

Experiences of resource-scarce rural primary school principals on the optimal utilisation of the South African School Administration and Management System

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Abstract

This article explores optimal utilisation of the SA-SAMS in rural primary schools in the Eastern Cape Province of South Africa. The Socio-Technical theory underpinned the study and a qualitative research approach, using the Buffalo City Education District as a case study was adopted. The study showed that the optimal utilisation of the SA-SAMS is negatively affected by three main factors, namely, technological infrastructure deficiencies, insufficient training and capacity building, limited technical support and system maintenance. In addressing the identified barriers, the study recommends that the provincial department prioritise partnerships with South African telecommunication service providers to ensure stable internet access. In addition, the Department of Basic Education, with the assistance of the provincial education department and districts, should provide comprehensive and ongoing training to the end-users of the SA-SAMS. The deployment of district or circuit technical support teams that are easily accessible and which respond promptly to technical issues should be prioritised within this province.

Keywords: *optimal utilisation, e-systems, basic education, information communication technology, e-administration, school effectiveness, socio-technical theory*

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1. Introduction

A twenty-first-century school embraces technology and ensures systems are in place to enhance efficiency and effectiveness in its operations. Pillay (2020) notes that adopting technology in private and public schools enhances school management, teaching, and learning. For Gamede et al. (2022), integrating e-innovation, e-governance, e-education, and e-administration could improve education. In South African schools, the Department of Basic Education (DBE) introduced the South African School Administration and Management System (SA-SAMS) in 2005 to ensure effective management of schools. This system has been continuously updated and is designed to run on a local area network (LAN), allowing it to be set up to meet the needs of any school with multiple users (Samkange, 2013).

The introduction of the SA-SAMS was driven by the need to innovate and streamline educational administration and school governance. The move towards digital systems was motivated by the desire to enhance the accuracy, efficiency, and accessibility of school data. As argued by Van der Berg et al. (2021) school principals can obtain accurate data for informed decision-making using the SA-SAMS. This saves the time educators spend performing administrative tasks. Parents can also track their children's grades, while learners can track their progress. The SA-SAMS performs different tasks such as generating notices, results, producing official transcripts, preparing timetables, registering learners, and producing reports for students, educators, and parents, among other things (Department of Education (DoE), 2009; Murithi & Masinde, 2016; Pillay, 2020). Hence, it can be argued that the SA-SAMS enables e-administration within schools.

Despite its potential and advantages in enhancing school administration, many schools have not adopted the SA-SAMS. Some schools only use it for compliance purposes without realising its full potential. A study by Susan and the Dell Foundation on behalf of the DBE established that the adoption and usage of the SA-SAMS in South African schools was far below the initial expectations, with some provinces recording zero usage (Dlomo et al., 2024). The Eastern Cape Province in South Africa is not an exception, as some public schools, especially those in rural areas and townships, are either underutilising the SA-SAMS or not fully realised its potential (ECDoE Annual Report, 2025). Consequently, oversight of learner attendance, staff performance, resource allocation, transparency, and accountability is constrained, affecting planning and decision making in school governance. Against this background, this paper sought to explore the experiences of resource-scarce, Quintile 3 rural

primary school principals on the optimal utilisation of the SA-SAMS. Thus, for this study, the research question was formulated as: *What are the experiences of resource-scarce, Quintile 3 rural primary school principals on the optimal utilisation of the SA-SAMS?*

Several studies have been undertaken on the SA-SAMS (Sello, 2014; Maremi et al., 2020; Nkambule & Ngubane, 2024; Dlomo et al., 2025; Ajani & Dlomo, 2025). Sello (2014) assessed critical success factors for adopting school administration and management systems in South African schools. Maremi et al. (2020) examined the scoping aspects and capabilities of the SA-SAMS. On the other hand, Nkambule and Ngubane (2024:371) investigated the obstacles that hinder the maximum efficiency of the SA-SAMS, as perceived by administrative clerks and principals in specific schools in a South African province. Their interview data findings show that administrative clerks identified several obstacles that hinder efficacy of the SA-SAMS. The obstacles, amongst others, include unreliable internet connectivity and the absence of onsite technical support, which lead to schools incurring significant costs for private services. Dlomo et al. (2025) did a comparative analysis using the SA-SAMS and other school administration software in rural schools. Ajani and Dlomo (2025) investigated how information and communication technology (ICT) could be optimised using the SA-SAMS to enhance administrative efficiency and improve data management practices in under-resourced areas. Their study findings emphasise a need for targeted interventions, including enhanced training programmes, better ICT resource allocation, and infrastructure development. Their findings further show that infrastructure deficiencies impede the operational functionality of the SA-SAMS and compromise its ability to deliver consistent and reliable data management for school effectiveness, especially in rural settings (Ajani & Dlomo, 2025).

Nonetheless, there is still limited literature on the barriers impeding effective and full utilisation of the SA-SAMS in rural South African primary schools. This study, therefore, sought to fill this gap by providing an in-depth, contextual exploration of the constraints impeding rural primary schools from achieving the intended outcomes of the SA-SAMS. A holistic understanding of the scope of the SA-SAMS can help identify its most important aspects and capabilities. Such scholarship can then enhance administrative practices at the school and district levels. A better understanding of the system could improve school governance, decision-making, communication and enhance school effectiveness.

