use it fully because our computers are old and the internet is unreliable."* Another echoed, *"Power outages mean the data is lost or not saved properly. Sometimes we redo things three times."* These reflections underline infrastructural bottlenecks that hinder sustained and effective system use.

The importance of technical support was also highlighted. A deputy principal stated, *"When there is a glitch, there is no one to help us quickly. We are left stranded."* Another educator noted, *"Even when we want to comply, lack of IT support delays us. It becomes frustrating."* These testimonies reveal how the lack of institutional support systems, such as responsive technical teams, undermines the consistent and confident use of SA-SAMS (Dlomo et al., 2022).

These challenges are consistent with existing research by Ajani (2025), who underscores that in many rural contexts, the absence of reliable electricity and internet connectivity severely limits SA-SAMS performance. Similarly, Hoadley (2025) argues that, despite policy frameworks in place, institutional underinvestment in infrastructure remains a critical constraint.

5.2. Theme 2: Capacity building and digital literacy

Participants repeatedly emphasised the lack of adequate training to use SA-SAMS effectively, particularly among older school staff. Many indicated they were self-taught or relied on trial and error. A teacher commented, *"We never got official training. We try to figure it out as we go."* Another shared, *"They expect us to use the system, but we do not understand half of it."*

There was also a clear generational divide. A younger educator observed, *"Some of us are more comfortable with technology, but our senior colleagues really struggle."* Meanwhile, a principal revealed, *"Most of our staff are afraid of the system. They think if they click the wrong thing, everything will crash."*

This mismatch between policy expectations and staff competencies contributes to inconsistent data input, errors, and under-utilisation of system functionalities (Mestry and Ndhlovu, 2014). These findings echo insights from Zindi and Majam (2025), who notes that digital literacy must be treated as an ongoing developmental process rather than a one-time training event. Siyaya (2022) also highlights the necessity of sustained capacity-building programmes tailored to user contexts. Such gaps also raise concerns about equitable implementation. As Dlomo et al. (2024) explain, if staff lack digital competence, the transformative potential of SA-SAMS remains unrealised. A deputy principal summarised, *"Training should not be one-off. It should be continuous and localised."*

5.3. Theme 3: Usability and system design of SA-SAMS

Participants questioned SA-SAMS's user-friendliness, with many describing the interface as "complex" and "not intuitive." One user noted, *"It feels like the system was designed by someone who never worked in a school."* Another reflected, *"There are too many tabs and too much information, most of which we do not even use."*

Frustration was voiced over redundant processes. A principal explained, *"Sometimes, we have to input the same data twice because it does not auto-populate between sections."* Echoing this, a school clerk said, *"We spend hours inputting data that could easily be uploaded once."*

Moreover, participants identified a lack of integration with other platforms. A teacher remarked, *"It does not speak to the tools we use daily—like timetables or attendance registers."* Another added, *"Even uploading simple reports is cumbersome."*

Such usability issues are not new. Sithole (2025) and Makgati et al. (2020) point out that educational technologies that are not co-designed with end users are often poorly adopted. According to Legris et al. (2003), the Technology Acceptance Model (TAM) emphasises perceived ease of use as central to successful adoption, which SA-SAMS currently lacks in several functional areas.

5.4. Theme 4: Data-driven decision-making

Despite operational challenges, many participants acknowledged the potential of SA-SAMS to transform data utilisation in school governance. A principal explained, *"It helps us see patterns, like which learners are always absent or how many teachers are on sick leave monthly."* Another noted, *"Now we have evidence for decision-making; before, it was just guesswork."*

The capacity to generate reports was particularly valued. A participant shared, *"For the district office, we can easily print out learner performance data. It saves time."* Others recognised its value in budget planning: *"We use the financial records to see where we overspend and make corrections."*

However, the potential remains underutilised. The teacher consistently expressed concerns about limited training, *"We do not know how to use the analytics part. It is there, but we do not touch it."* This suggests a gap between the system's capabilities and users' familiarity with them. Mafikeng (2024) and Dekeza-Tsomo et al. (2025) argue that for SA-SAMS to be impactful, schools must be trained not just in operation but also in data interpretation. The ability to make informed decisions is a cornerstone of effective school leadership, and SA-SAMS holds promise if fully embraced. However, the limited digital capacity and lack of instructional leadership around analytics mean that its decision-support function remains largely symbolic in many schools.

