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Converging Theory for Digital Transformation for Higher Education Teacher Training: The South African Context

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Abstract

Digital transformation in education for sub-Saharan Africa is a long-argued concept by scholars. The stark digital divide between the global north and south is a reality that is perpetuating inherent colonial legacies in higher education. The impact on teacher education creates incessant traditional modes of pedagogical practices, retarding citizenry's full participation in the global 21st century information economy. This paper presents a novel approach through converging two theories, the capability approach and the agency theory for the multifaceted digital transformational hindrances peculiar to South Africa. We do this by focusing on major tenets of capability approach and converge them with those of the agency theory in relation to transformed teacher training programs. By examining best practices and innovative approaches, we present possible alternatives for sustainable development of digital pedagogies in preservice teacher training. The paper recommends context-based approach to digital technologies integration in higher education teacher training programs for sub-Saharan Africa and that the relationship between individual agency and social systems be viewed as critical when charting developmental programs.

Keywords: Capability approach, critical theory, digital pedagogy, digital divide.

Introduction

A variety of approaches have been implemented to build a viable digital technology participation for sub-Sahara African (SSA) higher education institutes, with a view to impact the greater region and scale the digital divide. According to Radovanović et al (2020), these attempts have generally been techno-centric and inherently culturally and politically biased, meaning, the same practices implemented for the global north were also implemented for former colonies in the global south, and the resultant impact is the widening digital divide so many years into the 21st century information economy (Research ICT Africa, 2017; Bravo et al., 2021). Thus, for the SSA region, entrenched in colonial legacies and historical disparities, the widening digital gap is perpetuating poverty, inequalities and frustrating creation of a just playing field in the global knowledge economy (Research ICT Africa, 2017). Quraish et al

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(2024), sights global citizenship as premised on digital literacy and a prerequisite for equal participation for sustainable development and poverty eradication.

The development of African education systems has long been on the global agenda too, for instance, the UN education framework of 2005 which emphasized on equality and quality, defined equality in education as requisite for previously underprivileged environments (Tikly & Barrett, 2011). Accordingly, quality was based on measurable learning outcomes in numeracy, literacy and essential life skills (UNESCO, 2007). This approach by the UN is premised on human rights to education, in education and rights through education, which saw the development of child friendly schools, where the interest of the student is central and shifted methodology to student centered learning (UNICEF, 2009; Tikly & Barrett, 2011). However, some scholars still view schooling and education in its current state in former colonies like South Africa as reproducing inherent colonial inequalities evident in non-digitalization of instruction in the majority of rural and urban township schools (Chisango et al., 2020; Mdingi & Chigona, 2021; Tigere & Netshitangani, 2022), where in some cases there is provision of technology infrastructure without implementation skills (Zenda & Dhlamini, 2023).

Various studies on technology across educational levels have been carried out in South Africa (Dzansi & Amedzo, 2014; Spangenberg & De Freitas, 2019; Tunjera & Chigona, 2020; Isaacs, 2020; Venketsamy & Zijing, 2022; Mangundu, 2023; Olayinka, et al., 2024), and the results have again and again showed a dearth in implementation and sometimes in infrastructural provisions, mostly for formerly apartheid disadvantaged schools and universities (Olaopa, 2023). Government's will is evident to some extent in the provision of essential ICT developments especially for universities, however, in such cases, the challenge sighted by literature is the absence of training in subject specific integration skills for educators (Venketsamy & Zijing, 2022), instead, most training offered in these environments are digital literacy skills (Tunjera & Chigona, 2020; Mangundu, 2023). If this is happening in higher education (Olayinka et al., 2024), the product, from the preservice teacher training joins the world of work to perpetuate traditional modes of instruction with a cosmetic application of technology (Timmis, et al., 2021), that is some form of digital literacy skills as modelled by teacher educators.

Without technological skills, the United Nations' (the UN's) concept of sustainable development, in terms of the 17 Sustainable Development Goals (SDGs) and Agenda 2030, become a pipe dream for most African countries south of the Sahara (Radovanović et al., 2020). The SDGs framework for international cooperation listed access to internet as one of the fundamental human rights and also as basic to the achievement of the SDGs, especially SDG4, which is education (UNESCO, 2023). According to Mohammed (2019), the cooperation framework is the UN's collective offer of support for countries as they address the SDGs to leave no country and no one behind. Given this ideology, it is easy to understand the wholesale provision of digital infrastructures for SSA uniformly with other regions without deference to political, cultural or economic uniqueness of the region. What is needed are innovative strategies that are SSA region specific, cognicence of its unique geo-political social and economic attributes (Olaopa, 2023). In this context, we contribute to literature towards scaling the digital divide as a way of transforming higher education through enhanced digital

access by proposing strategies that draw upon guiding theories and principles of the capability approach and agency to inform a contextualized way forward.