2. Literature Review

2.1. Theoretical Framework

This article is underpinned by socio-technical theory, advocated by Eric Trist and Ken Bamforth in the 1950s. It is built on the foundations of general systems theory and open systems theory (Von Bertalanffy, 1950). The theory distinguishes system dimensions through subsystems, focusing on the effectiveness of interactions between human and technological resources. In 1976, Albert Cherno proposed a set of socio-technical design principles, including humanistic principles, managerial values, and others (Cherno, 1976). These were modernised in 2000 by Chris Clegg to accommodate the new internet-based information and communication technology (ICT) (Clegg, 2000). Generally, this theory posits that an organisation comprises two main subsystems, namely the social and technical, which must be integrated for optimal performance. Abbas and Michael (2025) identify social systems as comprising people and their skills, values, and relationships. The technical subsystem encompasses the processes, tasks, and technologies needed to achieve organisational goals.

For this paper, the researchers found this theory most appropriate, as it contends that technological change alone is insufficient and that its full utilisation depends on the instantaneous adaptation of social structure and practices. Within the context of this paper, Socio-Technical theory is used as an analytical lens to comprehend the optimum utilisation of the SA-SAMS, when both technical and social dimensions are considered in tandem. Contextually, rolling out the SA-SAMS in schools and ensuring that it is a policy position of the provincial DoE (Republic of South Africa, Eastern Cape Department of Education (ECDoE), 2025), may not yield desired results without organisational reforms, stakeholder engagement, skills development, and cultural adaptation to new ways of school governance through e-administration.

The socio-technical theory provided an analytic guide for synthesising the optimal utilisation of the SA-SAMS. It recognises that technological solutions can be insufficient, when critical dimensions of social and organisational transformation in school governance are not taken into cognisance. By linking these two subsystems, the SA-SAMS can best enhance school effectiveness.

2.2. Contextualising SA-SAMS

Before SA-SAMS was introduced, South African schools used various management applications for school activities or processes to keep official records (Samkange, 2013). For example, a financial package was used to manage schools' finances, and timetables. Learners' lists were however generated manually. Consequently, similar data was captured in more than three different systems, which had to be updated promptly if a change occurred (Van der Berg et al., 2021; DoE, 2009). The SA-SAMS was introduced to provide schools with computer programmes to support administrative and management activities across all schools (Murithi & Masinde 2016; Samkange, 2013). A timetabling Assistant assists schools in allocating teachers to subjects and classes. Data is exported from the SA-SAMS to the South African instrument (Electronic Annual School Survey), to enhance timely access to information and to reduce errors concerning the Annual School Survey. School principals use the South African instrument to verify information captured in the SA-SAMS before submitting it to the district (Pillay, 2020; DoE, 2009). The SA-SAMS supports schools to administer information related to the management and administration of leave, absenteeism, staff development, performance appraisals, and all the other information and processes related to human resources (Gustafsson, 2022; DoE, 2009). The DBE (2013) requires all learners with birth certificates, from Grades R to 12 to be registered on the SA-SAMS.

As noted by Pillay (2020), the SA-SAMS includes data on learners, parents, classes, fees, the school budget, curriculum, maps, timetables, and modules for human resources. School subjects are recorded under the General School Information module, learner information is recorded under the Learner Information module, and educator information is recorded under the Human Resources module. This is all connected to curriculum data and used to populate the necessary fields for recording learners' marks, codes, and symbols, as well as for compiling progress reports that get sent to parents (DoE, 2009; Pillay, 2020). As a school management tool, the SA-SAMS also enables the electronic capturing and submission of staff members' yearly scores (DoE, 2009). This enables keeping accurate records of teacher and learner performance and management information, in compliance with provincial and national policy (DoE, 2009). As such, the SA-SAMS allows the school management team (SMT) to properly execute managerial functions (controlling, organising, and planning for development) in a school. Additionally, the SA-SAMS captures all data relating to the school governing body (SGB) under the Governance module. Such records and information can be updated more often

and added if needed, enabling the SGB to access the available data for discussion during meetings (Gustafsson, 2022; DoE, 2009).

Additionally, the SA-SAMS enables schools to complete all the required surveys, such as the Annual School Survey. With regard to basic education, schools are required to implement a whole school evaluation process as part of promoting good administration, governance, and management (DoE, 2009). In a whole school evaluation, the information captured is for infrastructure, which includes school buildings, toilets, hostels, sport grounds, feeder schools, and general settings (DoE, 2009). Once a school has been evaluated, and it is discovered that its infrastructure needs to be developed, that report is captured in the SA-SAMS and sent to the district office as part of a list of schools that are to be considered for future development (DoE, 2009).

For the SA-SAMS to be implemented successfully, a partnership between schools and the national DBE, the provincial DoE, and the districts is required. The DBE is responsible for conducting regular updates and maintenance, whilst the provincial DoE is tasked with ensuring that schools are supported in using the SA-SAMS (DBE, 2012). As such, administration, as well as management for school information through the SA-SAMS, makes keeping records of all school activities more efficient and readily accessible at the click of a button (Mojapelo, 2022; DBE, 2012). This makes school management more efficient, in that the SA-SAMS results in less paperwork and reduces information duplication (DoE, 2009). Thus, whenever any school information is required, it will be current and readily available through e-administration. However, since the SA-SAMS is a computer-generated programme, it can only be used by those who are computer literate. Additionally, reports generated on the SA-SAMS must be sent through the internet (DoE, 2009; Pillay, 2020).

