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Leading Digital Transformation in Historically Disadvantaged Primary Schools: An Exploration of the Challenges Faced by Departmental Heads

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A R T I C L E I N F O

Keywords:

departmental heads;
digital transformation;
continuous professional development;
digitally mediated education.

ABSTRACT

South Africa's National Development Plan 2030 positions digital transformation as a key strategy for advancing education within the digital economy. This study explored the challenges faced by six purposively selected departmental heads in leading digital transformation across three schools in Mpumalanga Province. Using a qualitative approach, data were collected through semi-structured interviews and analyzed thematically. Grounded in the right to development, the study emphasizes the need for inclusive professional development for both teachers and school management teams. Findings revealed that older teachers' anxiety toward digital tools affected departmental heads' digital leadership. Departmental heads also experienced self-doubt due to limited ICT skills, reducing their capacity to mentor technologically skilled early-career teachers. Their ineffectiveness was further linked to limited in-service training, lack of postgraduate funding opportunities, and inadequate school- and district-level support. The study recommends continuous professional development, funding for specialized postgraduate training, and strategic support to strengthen departmental heads' digital leadership.

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1. INTRODUCTION

Schooling systems all over the world are going through digital transformation. They are mandated to infuse information technologies in their operations to leverage the numerous advantages it offers, including open access to information, enhanced educational service delivery, and improved reporting and public accountability mechanisms (Pauji et al., 2025). Global education watchdog agencies are closely monitoring trends in digital education and are committed to universalizing access to it. As one of the watchdog agencies, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2024) consistently shows its commitment in ensuring that digital literacy is ultimately integrated into all education systems, regardless of their socio-economic status. Its work in promoting digital literacy has inspired governments across Africa's diverse geographical landscapes to adopt digital education policies (Ratno & Nadhirin, 2022). Central to this ideal is South Africa's

Integrated Strategic Planning Framework for Teacher Education and Development (ISPFTED), which stipulates that the South African government must invest in digital technologies to upscale the delivery of digitally mediated education in all the country's public schools (Department of Basic Education [DBE], 2019). Having closely studied trends in the implementation of digital policies at primary and secondary levels of education, Chomunorwa and Mugobo (2023) and Forsström et al. (2025) note that, in most instances, digital education policies fail due to a lack of an enabling environment. Additionally, Maria-Luisa Schmitz et al. (2023) assert that the success of digitally mediated education depends on the quality of resources, teacher professional development, and how school leadership influences teachers' attitudes towards effectively using digital tools.

Having teachers who are prepared for the future and possess digital skills is essential, as they can better respond to learners who are increasingly becoming digital natives and prefer digitally mediated pedagody over traditional teaching methods (Evans & Robertson, 2017; Fitria & Suminah, 2020; Molotsi, 2022). In the South African school organogram, teachers report directly to departmental heads, who by virtue of occupying this position are responsible for leading and supporting the integration of technology in class (Tunjera, 2022). The role of the departmental head is manifold: it includes teaching and assessing learners, leading teachers, managing curriculum delivery, and serving on the School Management Team (alongside the principal and their deputies). Their role is demanding to a point that they are expected to balance the management of teaching and learning with other responsibilities outlined in their job description, without considering the pressure this places on their physical and psychological well-being (Kalane & Rambuda, 2022). Mihai and Nieuwenhuis (2015) aver that departmental heads frequently face resistance when implementing and managing digitally mediated education initiatives. Recognizing the complexity and challenges of digital leadership in underfunded and resource constrained schooling systems (Msigwa, 2022), this study aimed to explore the obstacles faced by heads of departments in leading digital transformation at selected historically disadvantaged schools in South Africa. To this end, the study was animated by the research question: What barriers do departmental heads experience in leading digital transformation in historically disadvantaged schools? It was envisaged that responses to this research question would yield data concerning the key managerial challenges to departmental heads when mentoring and developing teachers' digital capabilities and acceptance of technology mediated teaching in their classrooms.

1.1. Problematizing Digital Divide in Historically Disadvantaged Schooling Contexts

It is impossible to discuss the South African education system without considering the spillover effects of the apartheid style of governance. During apartheid, South African citizens were subjected to unequal education, which saw White children receiving quality education in well-resourced classrooms, while the Black majority languished in poorly resourced classrooms (Khumalo, 2022; McKeever, 2017). It is problematic and lamentable that thirty-two years into democracy, an array of inequalities continue to besiege the South African schooling system (Prins & Nkambule, 2026). These challenges occur despite the Constitution's call for radical transformation of the public basic education system and access to equal education (Arendse, 2019). However, as Nkambule (2023a) notes, teachers in schools within middle- to higher-income urban areas tend to possess intermediate and advanced ICT skills, which, by implication, advantages the children they teach.

