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Reconceptualising Initial Teacher Education in South Africa: A Quest for Transformative and Sustainable Alternatives

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Abstract: Education serves as a catalyst for achieving Sustainable Development Goals (SDGs), and it is essential for education to keep pace with societal dynamics. This paper argues for the reconceptualisation of initial teacher education in South Africa to promote an alternative transformative and sustainable pedagogy. Questions arose regarding the compatibility of the current teacher education program in South Africa with the needs of today's learners. Therefore, it is important to assess whether South African higher education institutions provide adequate training for future teachers. The current teacher education programme has remained unchanged for many years, failing to adapt to the evolving educational landscape and instead adhering to traditional methods that were relevant in the past. Incorporating flexible, transformative pedagogies and technologies can enhance student learning and engage learners of the 21st century. Using a typological methodological design, this conceptual explanatory paper identifies six themes: program content, pedagogy, technological advancements, preparing teachers for inclusion, school-based experiences, and addressing anxiety. This paper contributes to existing knowledge by advocating for the reconceptualisation of teacher education programs, aiming to produce graduates who are equipped to address global challenges. Furthermore, it emphasises the need for an alternative transformative sustainable initiative to overhaul teacher education programs to align with modern societies' complexities and dynamics. Therefore, this paper calls for the reformulation of South Africa's initial teacher training to align with SDG 4 (quality education) and Agenda 2023, which underpin Africa's transformational aspirations for a better future for all.

Keywords: Initial teacher, transformative education, sustainability, curriculum responsiveness, pedagogy.

1. Introduction

It is widely known that the world is facing numerous challenges, including pandemics, natural disasters such as floods and earthquakes, as well as sustainability issues (Hariri-Ardebili & Lall, 2021; Simonovic et al., 2021; Righi et al., 2021; Thomas, 2017). Furthermore, there are also concerns about violence, wars, protests, a high crime rate, behavioural changes, unemployment (particularly in certain parts of Africa), mental health issues (specifically related to stress), poverty, and economic downturn caused by the COVID-19 outbreak (Ferguson, 2022; Pallapa, 2021). These pandemics and natural disasters require an innovative approach to training initial teachers (also known as preservice teachers in some regions). Despite the importance of technology in the twenty-first century,

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preservice teachers are not adequately prepared to utilise it. The sudden onset of the COVID-19 pandemic served as a wake-up call for various sectors, including higher education, to embrace technology for sustainable teaching and learning and integrate it into initial teacher education. Darling-Hammond et al. (2020) argue that in order to educate learners of the twenty-first century, attention must be given to teachers' 21st-century skills and their training and evaluation must be restructured. Siarova et al. (2017, p. 7) assert that "a broader range of skills and abilities is needed to navigate a changing landscape characterised by the increasing importance of information and communication technologies (ICTs)". Education plays a crucial role in achieving the seventeen Sustainable Development Goals (SDGs) set by the United Nations. Therefore, it is vital to advocate for the reconceptualisation of initial teacher education in South Africa, with a focus on transformative sustainable initiatives aligned with SDG Goal 4, which promotes inclusive and equitable quality education for all.

Different stakeholders and society expect higher education to lead in providing solutions to issues threatening societies. Teacher education programs must align with these expectations to remain relevant and responsive. Additionally, teacher education should embrace change and incorporate transformative pedagogies, content, methods, and technologies that are responsive and relevant to the global needs for sustainable development.

Zeleza (2022) argues that universities should not be seen as detached ivory towers but instead should reflect the visions, missions, institutional cultures, and values that keep up with societal changes. For South African teacher education programs to serve as the foundation for all other fields, a multidisciplinary approach to knowledge creation, skills development, and attitudinal change is crucial. This can be achieved by adopting technologies that appeal to the tech-savvy generation of initial teachers and school learners, bridging the gap between the global north and the global south (Shorey et al., 2021; Dabija et al., 2019; Johnson et al., 2016). Thus, this conceptual paper aims to argue for the reconceptualisation of initial teacher education in South Africa and propose an alternative transformative sustainable initiative.

Every student has the right to quality and authentic education to contribute meaningfully to their country's economy as responsible and knowledgeable citizens (Sibanda & Marongwe, 2022). As mentioned earlier, graduate unemployment and sustainability have become global concerns. The world is in need of long-term solutions to these issues, and teacher education can serve as a bridge. Giddings et al. (2002) argue that education for sustainable development goes beyond merely obtaining a qualification. It should profoundly impact human life, fostering knowledge, skills, attitudes, behaviour, beliefs, and values that align with the SDGs and societal changes (Sibanda & Marongwe, 2022; Giddings et al., 2002). Teacher education is central to sustainable development by shaping and promoting behaviour change.

Sibanda and Marongwe (2022) argue that education should be relevant, responsive, and adaptable to societal demands and changes. They emphasise the importance of introducing digital education as a crucial tool for sustainable development. The key question is whether student teachers can connect with and apply what they're being taught to real-life situations. Giddings et al. (2002) suggest that today's learners need content they can relate to, delivered engagingly, such as videos, self-study programs, audio recordings, and gamification. In the Information Internet Age, we believe that education should be presented in catchy and memorable ways to achieve the sustainability goals outlined by the UN. So the question is, do the teacher education programs in South Africa align with these principles and promote lifelong learning?

However, the transformation in education has largely focused on increasing access and enrollment numbers (Ramrathan, 2016). The university curricula, including the selection and emphasis of knowledge and the pedagogical methods used by lecturers to transform disciplinary knowledge (Bernstein, 2000), have remained mostly unchanged despite significant societal and policy changes.

There is also an increasingly diverse student body and changing personal contexts of both students and lecturers (Padayachee et al., 2018).

