Complex Inequalities and Inequities in Education: Expanding Socially Just Teaching and Learning through Digitalisation in South Africa

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Abstract

Social distancing was meant to reduce the rate of COVID-19 transmission; however, it affected social interactions, which is a requirement for the cognitive development process. Infrastructure and connectivity remain weak in South Africa, and social distancing became a gatekeeper that prevented students, especially those with restricted space and limited resources, from interacting with their peers, teachers, and friends. The institutional capacity for adopting and pedagogically integrating information and communication technology in education was not enough, and this revealed the phenomenon of digital and social inequality among different groups in South Africa. While the primary focus of this conceptual study was the complex inequalities in the education sector in South Africa, Bernstein's pedagogic device lens was used in this conceptual paper to examine the discourse of technology as an enabler of a socially just classroom and the nature of educators' acceptance of digital technologies in their professional space. It further considered the situated socio-historical transformations and how the legitimisation of elites' perception of digital technologies in the classroom was challenged. Lastly, the article comments on how the elites see inequality. The advancement of technology has presented a challenge and an opportunity to all educational institutions to explore digitalisation affordances instead of relying on dominant discourses informed by Western and Euro-centric contexts. Accordingly, the multidimensionality of digital inequalities was explored with the aim to provide detailed, multifaceted coverage of inequities

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that extend far and wide in the South African education system. If digitalisation is considered a game changer, pedagogical content knowledge (PCK) is fundamental to educational equity and quality education. PCK supersedes the discourse on digitalisation affordances, and therefore, the intersection of PCK and digital technologies must be investigated. Further, it is imperative to understand how digital technologies expand access to the unique body of knowledge systems for all learners, especially those coming from disadvantaged backgrounds and whose basic dignity and social position are threatened.

Keywords: complex inequalities, digitalisation, digital technologies, education, inequities

Introduction and Background

This chapter explored the nature of educators' acceptance of digital technologies in their professional spaces and investigated the discourse of technology as enabling a socially just classroom. Enabling a socially just classroom guarantees educational equity and as such unlocks high-quality education for all learners (Hamilton 2007). The hallmark of educational equity is educational inclusion, social development, and economic mobility (Killough *et al.* 2018). As a necessary function of relevance, the focus should always be on under-resourced schools to address inequities and achieve equitable education outcomes (Kantrov 2017). To achieve educational equity and equitable opportunities, it is important to address issues of access and to strive to 'reduce disparities across different demographic groups' (Kantrov 2017:3). As efforts grow to achieve educational equity and equitable opportunities and to expand the participation of historically disadvantaged learners in education, it is important to pursue effective initiatives to advance inclusivity. In this study, we explored digitalisation affordances to enhance teaching and learning to increase access and equitable opportunities for all learners to succeed.

Given the salience of multiple social identities among learners, the aim of this chapter was to examine the discourse of technology as an enabler of a socially just classroom and the nature of educators' acceptance of digital technologies in their professional space. In addition, this study aimed to

present and describe the limitations of South Africa to make a meaningful and purposeful transition to digital education. In this chapter, 'digital education' refers to the intersection of education and technology to create technology-enhanced teaching and learning environments (Mhlongo & Dlamini 2022). The meaningful intersection of education and technology could only be achieved through pedagogically and technologically sound methods. Instead of naturalising digital technologies in education, this study used Bernstein's (2000) pedagogic device lens to examine the complex inequalities and inequities in education, particularly in initial teacher education (ITE); the discourse of technology as enabling a socially just classroom; and the nature of educators' acceptance of digital technologies in their professional space.