Worth mentioning is that South Africa falls within the category of such education systems whose environmental and infrastructural conditions do not maximally support the achievement of UNESCO's Sustainable Development Goal 4. On one hand, learners/children from poverty stricken residential areas are schooled in classrooms that lack basic necessities and resources such as electricity (Samuels et al., 2020), teaching and learning materials, computer laboratories (van Jaarsveld & van der Walt, 2018) and well trained teachers (Khumalo & Mji, 2014). On the other hand, schools in affluent areas/neighborhoods have learners/children who come from middle class social standing and have parents who can afford to pay monthly school fees and fund the sustenance of quality teaching and learning and procure state of the art technological tools (van Jaarsveld & van der Walt, 2018). When comparing these schooling scenarios, it is clear that the South African education system remains unequal and, as such, consists of two educational systems under one ministry (Bush, 2007; Naicker et al., 2020).

Under resourced schools account for 60% of all public schools (Department of Education [DoE], 2006). Moreover, research consistently reveals that, in such schools, not all teachers possess adept ICT skills (Fitria & Suminah, 2020). Nkambule and Ngubane (2024) found that older teachers lack ICT skills, which prevents them from integrating it into their teaching, while younger teachers are more comfortable with it. Evans and Robertson (2017, p. 269) argue that resistance by the so-called *digital immigrants* (i.e., older generation of teachers) towards digitally mediated education is partly aggravated by "the fear that they do not possess the technical skills to teach their tech-savvy students". In some schools, the situation is dire to the point that teachers still employ instructional techniques from the 1980s, while their learners are rapidly adapting to 21st-century learning methods (Fitria & Suminah, 2020).

Evidence further points to barriers such as infrastructural deficits, high data costs, skills deficits (Mpofu, 2025), chronic teacher absenteeism, lack of subject knowledge (Madonsela & Proches, 2022), minimal support from the Ministry of Education (Fray et al., 2023), unstable electrical grid (Matsheta & Sefoka, 2023; Thembane, 2024), lack of access to digital tools, waning interest among teachers and skepticism on the effectiveness of digital tools (Chomunorwa & Mugobo, 2023). Although addressing all these barriers would mark a good step towards the right direction, it must be borne in mind that humans are the most precious resource in this endeavor. Hence, school management teams should not be lulled into believing that the provision of technological resources and infrastructure alone is enough to achieve meaningful digital transformation. In fact, teachers' success in integrating digital tools into a classroom largely depends on the level of ICT skills they possess (Chere-Mashopha, 2018). This statement suggests that at the heart of teachers' struggles with digital education is the inadequacy of, or in some cases the lack of, professional development that does not comprehensively address the skills teachers need most to become competent in their curriculum delivery role. The significance of the study is rooted in the finding that there are not many studies that provide a broader understanding of the complexities of leading digital transformation in South Africa's resource constrained schools (van Jaarsveld & van der Walt, 2018) particularly from the perspective of middle managers (colloquially known as departmental heads). Therefore, the current study aimed to address this knowledge gap by unearthing the realities confronting the departmental heads' implementation of digitally mediated teaching and learning at selected schools.

1.2. Conceptual Definition of Key Terms

The study evolves around different key terms which are defined as follows:

a. Digital leadership

According to Zhue et al. (2025), defining digital leadership is hard because it is a term that connotes different many things and is perceived differently in different professional sectors. However, within the field of education, digital leadership denotes the responsibility of taking charge of efforts to facilitate digitally mediated teaching and learning. A digital leader essentially makes decisions and monitors the implementation of digitally mediated teaching and learning. This role also includes mentoring co-workers, procuring digital tools, arranging maintenance of existing digital tools as well as monitoring and evaluating programs of action. In a nutshell, digital leadership encapsulates leading people, safeguarding resources, assessing the state of hardware and technological tools (Yusof et al., 2019).

b. Digital transformation

Digital transformation is the process of identifying several digital trends that may enhance or disrupt digital capabilities and infrastructure within the organization (Lamarre et al., 2023). Mergel et al. (2019) note that digital transformation is not limited to digitization and digitalization processes as it also includes internal and external factors that determine how institutions should act or react when adopting digital tools. For schools, this refers to acclimatizing to teaching and learning using digital technologies, as demanded by the prescripts of the 21st century education and the fourth industrial revolution (Yusof et al., 2019).

c. Historically disadvantaged schools

Historically disadvantaged schools are schools that, during apartheid South Africa, were exclusively designated for Black learners and teachers (Khumalo, 2022). Research indicates that thirty-two years after apartheid such schools remain under resourced when compared to formerly White schools (Prins & Nkambule, 2026). Most of these schools are situated in low-income neighborhoods in townships and rural areas and constitute 60 percent of all public schools (DoE, 2000).