As a result, graduates often seek existing job opportunities without the necessary skills to use their acquired knowledge and abilities to sustain themselves through the creation of new employment opportunities (Sibanda & Marongwe, 2022). Employers of university graduates have been calling for universities to revise their curricula to better meet changing economic and societal needs and to adequately prepare students for the rapidly evolving world of work (Griesel & Parker, 2009; Sibanda et al., 2022). Therefore, there is a need for a paradigm shift in the teacher education system to improve the training of preservice teachers.

1.1 **Purpose of the study**

We are concerned about examining the responsiveness and relevance of teacher education programs to the needs of the youth in South Africa. Hall et al. (2022) argue that one of the most important aspects of education is its impact on the future of young people. Education is expected to equip learners/students with knowledge and skills that they can use throughout their lives. Therefore, teacher education programs need to be developed or designed to be suitable for this purpose. Specifically, the aim of this paper is to evaluate the current teacher education programmes offered by South African universities and identify areas that need to be reimagined (Cherrington, 2017; Scholtz, 2019). The objective is to identify alternative sustainable initiatives that can bring about changes in teacher education programmes aligning with the dynamics and complexities of modern societies. This includes addressing issues such as inclusivity, the use of technology, violence in South Africa, and dealing with anxiety and depression. Therefore, this paper advocates for a revamp of the training process for initial teachers in South Africa to align with the UN's SDG4 (quality education) and Agenda 2023, which underpin Africa's transformation and aspirations for a better future for all.

2. **Methodological Design**

The paper employed a typology design method to categorise and analyse existing initiatives in teacher education. Typology refers to the systematic classification of concepts, phenomena, or ideas based on shared characteristics or principles (Cornelissen, 2017; MacInnis, 2011). By categorising these initiatives, we identified areas where new approaches or strategies are needed to address specific challenges or capitalise on emerging opportunities. This allowed us to synthesise information within each category, identify common themes or patterns, and compare different types to gain insights into the subject matter (Cornelissen, 2017; Fiss, 2011).

The typology design method involves organising complex information into distinct types or categories to facilitate analysis, comparison, and understanding (Cornelissen, 2017; Fiss, 2011). We chose this approach because it helped us to identify gaps in current teacher education practices and opportunities for innovation, which is why we titled the paper 'Towards an Alternative Transformative Sustainable Initiative.' The typology design method also enabled us to highlight the diversity of approaches to teacher education and the policy implications for policymakers. By categorising existing initiatives based on their underlying principles and goals, we were able to provide policymakers with insights into the potential impacts of different policy choices on teacher quality, student learning outcomes, and educational equity.

The use of typology in our paper on reconceptualising initial teacher education in South Africa is justified by the need to understand the complex dynamics of institutional restructuring and the challenges it poses for teacher education programs (Wolhuter et al., 2020; Kruss, 2008; Vavrus et al., 2011). This approach is particularly relevant in the context of post-apartheid South Africa, where the legacy of the apartheid education system and the need for transformative change are important considerations (Mzangwa, 2019; Samuel, 1998). Typology helped us to identify different dimensions of teacher education and evaluate the possibilities and constraints of current policies and

recommendations (Pendlebury, 1998). It also assisted us in critiquing the existing educational management framework and proposing alternative approaches (Gallie et al., 1997). Therefore, the use of typology is crucial for providing a comprehensive analysis and proposing a transformative sustainable initiative in initial teacher education in South Africa.

The design enabled us to organise ideas into clear categories or themes. We used the design to classify different existing approaches to teacher training in the context of teacher education, highlighting their strengths, weaknesses, and underlying principles. This approach allowed us to analyse and synthesise information, enhancing the clarity, coherence, and depth of analysis in this conceptual paper.

3. Presentation of Themes

3.1. Initial teacher education programme content

Globally, and particularly in South Africa, there is an ongoing debate surrounding the relevance of teacher education curricula implemented at universities to meet the needs of contemporary students (Sayed et al., 2017). This debate is supported by a study conducted at a prestigious South African university, which highlighted the shortcomings of the curriculum in addressing practical realities faced by learners in the classroom today (Arasomwan & Mashiya, 2021). Specifically, the study identified discrepancies between the knowledge acquired by preservice teachers and the knowledge required by students in the Life Science curriculum. These discrepancies were attributed to a misalignment between the content and implementation strategies studied by preservice teachers at the university level and the needs of students in the foundation phase. The findings of another study further support these observations, revealing a knowledge gap among preservice teachers, particularly in relation to the disruptive effects of COVID-19 on teaching and learning methodologies (van der Merwe, 2022). In light of these findings, it is evident that the content of teacher education programs in South African universities does not adequately prepare preservice teachers for the technological aspects of education, a gap that the pandemic has exacerbated. These findings are in line with the arguments put forth by Sayed et al. (2017) regarding the effectiveness of the current curricula in university settings. Consequently, it is recommended that universities align the Life Science curriculum used in preservice teacher training with the curriculum implemented in schools (Arasomwan & Mashiya, 2021). Additionally, it is crucial to ensure that the curriculum content is conceptually translated and accessible for young children in their home language, as emphasised by Arasomwan and Mashiya.

Upon graduation, preservice teachers transition into the role of novice educators and often experience reality shock early in their careers. Reality shock refers to the challenges faced by novice teachers as they struggle to apply theoretical knowledge to practical situations, indicating a lack of preparedness for the responsibilities associated with their profession (Botha & Rens, 2018). This has been attributed to the inadequacy of Initial Teacher Education (ITE) programs in preparing novice teachers for the reality shock they encounter at the start of their teaching careers (Bertram, 2023). The absence of certain elements in ITE programs, such as content knowledge (CK) and pedagogical content knowledge, has consequences for the work and practices of beginning teachers. Consequently, scholars have argued that ITE programs should prioritise the development of content knowledge (CK) and pedagogical content knowledge (PCK) in order to better equip novice teachers to teach students effectively, recognising that PCK takes time to develop fully (Winch, 2017, p. 89). It is important to note that ITE cannot address the reality shock experienced by novice teachers, emphasising the need to reconsider teacher education programs with the involvement of relevant stakeholders.