ITE refers to teacher training programmes offered by universities to equip students for school-based teaching (Deacon 2016). While remarkable progress has been made in ITE in terms of access, the issues of quality education and inequalities in teacher knowledge as the foundation for other types of knowledge, especially pedagogical and technological knowledge, remain unresolved (Brown 2017; Taylor 2019). The motivation for conducting this research was both theoretical and personal in order to lay a foundation for how government and education institutions can effectively respond to an unequal society. Currently, there is a paucity of evidence for factors legitimising the elites' perceptions of digital technologies in the classroom, and hence, it was important to comment on how the elites see inequality. Most learners in the education sector in South Africa have a lower socio-economic status (Spaull 2015; 2019). Given the well-known relationship between socio-economic status and epistemic access, any decision made on digitalisation should consider the situated socio-historical tensions. Therefore, we should aim to understand the complex inequalities in our education systems at primary level, secondary level, and post-secondary level.

Significantly, it is imperative to understand that all learners at primary, secondary and post-secondary level are expected to compete locally and globally for 'economic, social, political, technological and scientific success' (Garland 2015:2400). There is an already alarming attrition rate of learners in the education system, and the leak is evident in Grades 10 and 11 (Spaull 2015). According to Spaull (2015:34), 'the matric results only reflect the performance of half the learners who started schooling 12 years earlier

because 50% of learners drop out before reaching matric (primarily in grades 10 and 11)'. This can be attributed to several factors, including socio-economic status, knowledge access, technological factors, social capital, and cultural capital. The following question must be asked: Are learners mentally prepared with the requisite literacies to develop cognitively? The requisite literacies provide mental structures to acquire knowledge and competencies stipulated in the curriculum. On the national level, the Department of Basic Education drove the development of the Curriculum Assessment Policy Statements (CAPS) curriculum, which represents a policy statement for learning and teaching in South African schools[1].

The achievement gap between the 'haves' and the 'have-nots' in South Africa is widening (Dlamini 2018; Mtshweni 2022; Ogbonnaya & Awuah 2019; Spaull 2015). The disparities in performance and access to educational resources are of particular national concern. Efforts have been made to provide information and communication technology (ICT) infrastructure to unlock the education sector by creating multiple entry points to teaching and learning. Given the complexity of ITE and the multiplicity of knowledge at play, national and provincial government departments have implemented different professional development initiatives to help bridge the gap in learning outcomes. Evidently, 'higher ICT use in schools and at home was positively correlated with academic achievement' (Garland 2015:2401). Equitable access to high-quality and culturally relevant digital education resources are of great importance, but digital equity is central to this. Judge, Puckett and Cabuk (2004:383) describe digital equity as a social justice goal that ensures all students have access to ICTs for learning, regardless of their socio-economic status, disability, language, race, gender, or any other characteristics that have been linked with unequal treatment. Equitable access to ICTs is one aspect of the concern for digital equity.

Therefore, digital equity is not an option in the pursuit for multiplicity in knowledge access, an inclusive learning environment, and the presentation of multimodal content. A 'false start' early in the education system has the potential to affect learners' progress and contribute to the leaks, particularly in Grades 10 and 11. Considering the socio-economic

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[1]

https://www.education.gov.za/Curriculum/CurriculumAssessmentPolicyStatements(CAPS).aspx

inequalities in education to address issues of access and the opportunity to create new high-quality and culturally relevant content through digitalisation, we must explore the digital pedagogy affordances with the aim of improving the educational access of all socially excluded learners. Education inequalities are highly complex and multifaceted, and this has contributed to unequal educational opportunities; hence, the importance of moving beyond technology affordances in education rhetoric with non-equitable consequences. In this chapter, we map technological affordances with the following constructs: diversity, equality, access and inclusion. We then present comprehensive insights and demonstrate how digitalisation contributes to socially just teaching and learning in a diverse classroom with learners from different socio-economic backgrounds.