1.3. Departmental Heads' Digital Transformation Leadership Role in Schools

As mentioned earlier, teachers cannot handle the pressure of teaching with digital tools unless they have access to professional development. South Africa's White Paper 7 on e-Education proposes that teachers must be adequately prepared for teaching in the digital era through professional development (DBE, 2004). Therefore, nearly all curriculum delivery policies, such as the Curriculum Assessment Policy Statement (CAPS), White Paper 6, and the South African Schools Act, acknowledge that professional development enhances the productivity of teachers and curriculum leaders. Schwartz (2023) defines professional development as any form of regular in-service learning opportunity for teachers and other education personnel aimed at improving their effectiveness in performing various components of their work. It is available in a variety of formats, including conferences, workshops, seminars, courses, mentorship, coaching, and field observation visits. AbdulRab (2023, p. 39) infers that "the importance of teacher professional development stems from the fact that teachers are the most important change agents in the educational system". It is worth noting that, in the South African schooling system, teacher professional development is the responsibility of all levels of governance: national, provincial, district, circuit, and school. However, due to their role, which is closely associated with curriculum supervision and learner support, most components of teacher professional development rest on the shoulders of departmental heads (Mashiane-Nkabinde & Nkambule, 2025). The following organogram illustrates the reporting lines and the reporting proximity between teachers and departmental heads in South African public primary schools.

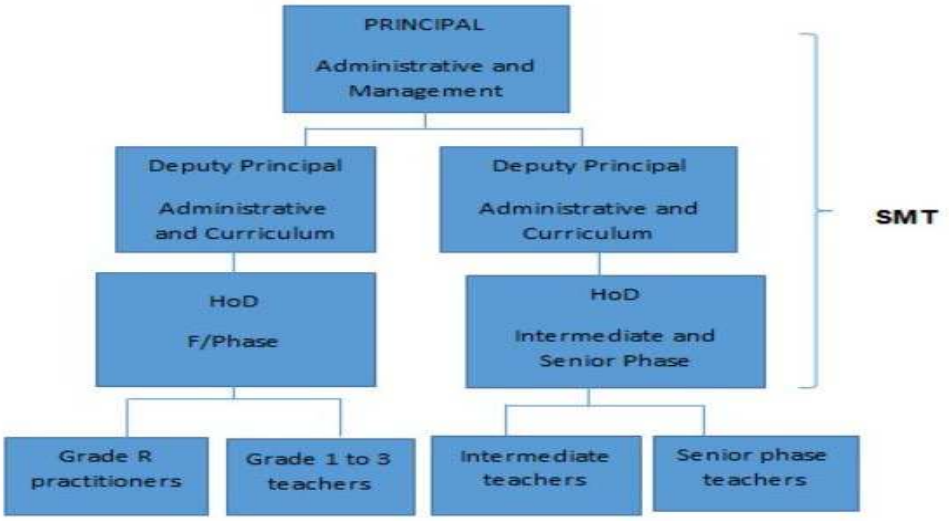

Figure 1. South African Primary School Organogram
(Source: Department of Education, 2000)

As illustrated in Figure 1, departmental heads are middle managers whose job descriptions, inter alia, involve supervising curriculum implementation and supporting teachers in any way possible to improve their professional efficacy (Baloyi & Khumalo, 2024; Mahome & Mphahlele, 2024; Nhlumayo & Ngubane, 2025). Not only are they seen as having a better understanding of teachers' professional needs and classroom situations, but also as possessing a wealth of knowledge about challenges confronting learners and the interventions required to support them. Department heads hold a rank above teachers and are positioned in the middle tier of school management. They rank one level below

deputy principals and two levels below the principal (Baloyi & Khumalo, 2024; Mashiane-Nkabinde & Nkambule, 2025).

They perform dual functions: those of a curriculum supervisor and a classroom teacher. The duality of their role makes their work demanding and laborious (Mashiane-Nkabinde, 2020; Mashiane-Nkabinde & Nkambule, 2025; Mashiane-Nkabinde et al., 2023). More comprehensively, their core responsibilities include "teaching, coaching, and coordinating extracurricular and co-curricular activities; working with personnel; performing administrative work; and communicating with different stakeholders within and outside departments" (Education Labor Relations Council [ELRC], 2003). Their direct control over teaching and learning activities implies that they are key role players in leading digital transformation in schools and are crucial for mobilizing support for enhanced technology access, relevant training, and addressing negativity among teachers toward digital education (Stenbom & Geijer, 2024). From this perspective, the primary focus of this research is to understand how South African departmental heads navigate their role in mentoring teachers to enhance their ICT skills, particularly for curriculum delivery and administrative purposes.

1.4. Theoretical Framework

The study adopted the United Nations Declaration on the Right to Development (UNDRD) framework, which emphasizes the need for citizens to acquire skills and knowledge to enhance their productivity. More specifically, Articles 2 and 3 of the declaration indicate that "State parties have the primary responsibility for the creation of national and international conditions and policies favorable to the realization of every person's right to development through the fair distribution of the benefits resulting therefrom" (UNDRD, 1986, n.a). The framework advocates for establishing conditions that enable school personnel to leverage lifelong learning opportunities and access to ongoing institutional support (Chilungo, 2025). Currently, there is a view that teachers tend to be prioritized for in-service training intervention, while middle managers (i.e., departmental heads) are often not adequately catered for in terms of in-service training (Baloyi & Khumalo, 2024; Tapala et al., 2020). Therefore, the UNDRD, owing to its insistence on non-discriminatory access to development, is useful in expressing the imperative of ensuring that access to professional development should not be limited to teachers alone, but should also be extended to school management personnel, including departmental heads. In the context of the study, using this framework, the researcher determined how well departmental heads were prepared for their role in mentoring teachers to implement digitally mediated education through professional development. Thus, using the framework, the paper theoretically underlined a link between professional development and digital leadership efficacy, as reflected and broadly discussed in its findings.