Arasomwan and Mashiya (2018) made additional observations, finding that many preservice teachers struggled to effectively teach subjects like Life Skills during school-based experiences due

to a lack of pedagogical strategies and knowledge, resulting in difficulties in connecting theory and practice (Mkhasibe, 2018). Similarly, Adams-Ojugbele and Moletsane (2019) argue that the ability to apply theory in practice is indicative of the effectiveness and efficiency of teacher education programs, emphasising the importance of using appropriate pedagogies. Applying theory in practice is critical in ensuring the efficiency and effectiveness of teacher education programs. While theory provides the foundational knowledge and principles for effective teaching, it is through practical application that teachers internalise and refine their skills (Stronge, 2018; Muijs & Reynolds, 2017). By engaging in hands-on experiences such as classroom observations, teaching practicums, and collaborative lesson planning, prospective teachers can connect theoretical concepts to real-world contexts, develop instructional strategies tailored to diverse learners, and foster reflective practices that promote continuous improvement (Menon & Sadler, 2018; Ryu et al., 2019).

The efficacy of teacher education programs is further enhanced through the use of pedagogies that are relevant to the local context. By incorporating culturally responsive and contextually appropriate pedagogies, teacher educators can ensure that prospective teachers possess the necessary skills and knowledge to effectively address their students' unique needs and challenges. This entails integrating indigenous knowledge, language, and cultural practices into the curriculum while also fostering critical thinking, problem-solving, and socio-emotional skills that are essential for sustainable development and social justice.

The integration of theory into practice and the implementation of relevant pedagogies in teacher education have implications beyond the confines of the classroom. They directly contribute to the realisation of transformation and the achievement of the Sustainable Development Goals (SDGs) by empowering teachers to become agents of change within their communities. Equipped with a solid theoretical foundation and practical teaching skills, which include digital competency, educators can effectively promote inclusive and equitable quality education (SDG 4), cultivate lifelong learning opportunities for all (SDG 4), and advance social, economic, and environmental sustainability (various SDGs). Additionally, by embracing culturally relevant pedagogies, teachers can play a role in preserving and celebrating local cultures, languages, and traditions, thereby contributing to the preservation of cultural diversity and heritage (SDG 11). Overall, the integration of theory into practice and the utilisation of relevant pedagogies in teacher education plays a critical role in preparing educators to navigate the complex challenges of the 21st century and contribute to the achievement of transformative education and sustainable development goals.

3.2 Pedagogy

South Africa, like any other country, is susceptible to the calamities that have affected nations worldwide. In light of the uncertain future, it is essential for preservice teachers to be well-versed in technologies and their applications. Hall et al. (2022, p. 1) contend, "The concept of the future is both elusive and allusive, particularly in today's intricate and uncertain world. Moreover, what can be said about the future of our digital education? How might it manifest, and how can we actively shape it?" As the world becomes increasingly unpredictable, pedagogical approaches in teacher education programs must adapt and incorporate innovative methodologies capable of withstanding unforeseen circumstances. The disruptive events experienced between 2020 and 2022 in South Africa and other parts of the world, such as the COVID-19 outbreak and flooding in certain regions of South Africa, highlighted the necessity for educators and students to possess the necessary skills and devices for online/remote learning (Songca et al., 2021; Landa et al., 2021). In view of these challenges, it is imperative that the developers of teacher education programs integrate technology-focused methodologies. Burden and Naylor (2020), along with Hall et al. (2021), argue that mobile technologies should be incorporated into the professional development of teachers while simultaneously advocating for the global conceptualisation and implementation of innovative education programs. It is widely acknowledged that societies are undergoing rapid change,

becoming increasingly complex and diverse compared to the past. Universities and schools now enrol students who are modern and sophisticated. As a result, there is a need to revise initial teacher programs to include new approaches and pedagogies. Nel et al. (2023) argue that higher education institutions should transform the preparation of students in terms of pedagogies and teaching strategies (Scott et al., 2023; Marongwe et al., 2023; Spratt & Florian, 2015). This recommendation is motivated by debates surrounding inclusivity, technology usage, learner demographics, and other factors that necessitate the transformation of initial teacher education (Marongwe et al., 2023; Florian, 2017).

Mayer's (2013) article on policy-driven reforms and the role of teacher educators in reframing teacher education in the 21st century discusses an observation by the Victorian Department of Education and Early Childhood Development (DEECD) in Australia. The DEECD found that preservice education in Victoria's teacher training did not adequately meet the demands of schools. In fact, more than one-third of teachers were deemed to have insufficient pedagogical preparation, which hindered instructional quality for students (Department of Education and Early Childhood Development, 2012, p. 10 in Mayer, 2013). Given the changes and implementation of changes in schools, it is imperative to adapt initial teacher education programs to align with these developments for a more cohesive educational system.

Legg-Jack and Ndebele (2023) define pedagogy as the level of teaching competencies possessed by educators and the availability of learning resources. In the wake of South Africa's independence, there were calls for educational transformation to address the inequalities caused by the apartheid government (Pretorius, 1998). As multidisciplinary researchers, we believe that transformation is crucial in today's era, even for initial teachers in remote schools, in order to utilise technology effectively. Stoetzel and Shedrow (2021) found that prospective teachers lacked knowledge of technology tools and meaningful integration into their teaching. This observation was echoed by Marongwe et al. (2023) and Jita (2016), who emphasised the need to adequately train aspiring teachers in the use of information and communication technologies (ICTs) for teaching and learning in schools. Without comprehensive training and understanding of ICT tools, teachers may be reluctant to adopt technology, making a case for rethinking initial teacher programs in South Africa.