2.3 Factors Enabling the Full Utilisation of Electronic Systems

Gamede et al. (2022) emphasise the need for academics to continuously grow professionally by effectively embracing education technology and advancing the Fourth Industrial Revolution (4IR). Chitha (2014) views ICT as an umbrella term referring to any technological communication device, including computers, computer networks, computing hardware and software, cell phones, satellite systems, and the various services and appliances associated with them, such as video conferencing and e-based distant learning. ICT is thus seen as the main component of addressing society's changing educational needs. In education,

technology guarantees that ICT has a place in education, as a means of e-administration, teaching and learning process, and for realising educational performance indicators and envisaged outcomes. The educational system operates on several levels, and drivers for ICT integration and adoption are found at each of these levels.

External organisations, such as non-government organisations (NGOs) and solution providers, are also role players, as they become involved in the presentation of initiatives that run concurrently with and, in some circumstances, are merged with official schooling (Meyer & Gent, 2016). As such, ICT aids in the smooth operation of the educational system. This is primarily a transactional position to ensure the educational system runs smoothly. ICT is a key tool for enhanced efficiency in e-commerce, e-government, societal relationships, and education (i.e., e-learning, communication, and administration) (Chitha, 2014; Gamede et al., 2022). Thus, it is critical to community development in terms of socioeconomic and political variables.

Gamede et al. (2022) observed that a learning management system (LMS) as a tool for delivering curriculum in the educational system, took on a new dimension during the COVID-19 pandemic on a global scale. The world was caught off guard when COVID-19 emerged in December 2019 from the Chinese city of Wuhan, causing many nations to go into complete lockdown to contain the outbreak of the virus, which claimed countless lives. Higher education institutions had to switch from a traditional face-to-face curriculum to online learning to maintain teaching and learning activities. However, some academics from disadvantaged nations use ICT to offer curriculum differently from those from developed ones (Gamede et al., 2022). ICT is regarded as part of a solution in education to address the changing learning needs of every institution or school, which is why the South African DBE adopted the technology.

Some scholars argue that end-users must be engaged to optimise the electronic systems (Nwone & Mutula, 2019; Balasubramanian, 2019). Opuch and Simoben (2024) point out that end-user engagement and training are indispensable for the full utilisation of electronic systems, as they align technological solutions and human needs and capabilities. They emphasise the need for skills development and training programmes to ensure that people who are supposed to utilise the systems are sufficiently knowledgeable. By involving end-users and equipping them with the necessary skills, organisations can improve the usability of systems, reduce resistance, and unlock the full potential of the digital transformation initiative

(Mwogosi & Kibus, 2024). Selna et al. (2022) point out that skills development and training play a significant role in determining the success of the electronic system. They argue that even the best-designed systems are prone to failure if end-users lack the skills and confidence to effectively operate them.

Somfula and Zhanda (2023) recognise that providing end-users with training, equips them with knowledge and practical skills to navigate the system, minimising errors and frustration. It should be noted that users may increase their confidence after receiving training on the system, prompting them to explore advanced features that leverage the system's full capabilities. For Anshari and Hamdan (2022), providing ongoing training to end-users fosters a culture of continuous improvement, which enables users to stay up to date with system advancements and best practices, preventing skills decay and system underutilisation. This means that, end-user training is pertinent to fully utilising electronic systems, as it empowers users and instils confidence in exploring the system's full capabilities.

Another factor that enables the full utilisation of e-systems is the availability of technological infrastructure, both hardware and software (Ebua, 2023; Kuhlengisa et al., 2024). Abdullah et al. (2018) note that technology infrastructure plays a significant role in determining the full utilisation of e-systems. As such, a technology infrastructure deficit may result in the underutilisation of the system. This view is reinforced by Ebua (2023), who points out that a technological infrastructure deficit creates barriers that hinder e-systems from operating reliably and efficiently. As postulated by Khan (2021), key infrastructure challenges, such as incompatible hardware and software, poor internet connectivity, and insufficient technical support, hinder the optimal utilisation of e-systems because they lead to frequent downtime, slow performance, and user frustration.

Baumgarte and Riedl (2019) posit that in the absence of modern and flexible technological infrastructure, e-systems quickly become outdated or fail to meet evolving needs, resulting in their abandonment by users, who resort to manual processes, undermining the intended benefits of digital transformation. Thus, for e-systems to be fully utilised, there is a greater need for technical support and system maintenance because they ensure the reliability, usability, and continuous improvement of these systems within often challenging environments (Kalu & Masri, 2019). Technical support is the *sine qua non* for the full utilisation of e-systems, as it provides timely troubleshooting and system updates to enable the system's effective functioning (Mutimukwe et al., 2019). Moreover, system maintenance is

crucial because a lack of it would result in e-systems becoming obsolete or dysfunctional due to software bugs, hardware failures, and security vulnerabilities. System maintenance aids full utilisation of the system, as it ensures that the end-users develop trust in the system and do not resort to using manual or informal processes.

E-administration and e-governance systems provide a platform for more transparent, accessible and cost-effective administrative services, thereby improving the efficiency of administrative processes. The digitisation of services and the automation of routine tasks enable authorities to respond more quickly to citizens' requests and use resources more efficiently (Lazor et al., 2024). E-administration denotes performing administrative work via computer and its associated technologies, such as the internet (Omohwo et al., 2023). Technology-based education is transforming school governance through the implementation of an appropriate administrative system. Hence, adopting technology in education administration and management is key for its development and expansion. However, as noted by Omohwo et al. (2023:169), "*E-administration implementation is mostly impeded by regulatory, as well as technical obstacles, especially hardware specifications, lack of experience among principal actors, poor infrastructure, and apathy to dealing with such modern systems by workers...*". Thus, e-governance plays a vital role in supporting efficient management and administration in the education sector (Muthuselvi & Ramganes, 2017). Using e-governance in schools has key benefits, amongst others, analysing data accurately and quickly for decision making enables the efficient management of education and schools. It also helps improve transparency, information dissemination, accountability and rendering of public services in all aspects of education.