2. METHOD

2.1. Research Context

The research was conducted in schools located in townships, which were historically underfunded during apartheid, hence the term historically disadvantaged schools. The digital divide in these schools is a primary concern due to a range of factors (Mustafa et al., 2024). Khumalo and Mji (2014) discuss how, in most of these schools, basic infrastructure, such as computer laboratories and teaching and learning materials, is either non-existent or inadequately resourced (see also Khumalo, 2022, 2025; Khumalo & Mji, 2014; McKeever, 2017; Mashiane-Nkabinde et al., 2023). The schools within this specification are generally situated in both rural and urban areas, serving learners from lower socio-economic backgrounds. Instead of charging monthly school fees, they require a once-off minimal school development fund. This educational context was of particular interest to the researcher, as they sought to understand how, amid these challenges, departmental heads led digital transformation by providing mentorship to teachers. The participating schools and personnel were in Mpumalanga province, specifically in the Emalahleni region.

2.2. Research approach and paradigm

The study adopted a qualitative approach nestled within the interpretivist paradigm. According to Creswell (2014), interpretivism is naturally synonymous with the qualitative research approach. By employing a qualitative approach, the researcher served as the primary instrument for data collection and had the authority to systematically decide how to investigate social phenomena (Teherani et al., 2015). Given that the study explored the experiences of departmental heads in leading digital transformation in several historically disadvantaged schools, a multiple-case study design was used. Multiple case study design is heralded for generating multiple dimensions of a research problem by enabling the researcher to explore similarities and differences using different sets of data and identify the challenges associated with the implementation of digitally mediated education across several schooling contexts (Teasdale, 2022). This approach facilitates the generation of data that illuminates the causes and effects of the research problem.

2.3. Sample

The study's data centered on a sample of six departmental heads, purposively selected from three South African schools. Effectively, two participants came from each of the three schools. The rationale for choosing purposive sampling lies in its ability to allow the researcher to select participants of specific interest, while also exploring the ontological aspects of the case being studied (Nyimbili & Nyimbili, 2024). These criteria for inclusion and exclusion were informed by the nature of their job, which is inherently associated with, among other duties, mentoring teachers and teaching between the intermediate and senior phase levels. Therefore, only departmental heads teaching in the early childhood phase were not selected. Furthermore, the inclusion criteria were also centered on the number of years in the position, with only participants who had been in the position for more than two years being included in the study. The researcher considered the sample of six participants sufficient to achieve the purpose of the study. Moreover, since the study is qualitative in nature, the researcher was more determined to generate an in-depth exploration of the phenomenon (Hong & Cross Francis, 2020) rather than placing their focus on addressing the element of generalizability (Subedi, 2026). This point of view is consistent with Barkhuizen (2014) and Blaikie (2018) who assert that the decision to adopt a particular sample size should rest on the shoulders of the researcher because with the right interview guide and interviewing skills, they can be able to extract nuggets of data from smaller samples. Thus, as Boddy (2016) points out, in a case study, selecting a compact sample size has the propensity to generate unique/authentic data and curate highly meaningful and contextually relevant findings. The sample frame was considered sufficient once data saturation was achieved. Data saturation was reached when the researcher felt confident that no additional participants would provide new insights to the themes and categories of the study (Glaser & Strauss, 2017). The researcher believed that feedback from the six participants was substantial enough to create a narrative that thoroughly addresses all aspects of the research question.

2.4. Data collection

Data were collected using semi-structured interviews. Semi-structured interviews offer the flexibility to allow participants to respond to research questions in their own unique way, rather than being constrained by a predetermined, often predictable, structured way of responding. Another benefit of using semi-structured interviews is that the researcher uses an interview guide with questions designed to elicit responses to the research questions (Adeoye-Olatunde & Olenik, 2021), ensuring that participants ultimately respond subjectively to similar questions. In that way, the research participants are probed based on a similar set of questions yet they offer convergent and divergent perspectives on the phenomenon. For quality assurance purposes, the interview guide was reviewed by the researcher's colleagues who commented on what needed to be added to make it more comprehensive and effective in generating meaningful data. This was followed by its piloting on two school principals who also offered suggestions for strengthening its effectiveness and relatability to the research problem (Adamova, 2025). It was subsequently used to steer the interviews with all six participants.

2.5. Data analysis

After transcribing the audio-recorded interview data, thematic analysis was conducted, specifically following the method outlined by Braun and Clarke (2006). Essentially, the

thematic analysis covered the following: 1) drawing familiarity with the research data (in terms of which, repetitive expressions and interesting inferences were adopted as codes), 2) developing initial codes, 3) searching for workable interim themes, 4) reviewing themes by interpreting the relationship between codes and other overarching inferences that may not have been picked earlier, 5) defining and labeling themes by comparing their relationship with the research objectives, and 6) finally reporting on the participants' inferences as envisaged in the themes. In summation, the steps taken began with identifying codes which in turn precipitated the development of preliminary themes; after refinement, and cross-checking their relatability, they were ultimately adopted as final themes.