Thus, teachers implement new and evolving pedagogies through the use of technology, resulting in increased efficiency and effectiveness (Ramorola, 2013). However, there is a shift in teachers' use of technology, transitioning from learning how to use it to effectively integrate it into the teaching and learning process (Ramorola, 2013). Research conducted in the South African context has found that preservice teachers lack the necessary digital skills to effectively utilise ICT during work-integrated learning (WIL) (Dewa & Ndlovu, 2022). Modise (2016) suggests that some preservice teachers have inadequate pedagogical content knowledge, which negatively impacts learners' academic performance and the use of technology.

A study conducted by Jita (2016) in South Africa revealed that preservice teachers are more familiar and comfortable with non-technology-related skills compared to technology-oriented skills. According to Jita (2016) and Marongwe et al. (2023), the lack of ICT training opportunities provided to preservice teachers, as well as the failure of lecturers to incorporate ICTs in their teaching, contribute to the incompetence of initial teachers in utilising ICTs. Both studies recommend the revision of teacher education programs to include the integration of ICTs. Therefore, this multidisciplinary paper argues for reimagining initial teacher education to incorporate contemporary trends, such as the technological advancements of the 21st century, to produce technologically competent teachers. Education plays a crucial role in achieving the 17 Sustainable Development Goals (SDGs) set by the United Nations and must adapt to the changing dynamics of society. Dewa and Ndlovu (2021) propose that while educational resources in South African schools have increased and become readily available, the issue lies with initial teachers graduating from

universities without the practical skills required to teach in new and diverse learning environments. The lack of ICT pedagogical skills among initial teachers highlights a gap in the teacher education program that necessitates reevaluation and justifies the need for a reconceptualisation of initial teacher education.

The implications of the preceding discussion highlight the necessity for universities to reassess their methods of training prospective teachers in order to align with contemporary pedagogical practices, such as adopting a "guide on the side" approach (Nawaz, 2013; Olusegun, 2015), and departing from traditional methods and practices that do not cater to the needs of technologically adept learners. Acknowledging the shortcomings of the current teacher education program in producing teachers equipped with pertinent pedagogical skills for today's student population (Marongwe et al., 2023; Jita, 2016), it is argued that some novice teachers struggle to identify suitable instructional tools and employ them effectively, indicating the need to enhance their pedagogical knowledge (Botha & Rens, 2018; Marongwe et al., 2023).

Contemporary teacher education programs face challenges in equipping fledgling educators with pedagogical skills that align with the demands and dynamics of present-day learners (Boettcher & Conrad, 2021; Gay, 2018; Retna, 2019). As educational paradigms evolve and student demographics become increasingly diverse, it becomes increasingly evident that traditional approaches to teacher training may fail to adequately prepare educators for the complexities of modern classrooms (Malik, 2018; Howard, 2019; Gay, 2018; Retna, 2019). This deficiency in producing teachers with relevant pedagogical skills undermines efforts towards educational transformation and hampers progress towards the Sustainable Development Goals (SDGs).

Transformative education requires a shift in paradigms towards student-centred, inclusive, and culturally responsive teaching practices. Nonetheless, many teacher education programs persist in relying on outdated instructional methods and theoretical frameworks that do not reflect the realities faced by 21st-century learners (Malik, 2018; Howard, 2019; Chu et al., 2021; Reimers & Chung, 2019). Consequently, newly certified teachers may lack innovative pedagogical strategies, technological proficiency, and sociocultural competence necessary to engage with a diverse student body and effectively promote meaningful learning outcomes. Additionally, this disconnect between teacher education and the needs of current learners has implications for achieving SDG Goal 4 (Quality Education). Without appropriately prepared teachers who can adapt to the changing educational landscape and address the diverse needs of students, the endeavour to provide equitable access to quality education for all may fall short. In order to realise the transformative potential of education and advance progress towards the SDGs, it is essential to reform teacher education programs by prioritising the development of pedagogical skills that are relevant, responsive, and conducive to fostering inclusive and sustainable learning environments.

3.3 Technological advancement

Globally, the proliferation of digital technologies has resulted in significant transformations in education delivery, particularly in response to the recent Coronavirus (COVID-19) pandemic. The outbreak of the virus has highlighted the deficiencies in human and material resources across higher education programs worldwide, including initial teacher education (ITE) in South Africa. However, prior to the emergence of COVID-19, scholars had already contended that ITE programs in South Africa had failed to keep pace with technological advancements in the workplace by neglecting to incorporate technology-rich pedagogy in the training of prospective teachers (Lane et al., 2015). Preservice teacher education programs in various tertiary institutions have received criticism for adhering to outdated educational models that no longer address the needs of the contemporary era and are primarily concerned with knowledge creation (Johnson et al., 2013; Kozma, 2011). This viewpoint is consistent with the assertions made by Muller (1989) and Taylor (1997), who have argued that the rapid pace of technological development often impedes true commitment to the

implementation of information technology, as any technology acquired today may become obsolete in a short span of time. Some scholars have expressed concerns about the rapid advancement of technology, noting that newer technologies consistently supersede previous ones without fully realising their potential (Baron & Bruillard, 1997). Consequently, this poses a significant challenge for historically Black institutions that struggle to procure digital equipment, which quickly becomes outdated (Monobe, 2011). According to this scholar, the implication is that the expensive equipment procured by institutions does not reach its full utilisation before becoming obsolete. Teacher education programs in South Africa face numerous challenges, one of which is the failure to integrate technologies into the daily training of educators within the faculty of education (Lane et al., 2015; Chisango & Marongwe, 2020).