3. Research Methodology

This section presents the methodology used to answer the research question: *What are the experiences of resource-scarce, quintile three (3) rural primary school principals on the optimal utilisation of the South African School Administration and Management System (SA-SAMS)?*

The study adopted an interpretivist paradigm. Its relativist instrumentalist ontology assumes multiple experienced realities and the subjective epistemology, postulates that reality (knowledge) is experienced and socially constructed in naturalist settings (Saunders et al., 2015; Alharahsheh & Pius, 2020; Turin et al., 2024). The researchers adopted a qualitative

research strategy and collected data using in-depth interviews to understand the participants' subjective experiences, beliefs and perceptions. This strategy and data collection technique enabled the researchers to interact with the sampled participants and to solicit participants' experiences through social interaction (Mohajan, 2018) in a naturalistic setting.

A case study research design was adopted, and Buffalo City Metropolitan Education District was used as the case. Regarding geographical jurisdiction, schools in the Buffalo City Metropolitan Education District are spread across rural, deep rural, urban and peri-urban areas, and are classified into public and private school categories. The schools are categorised into quintiles. Schools in Quintile 1, 2 and 3 (the poorest quintiles) are given a 'no-fee schools' status; that is, learners do not pay school fees, while schools in Quintile 4 and 5 are fee-paying schools. The allocation of resources is guided by these poverty levels (Lombo & Subban, 2024). One of the most visible forms of disparity in the provision of resource inputs has been school infrastructure, including ICT (South Africa (Republic), 2012; DBE, 2020:1). To determine a school's quintile ranking, the DBE uses community income, literacy, and unemployment rates as a guide (Van Dyk & White, 2019).

Non-probability, convenience and purposive sampling techniques were used to sample information-rich participants (Beinebyabo, 2020). The inclusion and exclusion selection criteria were informed by participants' perceived in-depth understanding of the application of the SA-SAMS, as well as their schools' classification within the category of resource-scarce or Quintile 3 schools. Based on a sample size of twelve ($n = 12$), in-depth interviews were conducted with principals in twelve (12) public schools until data saturation. The researchers considered the use of 12 participants in this study as sufficient because the aim was to explore in-depth perspectives and generate rich, detailed data rather than to produce generalisable results. While the focus on a single education district limits the broader applicability of the findings, this case was purposefully selected for its relevance and potential to provide experiences of resource-scarce, quintile three rural primary school principals on the optimal utilisation of the SA-SAMS. Secondary data were collected from official government documents and peer-reviewed journal articles to ensure trustworthiness. Data collected through interviews were analysed using thematic analysis as per Table 1.

Table 1*Thematic Analysis*

Thematic analysis phase	Description	Action taken by the researchers
Familiarisation with datasets	Engaging with the gathered data to understand its depth and breadth	Transcribing all the recordings Continuous reading of the transcripts Writing down notes
Generating initial codes	Initial code generation to organise the data	Organising and labelling data gathered for the research into meaningful groups
Preliminary theme development	Sorting coded data into themes Determining the relationships among the codes	Developing a thematic table
Potential themes review	Determining the coherent patterns Reviewing the entire dataset	Ensuring sufficient data to support the themes Refining the themes
Naming the themes	Determine the story within each theme	Ensuring that a coherent story has been developed by the data and identified themes
Produce a report	Present a concise account of the experiences of resource-scarce, Quintile 3 rural primary school principals on the optimal utilisation of the SA-SAMS	Writing convincing arguments that address the research questions Presenting a discussion on how the themes fit into the broader study

Source: Researchers' own Construction (2025)

Ethical clearance was obtained from the University of Fort Hare Research Ethics Committee (UREC) with an ethics clearance project number SIB021SDEK01. Permission to conduct the study was requested and granted by the gatekeeping institution, the Eastern Cape Department of Education (ECDoE). Participants were briefed about the research study's purpose and signed informed consent forms. The participants' anonymity was ensured by using pseudonyms for the participating principals.

4. Findings and Discussion

The analysis of the findings reveals that all the selected participating schools have adopted e-administration through the SA-SAMS, as it is mandated by South Africa's national DBE and the ECDoE. However, the findings have demonstrated that adopting the SA-SAMS within the selected schools was just for compliance, as they fail to realise its full potential.

Several barriers hindering the full utilisation of the SA-SAMS in South African Primary Schools were noted as presented in the Table 2.

Table 2

Themes for the study

Theme	Theme Clarification
Theme One - Technological infrastructure	-Technological infrastructure constraints to optimal utilisation of the SA-SAMS in the selected primary schools.
Theme Two - Training and capacity building	-Insufficient training and capacity building, affecting the optimum utilisation of the SA-SAMS.
Theme Three - Technical support and system maintenance	-Limited technical support and system maintenance contribution to underutilisation of the SA-SAMS.