Bernstein's Theory of the Pedagogic Device: Digitalisation as Pedagogic Device

To develop deeper insights into and better understand the intersection of technology and education as a requirement to digital transformation, we adopted Bernstein's (2000) theory of the pedagogic device as the study's lens. This chapter conceptualises digitalisation as a pedagogic device with educational affordances to enable multiple entry points to education. Bernstein's theory of the pedagogic device is about how structures of knowledge and pedagogic practice can transform power relations and the way in which knowledge is classified and framed (Wheelahan 2005). According to Wheelahan (2005:1), 'the classification and framing of knowledge are united in pedagogic practice' and impact the identity of the teachers. Therefore, the intersection of technology and education depends on the knowledge structures of the different fields, and the way the knowledge is presented and accessed depends on various capital resources. Bernstein (2000:52) explains that 'recontextualising singulars into larger units which operate both in the intellectual field of disciplines and in the field of external practice. Regions are the interface between disciplines (singulars) and the technologies they make possible'.

In the current context in South Africa, the 'old' regions represent the traditional face-to-face approach to education, and the 'new' regions are represented by technology-enhanced learning environments. However, the current human capital situation in the teaching profession in South Africa,

especially in relation to teachers' ICT professional development, is disjointed and violates the norm of equality in the professional practice of teachers. Instead of empowering learners to have access to a variety of digital technologies to enable them to access knowledge and information beyond the classroom, it limits their participation in the global knowledge economy and opportunities of life.

This inequality is morally unjustified as it limits learners' and teachers' freedom of participation in the development of their social and cultural capital. These capitals are necessary resources to access communities of professional practices and have serious implications for social and economic inequalities. Therefore, it is important to examine the impact of digital technologies on social justice and epistemic access and its implication for social and economic growth. Considering the technological affordances, including ubiquitous and multimodality, this study explains how digitalisation as a pedagogical device enables inclusivity and multiple entry to education without neglecting the social and cultural contexts. Perhaps more importantly, it is relevant to note that the dichotomy between theory and practice and the interplay between technology and education lie at the heart of digitalisation in ITE. In this view, the affordances offered by these technologies should be part of the current human capital discourse in ITE programmes. Bernstein (2000:59) explains it as follows:

> The ability to respond to such a future [perpetual 'trainability'] depends upon a capacity, not an ability. The capacity to enable the actor to project him/herself meaningfully rather than relevantly, into this future, and recover a coherent past. This capacity is the outcome of a specialised identity, and this precedes ability to respond effectively to concurrent and subsequent retraining … It is not a purely psychological construction by a solitary worker as he/she undergoes the transitions which he/she is expected to perform on the basis of trainability. This identity arises out of a particular social order, through relations which the identity enters into with other identities of reciprocal recognition, support, mutual legitimisation and finally through a negotiated collective purpose.

To acquire technological knowledge is developmental, and therefore, responsive structures are important because technological knowledge is drawn

from complex bodies of knowledge. Therefore, teachers must see relevancy of knowledge in their professional practice, making the principles under-pinning digital literacies important so that they can easily be integrated in pedagogical knowledge. Digital literacy includes 'digital skills, computer literacy, functional skills as well as critical thinking and search skills' (Duma *et al.* 2021:3). Thus, it is important to equip both educators and learners with the necessary digital competencies so that they can fully support the efforts to transform the education sector.

The Discipline of Education and the Theory for Education Practice

Education is highly complex with multi-layered segments. These multi-layered segments comprise various knowledges and capitals that must be acquired. For the purpose of this chatper, the different types of knowledge are subject (content) knowledge, pedagogical knowledge, and technological knowledge. Importantly, teaching and learning are interrelated in a highly complex environment; hence, the meaningful and purposeful intersection of the three types of knowledge is important to ensure teaching and learning take place. The classroom environment is conceptualised around pedagogical content knowledge (PCK), which is central to good teaching and learners' cognitive development (Shulman 1986). Gudmundsdottir and Shulman (1987:60) suggest that 'in preparation and teaching teachers draw on sources of knowledge which are identified: content knowledge, pedagogical content knowledge, curricular knowledge, general pedagogical knowledge, know-ledge of aims and purposes, knowledge of learners, and knowledge of educational contexts, settings, and governance'.