From the aforementioned evidence, it is clear that there is a pressing need for higher education to align with the ongoing technological transformation, particularly in light of the experiences brought about by the COVID-19 pandemic. This is due to the fact that curriculum reform and policy development are vital in transitioning from the conventional educational practices of the nineteenth century to the contemporary digital literacy induced by information and communication technology (ICT) in order to meet the demands of the fourth industrial revolution (Editorial, 2016). Consequently, it is imperative to strike a balance between the curriculum and the realities of society, which is a response driven by the emergence of modern technologies that must be implemented (Altun, 1996). To illustrate this point, a study examining seven South African universities and one Australian university revealed that the faculty of education in the South African universities assessed primarily relied on traditional face-to-face training methods, with no provision for distance education or online courses. As a result, students were only exposed to the use of online tools within a social context, lacking the necessary competencies to integrate them effectively within an academic setting (Lane et al., 2015). Similarly, the findings of another study, which surveyed 22 out of 26 universities, indicated a lack of procurement of innovative technologies to keep up with technological advancements. It is worth noting that 23 of these 26 higher education institutions house a faculty of education (Lane et al., 2015). These findings suggest a concerning future for Initial Teacher Education (ITE) programs, as the prospective teachers produced by these institutions may not be equipped with the latest workplace technologies. Consequently, it is argued that preservice teachers must acquire practical skills in order to thrive in twenty-first-century environments (Lane et al., 2015).

Consequently, we argue that the cultivation of proficient preservice teachers necessitates a reconceptualisation of the technological requirements of the preservice curriculum in the Initial Teacher Education (ITE) programs across universities in South Africa. This is essential to ensure the development of student teachers who possess the necessary digital skills that align with the demands of the contemporary workplace. The inclusion of digital competencies in teacher education programs plays a critical role in achieving educational transformation and Sustainable Development Goals (SDGs) (Odell et al., 2020; Oliveira & de Souza, 2022; Buerkle et al., 2023; Bagur-Femenías et al., 2020). Equipping future educators with relevant digital competencies enables them to address the evolving needs of 21st-century learners and effectively navigate the requirements of the modern workplace (Retna, 2019; Oliveira & de Souza, 2022; Buerkle et al., 2023). Integrating digital skills into teacher education programs fosters not only pedagogical innovation but also supports student-centred learning approaches. Proficient teachers can leverage digital tools and resources to create interactive and engaging learning experiences that cater to diverse learning styles and abilities, thus enhancing the quality and effectiveness of education. By doing so, they contribute to the realisation of SDG 4 (Quality Education) by ensuring equitable access to inclusive and technology-enhanced learning environments.

Aligning teacher education with workplace realities is crucial to adequately prepare graduates for the demands of the digital age economy (Ally, 2019; Lendis, 2014; Care, Kim, Vista, & Anderson,

2018). In today's workforce, digital literacy is increasingly essential across various professions, including education. Teachers equipped with digital skills can effectively utilise technology to facilitate collaboration, communication, and problem-solving within and beyond the classroom (Care et al., 2018; Ally, 2019; Lendis, 2014). This not only enhances their professional capabilities but also strengthens their ability to contribute to broader societal goals, such as economic growth (SDG 8) and innovation (SDG 9), thereby advancing the overall agenda of sustainable development.

3.4 Preparing Teachers for inclusion

The paper presents an argument for the reconceptualisation of teacher education programs with a focus on inclusivity, a concept that has gained popularity in line with SDG4's goal of achieving quality education for all. Inclusion is a prominent challenge faced by the education community, necessitating a shift in how prospective teachers are prepared to be responsive and relevant to evolving societal needs. Nel et al. (2023) define inclusivity as the convergence of learners from diverse backgrounds and with varying needs in a single learning environment (Ainscow, 2016). The assertion is that no learner should be left out or excluded on any basis. Furthermore, the UN report (2016) emphasises the importance of accommodating children from diverse backgrounds within a single classroom, utilising inclusive approaches and pedagogies. It emphasises that learners should not face discrimination based on age, gender, religion, race, ethnicity, disabilities, learning barriers, language, financial status, and other factors. As multidisciplinary researchers, we propose the integration of technology as part of the inclusion process. We have observed instances where learners or students are excluded, discriminated against, or left behind due to their lack of competence in using technology for teaching and learning. These developments in education necessitate a change in teacher training, including the content to which they are exposed. Nel et al. (2023) argue that training should equip teachers with the skills to employ inclusive approaches in their teaching practices.

In 2001, the South African government launched White Paper 6, which served as a framework for the implementation of inclusive education, with teachers playing a key role. Literature suggests that the content of initial teacher programs should be revised to incorporate inclusive education and develop specific competencies (Nel et al., 2023). In support, De Clercq and Phiri (2013) and Legg-Jack and Ndebele (2022) agree that South Africa faced challenges in teacher development due to the lack of relevant competencies and skills needed to address school-related issues. Recent studies confirm that many teachers lack the necessary knowledge to effectively carry out their responsibilities and implement inclusive education, with this deficiency being attributed to their training (Legg-Jack & Ndebele, 2022; Marongwe & Chisango, 2023). The paper argues that in order to achieve inclusive education, initial teachers must receive training that aligns with these goals. From the discussions above, it can be concluded that inclusive approaches are currently lacking in the training of initial teachers, therefore calling for a reconceptualisation of the initial teacher education program to address the evolving societal changes and dynamics, as noted by Botha and Rens (2018).

There are assertions that the lack of adequate training for novice teachers has been identified as a contributing factor impeding the implementation of inclusive education policies at the grassroots level within the classroom (Larrivee, 2000). Larrivee further suggests that preservice teachers are not receiving sufficient training in instructing learners with diverse abilities in their classrooms (Larrivee, 2000). The literature extensively documents the frequent complaints of preservice teachers who state that they were inadequately prepared or trained to accommodate learners with various learning barriers in their classrooms (Forlin et al., 2014). Forlin et al.'s perspective aligns with the findings of Marongwe et al. (2023) and Bhilitane and Marongwe (2023), who found that novice teachers struggled to meet the needs of diverse learners in classrooms due to a lack of appropriate training during their university education. These aforementioned arguments provide compelling evidence supporting the need to reconceptualise teacher education programs in order to address issues of

inclusivity. Consequently, this implies the necessity of developing alternative sustainable initiatives. Various researchers assert that teacher education programs should be realigned.