Source: Researchers' own construction (2025)

Theme1: Technological Infrastructure Deficiencies

Technological infrastructure deficiencies have been noted as a barrier hindering the optimal utilisation of the SA-SAMS in the selected primary schools. Participants were asked to describe their experiences using the SA-SAMS in their schools and explain the obstacles they encountered concerning the technological infrastructure. All the sampled participants (n = 12) raised concerns about technological infrastructure deficiencies as a major contributor to the problematic utilisation of the SA-SAMS within their schools. In summary, the participants indicated that:

“As a rural school, we encounter constant challenges with internet connectivity. Almost every day, the internet connection is either slow or completely unavailable, which makes it impossible for us to access SA-SAMS reliably. In most instances, we wait for hours, or even days, to complete a simple and minor task like learner registration or attendance updates. We often have outdated laptops that were given to us in 2016, which often break down, leaving us with no backup devices. In the absence of technological infrastructure, this system becomes more of a burden than a help; our clerks become frustrated as they resort to manual record keeping, which then defeats the purpose of SA-SAMS. It is demotivating to everyone within the school because we know the capabilities of SA-SAMS, but we simply lack the sources to use it effectively ...” [Principal School 7]

The statement reveals that the SA-SAMS continues to be underutilised within the selected schools because of technological infrastructure deficiencies. Technological infrastructure deficiencies have resulted in the delay of simple tasks and have led to the frustrations of those involved, impacting the full utilisation of the system. Within the selected schools, technology infrastructure has been noted as a barrier hindering the optimal utilisation of the SA-SAMS. The study further found that the unavailability of internet and slow internet connectivity in some schools are of great concern. This is compounded using outdated laptops, which these schools received from the provincial DoE. The laptops are slow and continue to crash, negatively affecting the optimal utilisation of the SA-SAMS in resource-poor rural schools. This finding is supported by scholars (Ebua 2023; Khan, 2021) who similarly note that a technological infrastructure deficit creates barriers that hinder e-systems from operating reliably and efficiently.

This research study also found that due to the technological infrastructure deficit, the end-users get frustrated as the system is not assisting them as much as they would prefer. In some instances, consequence management is applied to them for issues beyond their control. This creates a situation where the SA-SAMS is minimally utilised, simply as a tokenistic box-ticking exercise, without achieving its optimal potential.

Theme 2: Insufficient Training and Capacity Building

Another recurring theme in this study was insufficient training and capacity building, which has negatively affected the optimum utilisation of the SA-SAMS within the selected schools. Participants for the study were asked to comment on the nature and usefulness of the training and professional development they or their staff have received on using the SA-SAMS. They were also asked to determine if they consider such training and professional development sufficient and effective for utilisation of the SA-SAMS. The interviewed school principals had the following to say:

“Lack of proper training for the staff responsible for data capturing is one of the main challenges we face with SA-SAMS. Many of our clerks are temporary and simply do not possess the necessary skills to navigate the system confidently...”

[Principal School 8]

Another in-depth interviewed participant further explained with concern that:

“Currently, we do not have a dedicated clerk, so the responsibility falls on me as the principal or on other teachers who already have a heavy workload. Unfortunately, none of us has received adequate training and we struggle to utilise the system effectively, data entry is often delayed or inaccurate as a result of this lack of capacity ...” [Principal School 3]

Resource-constrained environments were viewed as a limitation to the functionality and effectiveness of the SA-SAMS within rural educational contexts, and disparities in technology between advantaged and disadvantaged rural schools underscore the critical need for equitable ICT practices across educational ecosystems. This was emphasised by a participant who explained that:

“The nature of our schools being located in rural areas has resulted in the underutilisation of the SA-SAMS because of insufficient training. Our clerks, who should be experts, tend to lack the technical skills and confidence necessary to manage the system. The funny part is that the provincial government, at times, conducts training online, which is negatively impacted by the lack of connectivity on this side. When these clerks encounter any challenges, there is no immediate support or mentoring available. As a result, I sometimes must step in and do the data capturing myself, even though I’m not trained for it ...” [Principal School 9]

Similarly, another participant explained and dejectedly stressed that:

“The lack of structured, ongoing professional development means that staff are not equipped to use SA-SAMS efficiently, which impacts the accuracy and timeliness of our school data ...” [Principal School 12]

The foregoing views highlight that the optimum utilisation of the SA-SAMS in the selected schools remains hampered by insufficient training and capacity building. It can thus be deduced that the training the employees are getting, aimed at capacitating them in utilising the SA-SAMS, is inadequate. This is exacerbated by the fact that most clerks who are afforded these trainings are temporarily employed. Once they leave the school, a major challenge arises in using the SA-SAMS. Another concern is that, in most instances, training is provided online, and most trainees in the selected schools miss out due to network challenges.

Literature highlights that for optimal utilisation of the SA-SAMS, training and capacity building must be prioritised (Nwone & Mutula, 2019; Balasubramanian, 2019; Opuch &

Simoben, 2024). Involving the end-users and equipping them with the necessary skills reduces resistance and unlocks the full potential of the digital transformation initiative (Mwogosi & Kibus, 2024). Similarly, Selna et al. (2022) indicate that skills development and training play a significant role in determining the success of the electronic system. Thus, while the SA-SAMS is well-designed, it is prone to failure because end-users lack the required skills and confidence to operate effectively. In essence, this means that providing end-users with training equips them with critical knowledge and practical skills to navigate the system, minimising errors and frustration.