5.5. Theme 5: Policy compliance and accountability pressures

Participants reported feeling caught between policy demands and system constraints. A principal expressed, *"We are told to submit term reports via SA-SAMS, but there is no leniency if the system fails."* Another added, *"Non-compliance affects our audit reports, even if the fault is technical."*

This punitive framing was a source of anxiety. As one educator shared, *"We are blamed for non-compliance, yet we lack the tools to comply."* Another stated, *"It creates unnecessary stress and teachers fear the system instead of using it positively."*

There were also critiques of top-down policy implementation. A deputy principal commented, *"We were never consulted. Policies are made in Pretoria but expected to work in rural areas like ours."* Echoing this, a teacher said, *"There is no flexibility in policy even when our context demands it."*

These insights align with Bush and Glover (2016), who argue that for digital school administration policies to succeed, they must be adaptive and context-aware. The rigid expectations surrounding SA-SAMS compliance, without adequate resourcing or support, risk entrenching resentment and disengagement.

6. Discussion of findings

The implementation of the South African School Administration and Management System (SA-SAMS) in rural school contexts highlights both the transformative potential and persistent challenges in leveraging digital governance in under-resourced environments. Central to the discussion is how teachers and school administrators perceive the usefulness and ease of use of SA-SAMS, as framed by Davis's (1989) TAM. The majority of participants viewed SA-SAMS as a valuable tool for improving data accuracy and simplifying administrative processes, thereby enhancing decision-making efficiency. This finding aligns with previous studies (Adu & Zondo, 2024; Ajani, 2025), which found that digital tools, when adequately supported, foster administrative coherence and reduce clerical errors. However, the theme of "technological alienation" emerged, with rural educators, especially those with limited ICT proficiency, struggling to navigate SA-SAMS effectively. Despite SA-SAMS being promoted as a universally beneficial system, its perceived ease of use remains inconsistent across contexts. As one participant lamented, "We have the software, but no one taught us how to really use it." This sentiment supports Legris et al.'s (2003) assertion that technology adoption is contingent not merely on access but on the depth of user training and confidence. Thus, while the system is theoretically robust, its implementation lacks sensitivity to educators' lived realities in digitally marginalised schools (Jita and Mokhele, 2014; Roberts and Richardson, 2025).

From a socio-technical standpoint, the failure to integrate human, organisational, and technical dimensions within the rural school ecosystem limits the success of SA-SAMS. STS theory, as applied here, foregrounds the interdependence between system design and social structures (Sithole, 2025; Zindi & Majam, 2025). The findings reveal that the absence of structured ICT support—such as on-site technicians or help desks-intensifies the burden on educators who are already stretched thin. This supports Sithole (2025), who argue that without holistic infrastructure and technical support, digital reforms can exacerbate rather than alleviate inequality. Furthermore, SA-SAMS implementation was often undermined by infrastructure deficiencies,

including unstable electricity supply, inadequate internet connectivity, and insufficient hardware. These limitations not only inhibit real-time data entry and access but also disrupt the timeliness and quality of reporting to the Department of Basic Education. As participants noted, "We work offline because there is no network most of the time, and even uploading data to the district takes days." This operational delay reveals a disconnect between policy-level digital transformation ambitions and ground-level logistical capabilities, echoing the concerns of Bush and Glover (2016) regarding uneven resource distribution.

Motivational dynamics, interpreted through Herzberg's Two-Factor Theory, also shaped user experiences with SA-SAMS. While some educators reported that successful interaction with SA-SAMS fostered a sense of professional competence and achievement, many felt demotivated by recurrent technical failures, the lack of incentives, and insufficient training. The dichotomy between 'motivators' (e.g., autonomy, recognition) and 'hygiene factors' (e.g., infrastructure, support) is critical here. As Herzberg (1959) suggested, the absence of hygiene factors breeds dissatisfaction, a finding mirrored in this study, where "being blamed for late data" without sufficient resources led to emotional fatigue among participants. Institutional culture and leadership also influenced SA-SAMS uptake. In schools where principals actively championed digital transformation and coordinated staff development sessions, adoption was more successful. This leadership-mediated effect corroborates the findings of Daly et al. (2025) and Pilo et al. (2024), who emphasise the critical role of visionary leadership in fostering conducive environments for the diffusion of innovation. Conversely, in schools with passive leadership, digital tools were treated as mere compliance mechanisms rather than transformative assets.