Scholarly literature attests to the fact that teacher education programs should be redesigned to prepare novice teachers to effectively respond to diversity and inclusion (Rose, 2007). This step will ensure that novice teachers are adequately equipped and prepared to work with learners from diverse backgrounds, and universities have been criticised for their slow response to this matter (Forlin, 2010). Hence, the current study advocates for the reconceptualisation of teacher education programs to incorporate current trends and better equip novice teachers to address issues of inclusion and diversity. Prioritising inclusion and diversity in teacher education is vital for the achievement of the Sustainable Development Goals (SDGs) and the advancement of quality education for all. By reconceptualising teacher education programs to incorporate current trends and better prepare novice teachers to address issues of inclusion and diversity, several significant benefits emerge.

Giving prominence to inclusion and diversity in teacher education contributes to the attainment of SDG 4 (Quality Education) by ensuring that all learners, regardless of their backgrounds, abilities, or identities, have equal access to education (Johnstone et al., 2020; Nesterova, 2023; Odell et al., 2020). Equipped with the ability to recognise and embrace diversity in their classrooms, teachers can create inclusive learning environments where every student feels valued, respected, and supported in their educational journey. This not only enhances academic outcomes but also fosters social cohesion and cultivates a culture of tolerance and acceptance, thereby aligning with the broader objectives of sustainable development.

Moreover, embracing inclusion and diversity in teacher education is crucial for promoting transformative change within educational systems and society. By critically examining existing norms, biases, and inequities, reconceptualised teacher education programs can empower educators to act as agents of change, actively working to break down barriers to learning and foster social justice (Pham et al., 2022; Hale, 2023; Thompson, 2023). In doing so, they contribute to the achievement of SDG 10 (Reduced Inequalities) by addressing systemic disparities in education and promoting equal opportunities for all learners, regardless of their socio-economic status, race, ethnicity, gender, or ability.

Inclusion and diversity play a pivotal role in the field of teacher education, serving as catalysts for transformative change and the advancement of sustainable development (Johnstone et al., 2020; Nesterova, 2023; Odell et al., 2020). By reconceptualising teacher education to better equip prospective teachers to effectively tackle issues related to inclusion and diversity, we can cultivate more inclusive, equitable, and sustainable educational systems. This, in turn, empowers all learners to unleash their full potential and make meaningful contributions to a more just and prosperous society.

3.5 Work integrated learning

Work-integrated learning (WIL) is an educational strategy that offers students the opportunity to receive training both at the university and in the workplace in alignment with their discipline and career goals (Greonewald, 2004). In the context of South Africa, WIL is specifically conceptualised as a teaching practicum within the initial teacher education program (Du Plessis, 2019). The primary focus of WIL is to equip students with the necessary competencies, knowledge, and attitudes that are relevant to their future profession, as outlined in policy perspectives (Du Plessis, 2019). According to the Minimum Requirement for Teacher Education Qualifications (MRTEQ) policy, which governs teacher education in South Africa, teaching is considered a complex activity that requires the acquisition, integration, and application of various types of knowledge and practices (Department of Higher Education and Training, DHET, 2015, p. 11). The policy specifically mandates that initial

teacher education curricula must ensure that preservice teachers have access to different types of knowledge, with WIL providing opportunities for the acquisition of practical and situational knowledge in particular (DHET, 2015). Therefore, the success of the WIL program relies on effective collaboration between all stakeholders involved, including partner schools and universities that provide ITE qualifications (Van Niekerk, 2018). These stakeholders play a crucial role in facilitating career-specific and comprehensive learning through the integration of theory and practice with real-life applications in selected schools (Van Niekerk, 2018). However, research findings suggest that the quality of student learning during WIL is compromised due to various factors, necessitating a comprehensive overhaul of the program. Numerous studies have raised concerns regarding the challenges associated with WIL, particularly those faced by preservice teachers throughout the program. For example, an analysis of the ITE curricula offered by five higher education institutions conducted as part of the National Teacher Education Research Project revealed substantial variations in terms of duration, organisation, quality, and content of the WIL learning experience (Deacon, 2016, p. 11). These discrepancies, as highlighted by the Council for Higher Education (CHE, 2010), pose significant challenges to the overall quality of the sector. Additionally, challenges such as teacher absenteeism (Gravett & Jiyane, 2019; Moodley et al., 2018), lack of support from mentor teachers (Marongwe & Chisango, 2023; Ndebele & Legg-Jack, 2022), and a misalignment between theory and practice (Foncha et al., 2015) have been identified as further hindrances to the effectiveness of the WIL program. In light of these challenges, it is evident that the work-integrated learning program, as a component of ITE, is burdened with substantial obstacles that impede students' development of the necessary competencies to shape their professional identity.

Considering the salient challenges identified in various studies, the utilisation of Work-Integrated Learning (WIL) for preservice teachers, specifically in terms of personal growth and exposure to real-world scenarios in different school settings (Mentz et al., 2020), may not be attainable. As a result, in order to maximise the benefits of WIL, it is necessary to first address the disparities in the duration, organisation, quality, and content of the learning experiences that constitute the assessment framework for WIL across different universities. Additionally, there is a need for a strong collaborative framework between training institutions (universities) and partner schools, encompassing the planning, delivery, and implementation of Initial Teacher Education (ITE) programs. Such collaboration would address concerns regarding curriculum alignment, quality supervision and mentorship, professional development for mentor teachers, resource adequacy, research and evaluation of ITE, continuous improvement of the ITE curriculum, and support for diversity and inclusion. The implementation of these measures would result in a revitalised WIL experience in ITE, leading to the cultivation of highly competent and effective teachers who are suitably equipped to address the specific needs of learners within the South African context.