Theme 3: Limited Technical Support and System Maintenance

Study results show that full utilisation of the SA-SAMS in the selected schools continues to be hampered by limited technical support and system maintenance. The participants were asked to comment on their experiences with the technical support available for the SA-SAMS in their schools. They were further asked to highlight the accessibility and effectiveness of support whenever they encountered challenges. There was a general consensus amongst participants that limited technical support and system maintenance contributed to the underutilisation of the SA-SAMS in their schools. One of the participants explained this by saying:

“One of the biggest challenges we face with SA-SAMS is the lack of onsite technical support. When we encounter glitches or errors, there’s no one here who can fix them immediately. We depend on the provincial helpdesk; we must first log a call, and their response times are slow, and sometimes they cannot comprehend the issues we will be describing ...” [Principal School 4]

Another participant added that:

“As a result, critical administrative tasks are delayed, and staff lose faith in the system. As a result of unresolved technical issues, we revert to manual record keeping, which takes a lot of time and is susceptible to errors. It feels like we’re left to fend for ourselves, and this lack of support seriously undermines the effectiveness of SA-SAMS in our school ...” [Principal School 6]

These sentiments from the participants indicate that technical support and system maintenance are constraints negatively affecting optimal utilisation of the SA-SAMS. Study

findings indicate that no onsite technical support is provided to resource-poor rural schools. The implications are that if users encounter e-administration technical glitches, they will have to wait for someone at the head office to resolve the issue. This is coupled with the frustration that end-users of the SA-SAMS must first log a call via the helpdesk. This call logging frustrates users in that it takes time for a technician to be allocated to assist. As emphasised in literature, technical support and maintenance must be prioritised to enable the SA-SAMS's optimal utilisation, through timely troubleshooting and system updates (Mutimukwe et al. 2019; Kalu & Masri, 2019).

Applying socio-technical theory to the Buffalo City Education District case study suggests that utilisation of the SA-SAMS should be treated as essentially interconnecting social and technical systems, where technology (SA-SAMS), the environment (resource poor South African rural schools) and human interactions (school governance) are interdependent. Findings from this study show that, the social subsystem, comprising SA-SAMS usage and the work-related elements delivered by rural schools, and the technical subsystem, which encompasses the tools, techniques, skills, and devices required to fulfil organisational objectives and tasks, are not interconnected. This then becomes a significant barrier to the optimal utilisation of the SA-SAMS in resource-poor rural schools.

5. Conclusion

As a School Management System, the SA-SAMS minimises paperwork in schools and is a convenient tool for obtaining updated reports on time. However, this study found that the optimal utilisation of the SA-SAMS continues to be hampered by technological infrastructure deficiencies, insufficient training and capacity building, and limited technical support and system maintenance. Overcoming these constraints is vital to unlocking the full potential of the SA-SAMS and ensuring optimal school management benefits and educational outcomes. The Republic of South Africa, seventh Administration's Medium-Term Development Plan, speaks of quality schooling. Inclusive and equitable quality education is aligned with the South African Government's National Development Plan (Vision 2030) and Sustainable Development Goal (SDG) 4 (ECDoE, 2025). For strategic intents and purposes, the Medium-Term Development Plan (MTDP) must be a blueprint for envisaged targets, outputs, and outcomes. This study indicates that "unfreedoms" (Sen, 1999) remain embedded in most rural schools.

In addressing these constraints, the provincial department should prioritise forging partnerships with telecommunication service providers such as Vodacom, Telkom, and MTN, as this will ensure the provision of stable internet access in resource-poor rural schools. In addition, the provincial Department of Education (DoE) should equip schools with sufficient computers, tablets, and backup power solutions to ensure uninterrupted access to the SA-SAMS. The DBE, with the assistance of the provincial DoE and education districts, such as the Buffalo City Education District, should provide comprehensive and ongoing training to the end-users of the SA-SAMS. The training programmes must be tailored to the unique needs of school principals, administration clerks, and teachers who are the SA-SAMS end-users. The department should ensure that these training programmes are not provided as one-off workshops. Regular refresher courses and peer-learning sessions should be prioritised. In addition, mentorship programmes should be established in schools where tech-savvy staff support the less experienced. Socio-technical theory can most appropriately be applied to holistically interconnect the SA-SAMS to school governance social and technical systems.

To address the barriers caused by limited technical support, the study recommends deploying district or circuit technical support teams that are easily accessible and who respond promptly to SA-SAMS technical issues. Furthermore, materials in local languages should be distributed to help users troubleshoot common problems independently. Additionally, the SA-SAMS software patches should be released in a timely manner, and the provincial department should communicate any changes to the system requirements to all end-users. This means that, as theorised and promulgated by the socio-technical theory, the optimum utilisation of the SA-SAMS can only be achieved when technical and social dimensions are integrated and addressed in tandem as complementary subsystems.

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Institutional Review Board Statement

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AI Declaration

The author declares the use of artificial intelligence (AI) in writing this paper. In particular, the authors utilised Grammarly for language and grammar correction. The authors take full responsibility for ensuring proper review and editing of the AI-generated content.