2.6. Issues of trustworthiness

Credibility was achieved through data triangulation and member checking and presenting participants' undistorted views. Review of extant literature constituted a data triangulation exercise during which the findings derived from the interviews were either validated or invalidated by the perspective emanating from research papers, policy documents and dissertations (McLeod, 2024). Field notes were also used to support or highlight convergent and divergent perspectives between the interview data and what was noted by the researcher while visiting the research sites. Meanwhile, member checking required that the researcher revisit the schools to afford the participants the opportunity to either add or amend the transcribed interview content.

For transferability, the researcher conducted prolonged fieldwork, to 1) familiarize themselves with the research context and adapt to the rules of engagement, 2) record field notes to document observable and informally shared information pertinent to the study and the research context, and, 3) to identify recurrent patterns and themes that might not be apparent during shorter interactions. The interviews were initially spread over two days per school. However, upon reconsideration, an additional two days were added to ensure that sufficient time was allocated to generate thick descriptive and observable data. Dependability was achieved by means of compiling an audit trail comprising a comprehensive description of the research context and identifiable environmental and human resource factors in relation to the research context.

2.7. Ethical issues

The ethical considerations followed in this study included: 1) obtaining ethical clearance before starting data collection, 2) securing permission from the Ministry of Education and school principals, 3) informing participants about the study and their right to withdraw at any time, and 4) ensuring the anonymity of the participants when presenting the findings.

3. RESULTS

3.1. Teachers' resistance to change

Naturally, teachers have varying levels of ICT skills, which impact their engagement with technology and their willingness to experiment with it in their teaching practices. Some teachers may prefer traditional teaching methods over adapting to new technologies, while their peers embrace these advancements. In this theme, which aimed to gather participants' views on their role in mentoring teachers on using ICTs, the following comments emerged. The first comment came from Departmental Head 5, who stated that *"We usually talk among ourselves [as departmental heads] about the negative attitude older teachers have towards mobile learning. I have concluded that they are not willing to even give it a chance. They see it as an inconvenience and that's regrettable"*. Departmental Head 6 added: *"When I motivate them [to experiment with ICT tools in their classrooms], they tell me they are too old to master ICT skills"*. Based on these statements, it is evident that there is resistance from older teachers in moving with the times and learning to incorporate digital technologies in their teaching and assessment practices. While older teachers' resistance to using digital technologies goes against the mandate set by the Department of Basic Education, one of the participants provided reasons behind this situation.

To qualify why some teachers are resistant to experimenting with ICT tools in their classrooms, Departmental Head 1 said: *"Remember, most of our teachers are over 40. They are comfortable with how they teach, and introducing technology in their classrooms presents a lot of stress because they don't know where to start. They overthink the process and end up deciding that it's a no-no."* Older teachers often demonstrate a lack of content knowledge,

which leads to their resistance towards integrating digital tools into their teaching. This resistance results in negative attitudes toward departmental heads. These statements demonstrate that in the studied schools, age is a factor that determines teachers' interaction with digital technologies. When dissecting this problem within the historical context of South Africa's education system, it is important to mention that most teachers who are over 40 were either products of teacher training colleges or underfunded university teacher training, which would have meant that their pre-service training did not place greater emphasis on digital literacies.

3.2. Self-doubt

The right to development postulates that undergoing comprehensive training or capacity development is one of the effective ways of eliminating self-doubt in performing tasks and social responsibilities. Inadequate development invokes self-doubt and prevents teachers from moving beyond the initial awareness, limiting their ability to integrate ICT meaningfully into their pedagogy. In their individual interview sessions, the participants discussed several concerns about mentoring the younger generations of teachers, citing their lack of preparedness for the role. For instance, Departmental Head 6 commented, *"I am 47 and am mentoring 28 and 32-year-olds who undermine my advice because they feel that they know how to use computers more than I do."* This participant's response suggests that departmental heads in the studied schools have not been adequately prepared for this demanding role of managing younger teachers who have increasingly become digital natives. Relaying their apprehension about mentoring some early and mid-career teachers in ICT, another participant remarked, *"My problem comes from the fact of how I can mentor these youngsters who have done ICT since high school. Obviously, they are very good at this technology thing" (Departmental Head 2).* In addition, Departmental Head 4 said: *"I don't even bother to mentor anyone. I simply ask them to incorporate it in their teaching…… I'm speaking about the young ones."* Working with younger teachers proves to be difficult for departmental heads because younger teachers are typically more comfortable with technology and are fully competent when it comes to incorporating innovative teaching methods, digital tools, and multimedia resources into their lessons. It is evident that the participants consider their pre-service training, knowledge and skills as of an inferior quality, which as a result, invokes self-doubt and anxiety towards mentoring digital natives. Consequently, both participants acknowledged that they shied away from mentoring young teachers with advanced ICT skills.