The development of highly skilled and effective teachers who possess the necessary preparation to address the needs of learners in the South African context holds significant importance for the realisation of transformation and the achievement of the Sustainable Development Goals (SDGs) in multiple capacities. Firstly, highly skilled and effective teachers assume a central role in advancing SDG 4 (Quality Education) by ensuring that all learners receive a superior education that equips them for success in the modern world (Pham et al., 2022; Hale, 2023; Thompson, 2023). Well-trained, knowledgeable, and competent teachers are capable of delivering engaging and effective instruction, adapting teaching strategies to cater to diverse learning needs, and providing individualised support to students (Johnstone et al., 2020; Nesterova, 2023; Odell et al., 2020). This enhances learning outcomes, reduces dropout rates, and promotes lifelong learning opportunities, thereby advancing the objective of inclusive and equitable education for all. The enhancement of highly proficient educators contributes to wider societal transformation by empowering individuals, communities, and nations to realise their full potential. Educators who possess the requisite knowledge, skills, and attitudes can serve as sources of inspiration and motivation for students, stimulate critical thinking and problem-solving abilities, and foster the adoption of values such as tolerance, respect, and

empathy (Swargiary, 2024; Snape, 2017). By nurturing a generation of committed and empowered citizens, highly proficient teachers establish the groundwork for social cohesion, economic prosperity, and sustainable development, thereby aligning with the overarching goals of the Sustainable Development Goals (SDGs). Thus, the cultivation of highly skilled and effective educators is imperative for advancing transformation and the SDGs within the South African context. By investing in the training, professional development, and support systems for teachers, we can ensure that educators are equipped with the necessary tools and resources to address the diverse needs of learners, promote inclusive and equitable education, and catalyse positive change within communities and society as a whole.

3.6. Dealing with anxiety

Literature provides evidence of the numerous challenges that novice teachers face upon entering schools, leading to what has been referred to as "reality shock" by Arasomwan and Mashiya (2021) and Botha and Rens (2018), and "culture shock" by Marongwe and Chisango (2023). This highlights a significant gap between the preparation of initial teachers and the realities they encounter in practice. Therefore, this paper asserts the need for a reconceptualisation of initial teacher programs to include a well-rounded curriculum that equips novice teachers with the necessary skills to navigate the demands and challenges of the real world (Arasomwan & Mashiya, 2021; Marongwe & Chisango, 2023).

Given the prevalence of discipline issues and misconduct among learners (Australian et al., 2008), as well as the presence of violence and crime both within and around schools, along with the added pressures of factors such as pandemics like COVID-19 and natural disasters, the performance of novice teachers is often found to be inadequate (Mabeba & Prinsloo, 2000; Van Wyk, 2004; Loeinc, 2010; Arasomwan & Mashiya, 2021). A South African study conducted by Arasomwan et al. (2021) included an interview with an initial teacher who stated that their experiences in schools during their practicum did not align with their university training. This finding aligns with research conducted in three universities in South Africa by Marongwe et al. (2023), which also revealed a discrepancy between preservice teachers' experiences during teaching practice and the theoretical knowledge they acquired at university, resulting in a culture shock. Furthermore, Botha and Rens (2018) conducted a study in South Africa that highlighted the reality shock experienced by novice teachers when confronted with their own lack of preparedness in managing learners in the classroom.

It is widely acknowledged in both South African and global literature that both initial and in-service teachers face challenges in managing disruptive student behaviour in classrooms (Arasomwan et al., 2021; Marongwe et al., 2023; The Graide Network; Australian et al., 2008; Ascione, 2018). This suggests that initial teachers are ill-equipped and inadequately prepared by universities to handle the complexities of modern classrooms (Marongwe et al., 2023; Darling-Hammond & Bransford, 2007). The inability of initial teachers to effectively manage students in the classroom highlights a gap in their preparation, including the lack of training in classroom management, the use of pedagogies that resonate with the current generation of learners, and the absence of inclusive approaches, among others; all of which can create anxiety for novice teachers. Yu (2009) cited a comparison between Confucius' philosophy and the ideal training for initial teachers, emphasising the importance of a relaxed spirit and a respectful attitude (Yu, 2009). Given the decline in moral values in society, which is also reflected in schools, where issues such as respect, tolerance, and love have become problematic, the initial teacher program should be redesigned to address these issues that negatively affect learning and teaching (Forlin, 2010). Failure to reconceptualise teacher education programs could result in ongoing struggles for initial teacher graduates when faced with real-life challenges, potentially leading to job dissatisfaction and attrition. A similar study conducted by Marongwe et al. (2023) in South Africa, as well as a study by Castañeda-Trujillo and Aguirre-Hernández (2018) in Colombia on preservice teachers, found that some beginning teachers were

dissatisfied with the training they received due to a lack of relevant knowledge and skills to navigate the realities of the profession. These studies revealed gaps in teacher education programs that require reconsideration (Castañeda-Trujillo & Aguirre-Hernández, 2018; Arasomwan et al., 2021; Marongwe et al., 2023). Furthermore, Botha and Rens (2018), in their study conducted in South Africa, identified gaps in the application of pedagogy, lack of motivation, classroom management, and basic knowledge of psychology within teacher education programs, emphasising the need for programmatic changes.

Researchers such as Dewa and Ndlovu (2022), Arasomwan and Mashiya (2021), and Marongwe and Chisango (2023) conducted studies in South Africa that align with the findings that teacher education programs are insufficient in equipping initial teachers with the necessary skills to effectively navigate the realities of schools. This observation suggests that if initial teachers lack these skills, learners will also struggle to handle daily challenges that impact their academic performance and behaviour. Arasomwan et al. (2021) argue that this situation could lead to the development of additional social problems, a notion also supported by Marongwe et al. (2023). This deficiency is most aptly described as a "reality shock" by Botha and Rens (2018), wherein initial teachers experience a discrepancy between what they learn at university and what they face in schools. Consequently, this study advocates for the reconceptualisation of teacher education programs to incorporate the harsh realities and challenges that initial teachers are likely to encounter in schools, such as pandemics, violence, crime, bullying, poverty, stress, and other psychosocial issues (Nhambura, 2020).