With the movement of ideas and information across the highly complex education environment, teachers must develop strong PCK and embed it in their teaching practice. Therefore, initial teacher preparation is key so that teachers understand what they need to know and how to teach it to enable learning. The advancement of technology that influences how education is delivered demands that educators begin experimenting with various digital technologies to help learners in different settings to acquire knowledge and practice. Thus, educators must be digitally relevant to model digital competencies and make them accessible to all learners. However, educators must have the required 'knowledge, skills and support necessary

to integrate ICT into teaching and learning' (Hindle 2007: 1), and the integration of digital tools must be presented within a framework for teacher development. Hence, the current study attempted to answer the following question: How can education practitioners harness digitally driven innovation to expand socially just teaching and learning?

There are many studies with multiple theoretical models on the pedagogical integration of ICT in education (Dlamini & Ndzinisa 2020; Scheffer 2021), but the contributions are fragmented. This study contributes to the present discourse on digitalisation in education because education is highly complex with moving interconnected sources of knowledge. Furthermore, this study present cases that provide evidence of digital transformation and its role in improving teaching and enhance learners' experience. Digitalisation in education entails shifting from the traditional face-to-face, and often 'brick-and-mortar-based', approach to a hybrid approach to enhance access and learners' experience. As such, there is a greater need to resource public schools and create opportunities for teachers to develop best practices on digital pedagogies and online education. Given the complications in the public school system, especially the existing culture of inefficiencies, limited resources, and knowledge (content, pedagogical and technological) gaps, it is necessary to frame digitalisation in education.

In the long run, an ecosystem of knowledge and skills may be developed within the existing culture in the public school system. Sometimes a major problem in the teaching profession is making the connections between how digitalisation enables cognitive development and bridge the access gap to education, especially in an unequal society. Teachers must see digital technologies in their own professional and cultural context. Currently, 'teachers' ICT professional development needs are not addressed in a meaningful and systematic way despite the demand for teachers to develop ICT skills and competencies' (Dlamini & Mbatha 2018:17). The appropriation of digital technologies in teaching and learning can challenge thinking and engagement with various concepts and methods in the classroom. Teachers must develop their digital competencies to successfully interface with new and emerging technologies. There is evidence in the literature that there is an agreement about the educational benefits of digitalisation to enable inclusivity and enhance learners' experience (Dlamini & Mbatha 2018; Mdiniso *et al.* 2022; Ndzinisa & Dlamini 2022). The is a big need for

transformative tools in all areas of human activity, and it is necessary to develop innovative ways to address educational imbalances to create equal education opportunities. However, unequal access to digital infrastructure and connectivity has serious implications for human capital.

Initial Teacher Education and Digitalisation

ITE is an essential part of the education system as it produces educators in accordance with government policies. In South Africa, ITE is governed by the National Qualifications Framework Act (Act No. 67 of 2008) and set out in MRTEQ (Minimum Requirements for Teacher Education Qualifications; Department of Higher Education and Training 2015). In 2020, all South Africa's phases of education faced the fundamentally new challenge of shifting teaching and learning to a remote format. This transition was known as emergency remote teaching (Hodges *et al.* 2020) and involved the use of digital technologies and online platforms to deliver education. The transition was almost impossible in the public school system because of limited digital infrastructure and technological knowledge, and the reluctance by teachers to abandon their existing pedagogical methods.

The negative perceptions of digitalisation were also a major challenge, as well as 'access to computing devices and the associated support and training requirements, as well as students' access to computing devices and data' (Dlamini & Ndzinisa 2020:59). Hence, it is important to take the social and economic realities of teachers and learners into consideration to effect meaningful and accepted educational change. In addition to teaching and learning, MRTEQ requires that student teachers in ITE programmes complete supervised school-based practicum. The transition and adaptation to an online modality were daunting tasks and 'represented huge resource, technical and pedagogical challenges' (Robinson & Rusznyak 2020:517). The abrupt shift to online demanded the development of varied digital knowledges and skills to make sure the digitalisation was complementary to the current ITE offerings. Anticipating the future is necessary, and the time to think deeply about digital technologies in education is now. In the process of reimagining education in the digitalisation era and enriching the discourse on infusing digital technologies and pedagogies in ITE programmes, we identified the most important technologies and practices in education (Table 1).