3.3. Scarcity of skills development and in-service postgraduate bursaries

Technology adoption involves progressing through the stages of awareness, persuasion, decision making, and implementation. Going through these phases requires preparation, which in the professional arena may come in a form of a workshop, short learning program, district-provided training, syndicated collaborative learning, seminar and credit bearing further education and training. During their interviews, the participants were asked to discuss the factors that compounded their challenges in leading digital leadership in their respective schools, and they responded as follows. Departmental Head 2 said, *"Way back in 2016, I attended a two-month-long part-time ICT course facilitated by Anglo Coal and the department. That was it!".* Departmental Head 4 corroborated this in saying, *"Since becoming an HOD, I have not received any ICT training. Yet, I am tasked with mentoring teachers. Who mentored me as a teacher, and who is mentoring me now as an HOD?"* Ideally, professional development should be part of almost every teacher's career. Yet for the departmental heads professional development is conducted sparingly thus widening their skills deficit and knowledge gaps.

Departmental Head 6 added, *"I have been applying for a departmental bursary to study for an advanced diploma in computer-integrated education since 2017, and five years later, my requests have not been processed. I don't understand why they would encourage us to apply and not give the bursaries to us."* Inadequate training prevents teachers from moving beyond the initial awareness, limiting their ability to integrate ICT meaningfully into their pedagogy. In these inferences, the participants alluded to the inadequacy of professional development, which is necessary to refresh and upskill their ICT skills and is essential for mentoring teachers in effectively integrating digital tools into their classrooms. Another concern raised by the participants was the lack of bursaries for further studies. This finding indicates that departmental heads are not considered as needy of rigorous and

continuous in-service ICT training, yet they are expected to perform the arduous and highly specialized task of championing digital transformation in their schools. It is from that point of departure that the current study deems the insufficiency of in-service training and lack of bursary opportunities as tantamount to infringement of their right to development.

3.4. Limited school-and-district-based support and guidance

Legislatively, schools and districts share a collective responsibility to support departmental heads in fulfilling all aspects of their teacher development and leadership roles. One of the participants remarked that *"I work hard and shoulder the blame for everything. Nobody bothers to ask what kind of support I received from my principal" (Departmental Head 2).* Another participant added that *"the district wants us to take responsibility for teachers failing to do their job. Instead of sitting me down and asking how we can support me in doing things better, they want me to write reports and improvement plans. How can I improve a situation that is caused by their sleeping on the job"* (Departmental Head 5). Inadequacy of district support exacerbates digital inequality, infrastructure inadequacy, and skills shortages, all of which diminish the realization of digital transformation in the sampled schools. Departmental Head 1 added: *"internally, the leadership is not supportive at all. They do not walk the talk. Everything is good on paper but in action, things are going South. This leaves me helpless."* Typically, internal support should come from the school management team, which includes the deputy principals and the principal. Although departmental heads also constitute the school management team, without leadership support there is nothing much that they can do to champion their own development. From these comments, it can be inferred that the participants were dissatisfied with the insufficient support and limited involvement from school leadership and district officials in helping them successfully fulfill their digital leadership role. Education district offices have a pivotal role in ensuring that all learners have access to education of progressively high quality, since district offices are the link between Provincial Education Departments (PEDs), their respective education institutions and the public. District offices are local hubs of PEDs and provide the vital lines of communication between the provincial head office and the education institutions in their care. The participants' inferences demonstrate that district officials do not conduct oversight as they should, and they do not want to shoulder the blame when digital transformation initiatives do not run effectively. The gist of this finding is that in their efforts of heralding digital transformation in their schools, the departmental heads are deprived of internal and external support, which they desperately need to become effective digital leaders. The participants directed the blame to school leadership and the district for no abating the barriers obstructing them from flourishing in their digital leadership role.

4. DISCUSSION

Teachers are the mainstay of curriculum innovation and digital transformation. However, their success in integrating ICT in teaching partly rests on the shoulders of the departmental heads. The current study aimed to investigate the challenges encountered by departmental heads in leading digital transformation in historically disadvantaged schools. Digital disruptions induced by the Fourth Industrial Revolution (4IR) and COVID-19 have demonstrated that schools in resource constrained regions and localities require digitally capable and knowledgeable leaders who can carry them through these phases and crises (Dasruth & Naicker, 2026). The study findings are curated under four overarching themes, namely: teachers' resistance to change, self-doubt, scarcity of skills development and in-service postgraduate bursaries, and limited school-and-district-based support and guidance. These themes propel stakeholders to rethink digital leadership and support mechanisms.