It is argued that universities should redefine teacher education programs to prioritise the acquisition of practical skills over solely theoretical knowledge (Botha & Rens, 2018) and boost the confidence of teachers in addressing everyday challenges (Arasomwan & Mashiya, 2021). In particular, aligning educational programs with the goals of transformation and the Sustainable Development Goals (SDGs) highlights the significance of practical, hands-on learning experiences that prepare individuals to tackle real-world issues. By prioritising the development of practical skills alongside theoretical knowledge, learners are better equipped to apply their learning in meaningful ways, contribute to sustainable development initiatives, and address complex societal problems. This approach fosters a more comprehensive and experiential learning environment that empowers individuals to actively drive change in their communities and beyond. Furthermore, emphasising the acquisition of practical skills supports the achievement of various SDGs, including Goal 4 (Quality Education), Goal 8 (Decent Work and Economic Growth), and Goal 9 (Industry, Innovation, and Infrastructure). By prioritising hands-on learning experiences and the development of practical skills through simulated sessions during the residential period and integrating work experiences in teaching practice, educational programs can equip learners to make significant contributions to sustainable development efforts, promote positive change, and build a more inclusive, equitable, and prosperous future for all.

4. Conclusion

This conceptual paper presents an argument for the reconceptualisation of initial teacher education (ITE) in South Africa in a more academic manner. The aim is to propose an alternative transformative initiative that ensures alignment between ITE programs and the reality of the South African context in terms of preparing preservice teachers and learners in schools within the country. This objective was accomplished through a comprehensive review of policy documents, empirical studies, theoretical papers, and other relevant sources. The findings of the review highlighted six key areas in the reconceptualisation of ITE: work-integrated learning, pedagogy, technological advancements, the content of ITE programs, and addressing anxiety. The results revealed that certain technological applications in ITE programs do not adequately address the contemporary needs of the present day, given the advancements in digital tools. Additionally, the implementation of work-integrated learning in ITE faces various challenges, and the content of ITE programs in South Africa does not

effectively respond to the needs of today's learners. Furthermore, initial teachers struggle to cope with the societal, behavioural, and global changes that schools are confronted with. In light of these challenges, we conclude that the ITE program in South Africa should be reconceptualised to better meet the needs of learners. This reconceptualisation of ITE holds significant potential for advancing the United Nations' Sustainable Development Goal 4 (Quality Education). The findings suggest that integrating work-integrated learning, pedagogical innovations, technological advancements, and targeted content addressing anxiety can serve as pillars for transformative change in teacher preparation. By incorporating these elements, teacher education programs can better equip educators to meet the diverse needs of learners, foster inclusive and equitable educational environments, and contribute to the achievement of quality education for all. This alternative approach not only aligns with the objectives of SDG 4 but also emphasises the importance of innovation, collaboration, and responsiveness in shaping the future of education in South Africa and beyond.

5. Contribution of the Study

This study makes a valuable contribution to the existing knowledge on reconceptualising initial teacher education in South Africa. It proposes an alternative transformative sustainable initiative that seeks to address the changing needs of learners and society. The study advocates for the integration of work-integrated learning, pedagogical innovations, technological advancements, and the mitigation of anxiety within teacher education programs. By doing so, it presents a comprehensive framework for reshaping teacher preparation. The ultimate goal of this alternative approach is to promote inclusive, equitable, and high-quality education in line with the broader aims of educational transformation and sustainable development in South Africa.

6. Limitations and Future Studies

This conceptual paper has presented a comprehensive outline of the reconceptualisation of initial teacher education in South Africa. However, it may benefit from a more in-depth analysis of the specific challenges inherent in the education system. Subsequent research endeavours could concentrate on more precise aspects of teacher preparation, such as particular subject areas, grade levels, or regional contexts. It is important to note that the proposed alternative transformative sustainable initiative is subject to the influence of contextual factors unique to South Africa, rendering its direct applicability to other countries or regions with distinct socio-economic, cultural, or educational landscapes uncertain. Therefore, future studies should investigate how similar initiatives could be adapted and implemented in diverse contexts. Future research studies could involve comparative analyses of various teacher education and professional development models to discern efficacious practices and extract insights from other nations or regions. These findings could then be employed to inform the ongoing efforts of reimagining teacher education in South Africa. Furthermore, longitudinal studies should be conducted to monitor the advancement and results of teachers who have completed revamped teacher education programs. This evaluation would enable an assessment of the enduring influence of these programs on teaching methodologies, student learning outcomes, and educational equity.

7. Recommendations

Thus, based on the aforementioned points, we recommend that in the process of reconceptualising ITE programmes to achieve an alternative transformative initiative, attention should be given to addressing the challenges related to the following:

- Technological advancement: Technological applications in ITE must be updated in order to keep pace with the transformations of present-day needs. This includes integrating tools from the fourth industrial revolution into the planning, delivery, and implementation of initial teacher education programmes.

- Work-integrated learning: There is a need to restructure the WIL policy by involving key stakeholders, such as providers of ITE programmes (universities/training institutions), partner schools, and preservice teachers, in the planning and implementation of work-integrated learning programmes.
- Initial Teacher Education Programme Content: The viability of a given training programme lies in its relevance to the needs of society. In planning for the relevance of ITE curricula, it is necessary to engage all stakeholders concerned to ensure that the content of the initial teacher education programme aligns with the reality of the South African context.
- Pedagogy: Urgent action is required to change the pedagogies used in ITE programmes and adopt innovative methodologies that cut across any eventualities and appeal to the techno-savvy generation of learners.
- Inclusion: Teacher education programmes should be redesigned to prepare initial teachers to respond to diversity and inclusion.
- Dealing with anxiety: ITE should equip initial teachers with suitable and adequate skills to face reality in schools, avoid the reality shock that initial teachers often experience, and be prepared to manage learners in the classroom.

8. Declarations

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