References

- Abbas, R., & Michael, K. (2025). *Socio-technical theory: A review*. In S. Papagiannidis (Ed.), *Theory Hub Book*. <https://open.ncl.ac.uk/ISBN:9781739604400>
- Abdullah, A. L., Naser, K., & Fayez, F. (2018). Obstacles toward adopting electronic government in an emerging economy: Evidence from Kuwait. *Asian Economic and Financial Review*, 8(6), 832–842. <https://doi.org/10.18488/journal.aefr.2018.86.832.842>
- Ajani, O. A., & Dlomo, S. S. (2025). Enhancing school administration in rural South African schools: Challenges and opportunities—Using the scoping review method. *Research in Social Sciences and Technology*, 10(1), 332–354. <https://doi.org/10.46303/ressat.2025.18>
- Alharahsheh, H. H., & Pius, A. (2020). A review of key paradigms: Positivism vs interpretivism. *Global Academic Journal of Humanities and Social Sciences*, 2(3), 39–43.
- Anshari, M., & Hamdan, M. (2022). Understanding knowledge management and upskilling in Fourth Industrial Revolution: Transformational shift and SECI model. *VINE Journal of Information and Knowledge Management Systems*, 52(2), 373–393. <https://doi.org/10.1108/VJKMS-09-2021-0203>
- Balasubramanian, R. (2019). The need for electronic health records (EHR)-based clinical decision support (CDS) in developing countries like India. *International Journal of Drug Regulatory Affairs*, 7(4), 36–39. <https://doi.org/10.22270/ijdra.v7i4.368>

- Baumgarte, S., & Riedl, M. (2019). *The dark side of technology: An ethical, legal, and social perspective*. Springer.
- Beinebyabo, A. (2020). *Innovative health service delivery in government hospitals in Uganda: A case of Kabale and Kambuga hospitals in Kigezi sub-region*. North-West University Press.
- Cherns, A. (1976). The principles of sociotechnical design. *Human Relations*, 2(9), 783–792.
- Chitha, S. M. (2014). *Information communication technology access, usage and impact in primary school teaching and learning: The case of Nkonkobe area, Eastern Cape* (Master's thesis, University of Fort Hare).
- Clegg, C. W. (2000). Sociotechnical principles for systems design. *Applied Ergonomics*, 31, 463–477.
- Department of Basic Education. (2012). *SA-SAMS: Every child is a national asset*. Government Printers.
- Department of Basic Education. (2013). *Government Gazette: Public Administration Management Bill*. Government Printers.
- Department of Basic Education. (2016). *Data collection in South Africa*. Government Printers.
- Department of Basic Education. (2017). *Rural education policy*. Government Printers.
- Department of Basic Education. (2018/19). *Annual performance plan 2018/2019*. Government Printers.
- Department of Basic Education. (2020). *Department of Basic Education on quintile system and budget allocation*. Western Cape Education Department.
- Department of Education. (2006). *Further Education and Training Colleges Act No. 16 of 2006*. Government Printers.
- Department of Education. (2009). *SA-SAMS school administration and management information system*. Government Printers.
- Department of Education. (2019). *Curriculum assessment and reporting in public schools policy*. Government Printing Works.
- Department of Public Service. (2012). *Administration, recruitment and selection policy*. Pretoria Printers.
- Dlomo, S. S., Buthelezi, A. B., & Chibisa, A. (2024). From paper to pixels: The SA-SAMS journey and what it means for our schools. *Open Journal of Social Sciences*, 12, 386–401. <https://doi.org/10.4236/jss.2024.1211028>
- Dlomo, S. S., Buthelezi, A. B., & Chibisa, A. (2025). Comparative analysis of the use of SA-SAMS and other school administration software in rural schools. *International Journal of Educational Management and Development Studies*, 6(2), 210–225. <https://doi.org/10.53378/ijemds.353216>
- Eastern Cape Department of Education. (2025). *Vote 6 annual performance plan, 2025–2026*.
- Ebua, E. J. (2023). Investigating the potential of technology to promote development and the ethical and social implications of technological innovation in the context of development. *Open Access Library Journal*, 10, e9936. <https://doi.org/10.4236/oalib.1109936>
- Gamede, B. T., Ajani, O. A., & Afolabi, O. S. (2022). Exploring the adoption and usage of learning management systems as alternatives for curriculum delivery in South African higher education institutions during COVID-19 lockdown. *International Journal of Higher Education*, 11(1), 71–84. <https://doi.org/10.5430/ijhe.v11n1p71>
- Gustafsson, M. (2022). *Pandemic-related losses in contact time across seven provinces according to SA-SAMS data*. Department of Basic Education.