Theme 1 (teachers' resistance to change). Despite the government's ambition to engrave ICT in teaching and learning activities in the South African education system, the pace of integration in some school contexts is slower than expected (Munje & Jita, 2020). The study found that a segment of teachers was resistant to integrating ICTs into their teaching. Sanchez-Prieto et al. (2019) argue that teachers' refusal to embrace change and digitally mediated education signals that they are worried they might not cope with it or that it will consume their time and demand that they go beyond the call of duty to learn to use ICTs effectively. It was ascertained that resistance mostly came from teachers who had

been teaching for a long time and were a product of apartheid education. Forsström et al. (2025) observed that the older generation of teachers is comfortable with 1980s teaching methods, which, in turn, can frustrate learners, many of whom find digitally mediated education more appealing. Sikhakhane et al. (2021) argue that older teachers' apprehensive attitude towards digital tools, is a stark reminder of how apartheid created a wedge that will take many years to address in the country's education system. Back then, the racially segregated teacher training institutions were designed to produce poorly trained and computer illiterate Black teachers (Sikhakhane et al., 2021). While this is no fault of their own, there is some South African research evidence showing that learners learn more when their teachers have higher levels of content knowledge (Armstrong, 2015), which therefore suggests that these teachers' unwillingness to experiment with digital tools works to the detriment of their learners. Azam et al. (2024) hold a view that such teachers fail to recognize and appreciate the significance and ubiquitousness of digital technologies in shaping learners' academic experience and the future direction of their education sector. Also worth mentioning is that the study found that teachers' resistance to incorporating digital tools has a bearing on departmental heads' digital leadership role. According to Ahmad and Husnin (2022), teachers' resistance to ICTs negatively impacts digital leaders' agenda of embedding 21st century-oriented teaching practices in their schools.

Theme 2 (self-doubt). It is important for curriculum leaders to recognize the significance of their role in creating their schools' pathway to digital economy and 21st century educational transactions and practices (Afshari et al., 2009). "Ideally, a technological leader should be someone who understands people, understands technology, understands how technology affects the organization, and never becomes complacent with the world of technology" (Wang, 2012, p. 56). By contrast, the departmental heads reported that they had self-doubt in their digital leadership role. To them, asserting their authority over early-career teachers is difficult because they seem to know much more than them about applying digital tools in teaching, learning and educational administrative processes (Oloba et al., 2025). They openly stated that they did not deem their ICT skills sufficient to give them the authority to assert themselves when advising early-career teachers on maters relating to digital technology. Mpisane (2015) observed that most departmental heads in historically disadvantaged schools, due to their limited subject expertise, often become ineffective and lose confidence in their capabilities to mentor early-career teachers.

Theme 3 (scarcity of skills development and in-service postgraduate bursaries). The right to development emphasizes the need for broad-based development of all layers of school personnel (Chilungo, 2025). The study found that departmental heads were in dire need of professional development but were not being catered to adequately. Research consistently shows that, oftentimes, in South Africa, professional development is rolled out with teachers in mind, leaving departmental heads to fend for themselves in their demanding role of leading teachers (Baloyi & Khumalo, 2024; Mashiane-Nkabinde & Nkambule, 2025; Williams et al., 2024). Consequently, as demonstrated in the study, departmental heads find themselves unable to meet the demands of their role, particularly when having to lead teachers who are digitally savvy and to inspire older generation of teachers to embrace digital tools. Tapala et al. (2020) reached a similar conclusion in their study, suggesting that departmental heads fail to execute their curriculum leadership duties due to inadequate preparation for their roles through regular, responsive, and continuous in-service training. Induction programs are crucial as they help orient newly appointed departmental heads to the various aspects of their roles while also allowing them to identify their personal developmental needs (Mashiane-Nkabinde, 2020). Yet upon occupying office, they hardly ever undergo induction. Modonsela and Proches (2022) caution that the absence of induction results in departmental heads often lacking clear cut understanding of their scope of work and knowledge of what internal and external support mechanisms they can resort to in times of crises.

Theme 4 (limited school-and-district-based support and guidance). The last finding pertained to the inadequacy of internal (i.e., school-based) and external (i.e., district based) support. The Policy on the Organization, Roles and Responsibilities of the District Office (Department of Basic Education [DBE], 2012, p. 10), stipulates that "the District Office represents and exercises the authority of the Provincial Education Department in all day-to-day administrative and professional dealings with schools and Early Childhood Centres". Yet, the findings indicated that limited school- and district-based involvement poses a threat to departmental heads' proficiency in leading digital transformation in their

schools. It is apparent that a culture of working in silos and a failure to coordinate activities within districts persisted, thus undermining the noble intentions of policy regulations governing the work of district offices and in supporting effective digitally mediated teaching and learning in schools (Mthembu & Bhengu, 2025). School leadership has been found to neglect their fiduciary duty of supporting departmental heads in their digital leadership role. Rather than actively promoting internal staff development initiatives to enhance digital proficiency, school leadership often shifts the responsibility for teacher professional development to the district office (Hero, 2020). This is despite research consistently demonstrating that school leadership and district support are critical to improving the use of digital technologies in primary and secondary education (Mustafa et al., 2024; Naicker & Khumalo, 2023; Rubach & Lazarides, 2019, 2021; Runge et al., 2023). From the perspective of human resource policy, not adequately supporting departmental heads in fulfilling their curriculum and digital leadership roles is tantamount to undermining the dictates of the South African Schools Act of 1996, whose preamble explicitly stipulates that schools and districts must constitute a support structure for all school-based curriculum transactions, including overseeing departmental heads' implementation of digitally mediated education (DBE, 2011).