Table 1 Digital technologies intersect with teaching and learning

	Relevance for Education (Teaching & Learning)
Social Media (WhatsApp as a pedagogical tool)	Enable educators to offer a more flexible learning experience to more learners, synchronously and asynchronously. Extend off-hours learner support by extending education beyond the walls of the classroom.
Virtual teaching (Google Classroom, Microsoft Teams, Second-Life, Big Blue Button, Facebook)	Enable ubiquitous education and provide alternative pathways to education. Organise learning activities in real-time to support active learning processes.
Integrated learning platforms (learning management systems, student information systems) (Dlamini & Ndzinisa 2020)	Learners have continuous access to instructional resources. Provide educators with learning data to improve their instructional delivery. Harness learners' data and make intelligent intervention decisions based on performance metrics. Cross-functional data generation for functional support and to help learners achieve their learning goals. Enable new modalities and pedagogical shifts to enhance learners' experience. Empower learners to participate to wider communities and networks as they develop cognitively.
Learning analytics	Leverage data form integrated learning platforms to improve learners' experience and support active learning. Aggregating, assessing, and analysing infor-mation for real-time prediction and optimi-sation learning processes, learning environ-ments, and educational decision-making.

	Identifying learners at-risk timeously to develop intervention strategies. Access to learners' performance metrics to generate customised, adaptive learning pathways tailored to their needs.
Smart devices and mobile learning (smartphones)	Increase access to open education resources. Affordability increases access and ensures digital equity.
Virtual reality technologies, virtual learning devices	Immersive virtual experiences involving manipulations of and interactions with virtual objects. A three-dimensional representation of objects. Provide learners with disabilities new kinds of access and experiences. Inventing more efficient ways to calibrate new hearing aids. Make learning on complex real-world contexts more accessible, engaging and self-paced. Proving to be an effective way to augment traditional forms of pedagogy.
Interactive whiteboards (Walshe 2022)	Create student-centred learning experiences. Enable access to images from the computer and present them in multiple forms. Provide visual representations of instructional activities. Provide multiple representation of content. Provide virtual manipulatives and enable interactive presentations. Promote learners' participation.

Reviewing the concept of digitalisation created the opportunity to develop effective educational practices guided by research-informed best practices on the intersection of digitalisation and ITE. Table 1 provides a comprehensive picture of various technologies and their affordances in education. It is evident that the role of digital technologies in inclusivity and social justice is

huge and has far-reaching effects on social and economic inequalities. Digital technologies are central to the future where face-to-face, online and hybrid approaches will complement each other and transform the classroom experience. The affordances of the technologies in Table 1 are the ability to integrate diversity and various modalities into teaching and learning. Given the complexity of ITE, it is imperative to weave digitalisation into the fabric of the curriculum and to focus on the teaching and learning ecosystem in hybrid environments to adapt to diverse needs and situations.

Inclusive Learning Environment Constructs

Considering the situated socio-historical transformations, the legitimisation of elites' perception of digital technologies in the classroom is flawed, yet the distributive nature of digital learning environments is ideal. The creation and use of a hybrid learning space are inclusive and transformative because learners with various learning needs are able to pursue knowledge beyond the physical classroom boundaries. The implementation of digital learning platforms in education was an effort to increase access to and extend opportunities of learning beyond the class periods (Buss *et al.* 2018; Dlamini & Ndzinisa 2020; Foulger *et al.* 2012). Despite the pedagogical affordances of digital learning platforms, there is a limited understanding of technology application among teachers to inform the constructivist approach to teaching and learning (Bakir 2015). According to the US Department of Education, Office of Educational Technology (2010:16), technology should be 'used in the preparation and ongoing learning of educators to engage and motivate them in what and how they teach'. Therefore, in our view using technology in ITE is very important to ensure that preservice teachers develop confidence in the pedagogical use of technology.