- Kalu, E., & Masri, R. (2019). Challenges of e-government implementation in the Nigerian public service. *International Transaction Journal of Engineering, Management, Applied Sciences and Technologies*, 10(1), 13–25.
- Khan, M. (2021). *Technological innovation and human rights: An analysis of the global south*. Routledge.
- Kuhlengisa, I. R., Masiya, T., Lubinga, S., & Maramura, T. C. (2024). An examination of the perception of variations in the adoption of the national framework for municipal indigent policies. *Journal of Infrastructure, Policy and Development*, 8(14), 9307. <https://doi.org/10.24294/jipd9307>
- Lazor, O., Lazor, O., Yunyk, I., Zubar, I., Dzeveliuk, M., & Dzeveliuk, A. (2024). The impact of e-governance on shortening public service delivery terms. *Telos: Revista de Estudios Interdisciplinarios en Ciencias Sociales*, 26(3), 1131–1145. <https://doi.org/10.36390/telos263.21>
- Lombo, N., & Subban, M. (2024). Physical infrastructure challenges in rural schools: Reflections to promote quality education. *Administratio Publica*, 32(1), 69–101.
- Maremi, K., Herselman, M., & Botha, A. (2020). Scoping the aspects and capabilities of South African School Administration and Management System (SA-SAMS). In *Conference on Information Communications Technology and Society* (pp. 1–6). <https://doi.org/10.1109/ICTAS47918.2020.233988>
- Meyer, I. A., & Gent, P. R. (2016). *The status of ICT in education in South Africa and the way forward*. National Education Collaboration Trust. <https://nect.org.za>
- Mohajan, H. K. (2018). Qualitative research methodology in social sciences and related subjects. *Journal of Economic Development, Environment and People*, 7(1), 24–48.
- Mojapelo, M. S. (2022). Records management in government schools in South Africa: A case study in Limpopo province. *Records Management Journal*, 32(1), 21–42. <https://doi.org/10.1108/RMJ-04-2020-0012>
- Murithi, G. M., & Masinde, M. (2016). Cloud SAMS: Cloud computing solution for public schools within South Africa's 'second economy.' In P. Cunningham & M. Cunningham (Eds.), *IST-Africa 2016 Conference Proceedings*. IIMC International Information Management Corporation.
- Muthuselvi, L., & Ramganes, E. (2017). Use of e-governance by administrators of higher learning institutions. *International Journal of Emerging Trends in Social Sciences*, 1(2), 68–73. <https://doi.org/10.20448/2001.12.68.73>
- Mutumukwe, C., Kolkowska, E., & Grönlund, Å. (2019). Information privacy practices in e-government in an African least developing country, Rwanda. *The Electronic Journal of Information Systems in Developing Countries*, 85(2), e12074. <https://doi.org/10.1002/isd2.12074>
- Mwogosi, A., & Kibusi, S. (2024). Unveiling barriers to EHR implementation for effective decision support in Tanzanian primary healthcare: Insights from practitioners. *Health Informatics Journal*, 30, 1–18. <https://doi.org/10.1177/14604582241304698>
- Nkambule, B. I., & Ngubane, S. A. (2024). Perceived barriers to optimal effectiveness of the South African School Administration and Management System (SA-SAMS): A case of selected township schools. *International Journal of Research in Business and Social Science*, 13(2), 364–374. <https://doi.org/10.20525/ijrbs.v13i2.3234>
- Nwone, S. A., & Mutula, S. (2019). Determinants of use of electronic information resources by utilisation of technology model. *South African Journal of Information Management*, 21(1), a1108. <https://doi.org/10.4102/sajim.v21i1.1108>

- Omohwo, O., Babatunde, I. G., Kehinde, B. O., & Arome, G. J. (2023). Design of an e-administration platform and its cryptography-based security model. *Journal of Computer and Communications*, 11, 166–189. <https://doi.org/10.4236/jcc.2023.114008>
- Opuch, D., & Simoben, T. H. (2024). Factors affecting utilization of electronic medical records systems in improving quality of care for HIV clients: Case study Eastern Uganda. *Computational Methods*, 1(1), 1–12. <https://doi.org/10.58614/cm111>
- Pillay, D. (2020). *Exploring South African primary school teachers' experiences on the implementation of the School Administration and Management System* (Master's dissertation, University of KwaZulu-Natal).
- Samkange, W. (2013). Management and administration in education: What do school heads do? A focus on primary school heads in one district in Zimbabwe. *International Journal of Social Sciences and Education*, 3(3), 635–643.
- Saunders, M. N., Lewis, P., Thornhill, A., & Bristow, A. (2015). Understanding research philosophy and approaches to theory development. In M. N. K. Saunders, P. Lewis, & A. Thornhill (Eds.), *Research methods for business students* (pp. 122–161). Pearson Education.
- Selna, A., Othman, Z., Tham, J., & Yoosuf, A. K. (2022). Challenges to using electronic health records to enhance patient safety in a small island developing state (SIDS) context. *Records Management Journal*, 32(3), 249–259. <https://doi.org/10.1108/RMJ-03-2022-0008>
- Sen, A. (1999). *Development as freedom*. Anchor Books.
- Somfula, O. K., & Zhanda, E. (2023). Training and skills development in the wake of the Fourth Industrial Revolution: Evidence from Botswana borehole drilling companies. *SA Journal of Human Resource Management*, 21(0), a2125. <https://doi.org/10.4102/sajhrm.v21i0.2125>
- South Africa (Republic). (2012). *National development plan 2030*. Government Printers.
- Turin, T. C., Raihan, M. M. H., & Chowdhury, N. A. (2024). Paradigms of approaches to research. *Bangabandhu Sheikh Mujib Medical University Journal*, 17(2), e73973. <https://doi.org/10.3329/bsmmuj.v17i2.73973>
- Trist, E. L., & Bamforth, K. W. (1951). Some social and psychological consequences of the longwall method of goal setting. *Human Relations*, 4, 1–38.
- United States Department of Education. (2017). *Reimagining the role of technology in education: 2017 National Education Technology Plan update*. <https://files.eric.ed.gov/fulltext/ED577592.pdf>
- Van der Berg, S., Van Wyk, C., Selkirk, R., & Hofmeyer, H. (2021). *Learner flows through schools: Using high-quality administrative data to understand education system performance*. Research on Socio-Economic Policy, Stellenbosch University.
- Van Dyk, H., & White, C. J. (2019). Theory and practice of the quintile ranking of schools in South Africa: A financial management perspective. *South African Journal of Education*, 39(1), Article #1820. <https://doi.org/10.15700/saje.v39ns1a1820>
- Von Bertalanffy, L. (1950). An outline of general system theory. *The British Journal for the Philosophy of Science*, 1(2), 134–165.