Moreover, the study revealed disparities in SA-SAMS proficiency and application across provinces and districts, suggesting the need for standardised national strategies accompanied by contextual flexibility. While the Department of Basic Education (2018) advocates for universal implementation, the findings suggest that a one-size-fits-all model is ineffective in the diverse context of the KwaZulu-Natal schooling landscape. Regional inequalities and administrative fragmentation compromise the standardisation and reliability of SA-SAMS data, an issue also noted by Maremi (2022). Gendered and generational dimensions further shaped user experiences. Younger teachers, especially digital natives, adapted more quickly and expressed greater enthusiasm, whereas older educators were often resistant or overwhelmed. This generational digital divide, reported in other studies (Dekeza-Tsomo et al., 2025; Makgati et al. (2020), necessitates differentiated capacity-building programmes that honour teachers' varied entry points into the digital world.

Additionally, the findings indicated that teachers viewed SA-SAMS as a double-edged sword; it facilitated transparency and accountability but also added to their bureaucratic load, often diverting time from core pedagogical tasks (Dacholfany et al., 2024; Peurach et al., 2025). As one teacher remarked, "I became a data clerk more than an educator." This echoes Hoadley's (2025) and Pillay's (2020) critique of technocratic solutions that prioritise data compliance over learning-centred reform. While SA-SAMS enhances oversight and planning, its implementation must be recalibrated to balance administrative requirements with pedagogical integrity. Lastly, the sustainability of SA-SAMS relies on continuous professional development and responsive policy evaluation. Stakeholders called for regular updates, retraining, and participatory feedback mechanisms to ensure that the system evolves in alignment with user needs and contextual changes. As Stansberry Beard (2025) and Buthelezi and Ajani (2023) contend, ethical and effective educational governance hinges not on rigid system design but on adaptive, inclusive, and reflexive digital leadership practices.

7. Implications of the study

This study offers significant implications for policy, practice, and research in the domain of educational digital governance in South African rural contexts. Firstly, the findings underscore the critical importance of context-sensitive implementation of digital systems such as SA-SAMS. While national policies promote uniform adoption, local realities —such as limited infrastructure, digital skill disparities, and variable leadership — necessitate adaptive models that align technology deployment with local conditions. Secondly, the study reveals that effective system use is inseparable from human capacity development. This suggests that technological interventions must be complemented with sustained professional development, on-site technical support, and motivational incentives to foster teacher engagement and ownership. Thirdly, the role of school leadership emerged as a decisive factor in mediating the success or stagnation of SA-SAMS adoption. This implies that digital governance cannot be technocratically driven alone; it must be underpinned by transformative, ethically engaged leadership practices that can foster a culture of innovation and shared responsibility. Finally, the study reinforces the value of integrating conceptual models, such as TAM, STS, and Herzberg's Two-Factor Theory, to understand the complex interplay among technology, users, and institutional ecosystems in educational reform.

8. Recommendations

Based on the findings of this study, several key recommendations are proposed to enhance the implementation and efficacy of SA-SAMS in rural South African schools. There is a need for the Department of Basic Education to adopt a flexible policy framework that recognises the diverse resource levels across schools. This should include tailored infrastructure support for rural and under-resourced institutions, such as reliable power sources, internet connectivity, and simplified offline system versions that accommodate infrastructure limitations. Furthermore, capacity building must be prioritised through continuous professional development programmes that address educators' varying levels of digital literacy. Such training should be practical, iterative, and responsive to the lived realities of school staff, ensuring that users are both confident and competent in using the system. Leadership development should also be foregrounded, equipping school principals and management teams with the digital governance and change-management skills needed to foster a culture of accountability, innovation, and system ownership.

Hence, to mitigate technical difficulties and user frustrations, district-level support teams must be established to provide timely assistance and emotional support for overburdened staff. Finally, participatory monitoring mechanisms must be institutionalised, allowing educators and administrators to contribute feedback on system functionality, share effective practices, and co-shape the evolution of SA-SAMS. These recommendations collectively aim to transform SA-SAMS from a mere administrative tool into a catalyst for inclusive, data-driven educational transformation in South Africa's rural schools.

9. Conclusion

This study has illuminated the multifaceted dynamics underpinning the implementation and adoption of the South African School Administration and Management System (SA-SAMS) in rural schools. While the system

offers a promising avenue for enhancing administrative efficiency, accountability, and data-driven planning, its effectiveness is significantly constrained by infrastructural, pedagogical, and leadership constraints. The integration of theoretical lenses, such as TAM, STS, and Herzberg's Two-Factor Theory, enabled a holistic exploration of the technical and human dimensions of digital governance. Crucially, the findings call for recalibrating national digital policies to accommodate the socio-technical realities of rural educational spaces. For SA-SAMS to evolve from a compliance tool into a transformative educational asset, implementation strategies must foreground equity, inclusivity, and participatory engagement. Only then can the promise of digital transformation in South African education be fully realised.

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