Preservice teachers' pedagogies are informed by how they experience their education, and therefore, to successfully implement technology in teaching and learning, there must be a 'cultural shift, a change to a paradigm in which learning with technology becomes an integral part of instructional practices, and where its use is encouraged, supported, and rewarded in every aspect of teacher education' (Bakir 2015:127). In South Africa, technology in teaching and learning has become a national priority, but the reality on the ground is troubling and most teachers lack digital skills and have limited access to digital infrastructure (Dlamini in-press; Dlamini

& Mbatha 2018). Therefore, ITE programmes must prepare technology-proficient preservice teachers to meet the needs of 21st-century learners (Bakir 2015; Dlamini 2022; Madhushree *et al.* 2020). Almost all ITE programmes have provided 'crash' courses on computer literacy, but more in-depth training that is consistent with the policy standards (MRTEQ) is needed. Digitalisation must be systematically implemented to complement the 21st-century learning environment and extend the boundaries of teaching and learning. This means technological knowledge development must be integrated throughout the entire teacher education programme, especially in methodology courses demonstrating how to pedagogically integrate techno-logy into teaching and learning. In the methodology courses, preservice teachers must be exposed to new pedagogical practices and shown how traditional face-to-face methods coexist with digitalisation.

Discussion and Conclusion

As we look forward, we must reflect on the current pedagogical approaches to ITE and interrogate how it responded during the COVID-19 pandemic. A critical consideration is the required resources to make any transition to digitalisation smooth, not just technology but also supporting structures and strategies for inclusive and transformative pedagogies. This is not retro-spective but is a reflection on educators' identities to rethink traditional face-to-face education offerings, digitalisation and social-oriented pedagogies to enhance learners' experiences. Therefore, it is critical to prepare educators with the right pedagogical tools to engage and inspire learners and to prepare educators who will grapple with the realities of structural inequalities in all communities. This will ensure that each classroom has access to educators who understand the realities of the classrooms in an unequal society.

Considering the situated socio-historical transformations, especially with issues of identity in 21st-century complex education where teachers are almost forced into dominant Western and Eurocentric cultural practices, teachers are expected to act outside their social and cultural education practices. This can be attributed to the legitimisation of elites' perceptions of digital technologies affordances in classrooms without digital skills, professional development opportunities and support. From this perspective, enculturation within inclusive and supportive digital education structures is inevitable. However, digital inequalities in the form of lack of digital devices,

expensive data, low connectivity bandwidth, and unreliable internet are a reality in South Africa. With South Africa conclusively opened to the international community, new realistic education frameworks and amended policies are necessary to ensure the curriculum is responsive and supported with digital infrastructure. The advancement of technology and the call for digitalisation of education have rendered the current curriculum obsolete.

The social reality of schools, educators and learners in South Africa must be addressed to be identified with digitalisation. Currently, how the elites see inequality is because of orientalism. According to Sardar (1999: vii), orientalism exists where 'we have a world where reality is differently perceived, expressed and experience'. As a country, South Africa must begin from a different premise to confront the ignored realities and acquiesced discourses informed by the 'haves'. Notwithstanding the affordances of advanced technologies as presented in Table 1, the digitalisation of education must be analysed in loco to inform the new digitalisation agenda and the development of a new curriculum. In this sense, this research continues the discourse on digitalisation in teaching and learning with the intention to provide insights on how digitalisation enables socially just teaching and learning in an ideal context and highlights the weaknesses in South Africa to transition to digital education. In South Africa, the education sector's capacity for adopting pedagogical integration of ICT in education is weakened by poor infrastructure and connectivity.