These findings, when dissected within the midpoints of the right to development, show that from a strategic point of view, school leaders and the education districts do not fulfil their fiduciary duty of providing strategic support to middle managers. The right to development envisions a situation whereby in-service training is extended to all occupational categories within the ecology of every school rather than being rolled out selectively (Chilungo, 2025). According to this theory, ignoring the developmental needs of the departmental heads implies that school leaders (i.e., principals and their deputies) and district officials infringe upon the basic developmental rights of the sampled departmental heads. By implication, acting in such a manner implies that school leaders and the district are not following the key pillars of the Norms and Standards Educators (2000), which, among other factors, mandate that departmental heads undergo continuous professional development so that they became knowledgeable curriculum leaders, efficient administrators and competent supervisors of teaching and learning.

This study can provide valuable information for stakeholders within the value chain of supporting the implementation of digitally mediated education, to strengthen leadership training for departmental heads and promote effective educational technology integration programs for teachers. Although the study is derived from a case study of South African schools, its findings and recommendations can be used by 1) prospective researchers to conduct comparative studies, 2) policy makers to amend digital education policies, 3) education districts to understand the complexities of leading digital innovation in resource constrained schools, and 4) school committees to formulate best practices. Therefore, a study of this magnitude will add a unique layer of evidence to digital leadership literature which largely profiles the experiences of teachers and principals and excludes middle managers.

5. CONCLUSION

The aim of this study was to investigate the challenges faced by departmental heads in mentoring teachers in implementing digitally mediated education in their classrooms. The context of the case study involves three schools located in Mpumalanga Province, South Africa. The study found that departmental heads face several challenges in leading digital transformation in schools. One major issue is teachers' resistance to changing their teaching methods to adopt digitally mediated education. Additionally, many departmental heads experience self-doubt because their ICT skills are inadequate compared to those of the early-career teachers they are expected to mentor. Compounding these challenges is the scarcity of skills development and postgraduate funding opportunities, as well as limited support and guidance from the school leadership and district officials in supporting departmental heads in their digital leadership role.

In light of the concerns raised, the study recommends providing departmental heads with professional development and access to postgraduate funding. The study proposes an alternative approach: rather than viewing the advanced ICT skills of early career teachers as a barrier to their digital leadership roles, these skills can be leveraged positively. To achieve this, departmental heads could assign early career teachers the task

of mentoring older teachers to enhance their ICT skills and understand the benefits of digitally mediated education. At a strategic level, school management teams, the district office, and teacher unions should collaborate to enhance departmental heads' digital leadership proficiency and educate the older generation of teachers on the importance of embracing 21st-century education. Furthermore, the study recommended that:

a. Education district officials exercise regular monitoring and evaluation of school-based support given to departmental heads in their digital leadership role. This will enable departmental heads to mitigate professional challenges before they become more intense.
b. Departmental heads be offered bursaries linked to their digital leadership role. Bursaries will motivate teachers and departmental heads to study further and improve their digital literacy skills to the level that will enable them to cope with leading digital transformation in their schools.
c. Departmental heads should introduce peer mentoring to encourage intergenerational knowledge sharing and skills development among younger and older teachers. Intergenerational knowledge sharing will ensure that both the younger and older teachers work collaboratively to leverage one another's strengths and explore peer mentoring instead of seeing each other as being on opposite sides.

5.1. Study Limitations and Significance of the Findings

Despite its potential to transform teaching and learning, digital leadership is one of the ignored remains largely under-explored in South African schools (Dasruth & Naicker, 2026). The study's findings were derived from the perspectives of departmental heads in the intermediate (i.e., grades 4-6) and senior phases of primary education (i.e., grade 7). Therefore, the exclusion of departmental heads at the foundation phase (i.e., grades 1-3) signals a limitation. In that regard, the study acknowledges that a sample of six departmental heads is insufficient to generalize its findings beyond a single school district in Mpumalanga province.

The significance of the study lies in its findings, which provide guidance to educational districts across Mpumalanga and all nine provinces in South Africa for navigating similar situations. Moreover, local literature consistently proves that much of the ineffectiveness among departmental heads is linked to limited access to professional development, as well as inadequate support from schools and districts (see Bipath & Nkabinde, 2018; Nkambule, 2023; Tapala et al., 2020; Mashiane-Nkabinde, 2020; Mashiane-Nkabinde et al., 2023; Nhlumayo, 2025; Nhlumayo & Ngubane, 2025; Williams et al., 2024).

From this perspective, policymakers in South Africa and other contexts in the Global South must reconsider their approaches to supporting departmental heads, especially in light of 21st-century education. Furthermore, the study invites prospective researchers to explore this topic in their localities, utilizing larger sample sizes and methodologies that facilitate effective data collection.

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