Though Table 1 provides a comprehensive picture of various technology affordances in education to enable continuous access to learning and multiplicity of knowledge, learners have restricted spaces at home and limited resources to participate in the global digital education phenomenon. In partnership with the private sector government can improve digital infrastructure and connectivity and make internet access affordable. In 2020, the lockdown and closure of schools saw teacher educators adopting emergency remote teaching, and according to Robinson and Rusznyak (2020: 517–518) it 'represented huge resource, technical and pedagogical challenges' and the 'situation placed teacher education pedagogy under the spotlight'. According to Ndzinisa and Dlamini (2022:7), the rapid transition 'fuelled the tension between technology, context and pedagogy in less-than-ideal circumstances'. This unprecedented scenario exacerbated socio-economic inequalities as 'access to conducive study areas, smart devices, internet, mobile phone coverage, sufficient data and even a reliable electricity supply

could not be assumed' (Robinson & Rusznyak 2020:518). Mentis (2008:217) pointed that there must be 'reciprocal interaction between technology and pedagogical practices'. Evidently, the move to an online modality was almost impossible as teachers were not prepared to teach in complex settings.

This situation was further exacerbated by teacher educators' lack of digital skills in the pedagogical integration of ICT into their professional practice. The dangers of exacerbating inequalities and inequities are exclusion and learners being locked out of their right to education because teachers lack digital literacies to engage in teaching and learning practices online (Belluigi *et al.* 2022). In our view, it is important to prepare technology-proficient preservice teachers to introduce interactive and multimodal pedagogies. The transition to an online modality meant that physical interactions as a requirement in the cognitive development process were affected, which meant teachers had to be creative in how they adopted and positioned digital technologies in the classroom to enable collaboration, discussions, the co-construction of new knowledge, and the development of various cognitive skills (Lei & Medwell 2021; Ndzinisa & Dlamini 2022). Although the pedagogical affordances of digitalisation are significant, virtual teaching and learning remain a conundrum since South Africa is still in the early stages of implementing digital education solutions.

While there are new ICT project developments in South Africa, the adoption and uptake remain low because of factors such as supporting ICT infrastructure, expensive internet, teachers' digital capacity, lack of technological literacy, and technology affordability and accessibility (Barakabitze *et al.* 2019; Mwapwele *et al.* 2019; Ndibalema 2022; Ndzinisa & Dlamini 2022). Rambe and Ng'ambi (2014) suggest Facebook as a pedagogical tool to South African students to expand their digital skills. Issues of technology affordability and accessibility remain unresolved in South Africa, and the fact that most learners in the education sector in South Africa have a lower socio-economic status is a huge problem. According to Mwapwele *et al.* (2019:3), South Africa's national broadband policy of 2013 'mandates the introduction of a broadband connection (with a download speed of at least 100 Mbps) to every primary school and secondary school as part of an initiative to ensure the countrywide availability of broadband internet access by the year 2030'. It would be interesting to follow up with the Department of Communications and Digital Technologies on the progress made to ascertain the status of connectivity in the country after the Covid-19

pandemic. Connectivity as the cornerstone of socio-economic development and an inclusive information society should be guaranteed to all people. This will avoid the disastrous effects of social distancing where most learners were excluded from interacting with their peers, teachers, and educational resources.

According to Tiba and Condy (2021:149), 'for learners to be prepared to successfully function in the 4th industrial era, which is dominated by the use of technology, teacher education institutions need to prepare preservice teachers to effectively teach with technology'. Furthermore, MRTEQ stipulates that preservice teacher must complete an ICT endorsement module to develop their technological knowledge to know how to teach using ICTs for 'innovative teaching and enhanced learning' (Department of Higher Education and Training 2015:9). Therefore, the intersection of technology and PCK as fundamental to educational equity and quality education is important because it will enable preservice teachers to develop digital literacies and apply them during their teaching practice at schools. As a requirement for teachers to teach with technology during their professional practice, it is important to conduct empirical research, especially longitudinal studies, to investigate how digitalisation expands access to the unique body of knowledge systems for all learners. As detailed earlier, teaching happens in dynamic and complex settings, and therefore, the integration of digital technologies adds another layer for learners to continue learning beyond the physical classrooms. By so doing, learners become actively engaged in their learning process, which improves the quality learning as learners come from diverse backgrounds.

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