Digital pedagogy and educational transformation

Scholars have long studied the convergence of digital pedagogy and transformation in higher education in SSA (Adu, 2014; Amoah, 2014; Knaus et al., 2022; Isaacs, 2020; Moosavi, 2020; Dei, 2022; Zavale, 2023; Batisai, 2024) and they have at length tried to explain the inadequacy of Eurocentric epistemologies in traversing SSA's challenges with digital pedagogies. When teacher educators are equipped to integrate digital technologies in ways that meet the contextual demand unique to SSA, then the process of a truly digitalized educational participation can begin (Radovanović et al., 2020). Preservice teachers trained thus, under such educators become the stopgap wedge for the widening digital divide between the global north and the global south (Isaacs, 2024). Universities in Africa are perceived by scholars as grand resources well equipped to help this transformation at continental levels (Chukueren, 2017; Isaacs, 2020; Knaus et al., 2022). According to Chukwueren (2017), the process of transforming education begins with proper use of digital technologies as the vehicles of content transmission (Walimbwa, 2023) and not as an end in themselves. Scholars agree that there are several initiatives in place for the enhancement of digital transformation process for higher education in SSA, however, the initiatives are barely aligned to the regional technology gap context (Mhlanga, 2021; Mangundu, 2023; Olaopa, 2023).

Transformation in higher education in SSA is challenging, urgent and need to a greater extent, to remove the legacy of colonialism (Chukwueren, 2017; Anjani, 2019), which can be perceived as still influencing structural dynamics and curricular implementation (Olaopa, 2023; Zavale, 2023). According to (Quraishi et al., 2024), digital pedagogy plays a critical role in the success of this process. SSA, six years away from Agenda 2030, has vast areas of the region still unreached by digital technologies and ICTs in education across all levels (Batisai, 2024). While digital technologies are sighted as an enabler in transforming education and bringing about sustainable development for the region (Batisai, 2023), according to Radovanović et al (2020), SSA has high volumes of youths living in its urban slums who are marginalized as regards to digital inclusion and this extends to the schools and universities they attend.

Mitigating the digital divide in South African higher education

To transform higher education for digital pedagogy in South Africa, is an attempt to fully train educators in ways that take cognicence of the cultural, socio-political and economic context of the country to make teaching and learning meaningful, applicable, and the removal of, '… exclusion and perennial attainment gaps' for the majority of blacks (Hayes et al.,2021: 896). Hayes et al., went on to argue that, '[w]e have a long way to go before previously colonized peoples can reclaim their intellectual sovereignty and before the 'pluriverse' is ready to celebrate and benefit from Southern theory and wisdom." (Ibid). Beginning with higher education, precisely with preservice teacher training, there is provision of a critical basis for cascading digitalization proficiency for the transformation of primary and secondary education (Olugbara & Letseka, 2020; Ramnarain et al., 2021). Literature indicates that the country is still struggling with rural urban technology gaps as well as with those in township schools

(Mwapwele et al., 2019; Venketsamy & Zijing, 2022). Six years away from Agenda 2030, research is still reporting a continued struggle with technology gaps in universities where knowledge is premised to begin, (Radovanović et al., 2020; Zavale, 2023).

Woldegiorgis (2022), asserts that access issues for higher education have been perennially critical for South Africa. The country's race towards digitalization and globalization has resulted in widening the digital divide and exacerbating existent inequalities (Menon & Motala, 2021). There are indications of a very long way to achieving a situation of access to affordable ICTs and internet given the World Bank (2019) report that the average penetration rate for the whole continent is 25% and to achieve universal access, an investment of US$100 billion was estimated. At the same time, globalization and information technology revolution are increasing adaptation and implementation challenges (Knaus et al., 2022). Institutions have to work around catch-up strategies which in the process tend to continue widening the digital gap for marginalized communities within itself (UNESCO, 2023). Within such a socio-economic situation, it is not far-fetched to assume a deepening social injustice with the colonially disadvantaged groups continuing in the same, years after independence (Zavale, 2023).

The convergence of the capability approach and agency theory

Ocholla (2020) argues that transformation in high education in SSA is decolonization and as such, cannot be premised on one theory, but on a convergence of theories to stem the increasing difficulties to benefit from globalization. According to Mbembe (2021: 21), there is a need for "… redrawing of the global intellectual map" to make it possible for "the world to be studied from everywhere and anywhere", which can only be possible for SSA if its higher education is transformed for equal participation on that global fora. Converging the capability approach and agency theory has the potential of presenting a possible framework for the desired transformation through digital pedagogy in higher education. Both ideologies emphasize the significance of addressing general inequalities and empowering postcolonial and marginalized communities (Wells, n. d; Olaopa, 2023; Wiseman, 2021; Hayes et al., 2021; Celikates & Flynn, 2023), making them particularly appropriate to efforts on bridging the digital divide in higher education.

Capability approach

The capability approach (CA) was primarily developed by Amartya Sen in the 1980s and later expanded by Martha Nussbaum (Clark, 2006), and proposes a unique philosophy principally for economics (Dang, 2014) but could be borrowed to transform preservice teacher education in universities (Fukuda-Parr & Cid-Martinez, 2019). According to Stanford Encyclopedia of philosophy (2020), the CA has emerged in the past decade as the leading alternative standard framework on poverty, human development and inequality. The approach is a theory focused on the moral significance of persons' capability to achieve the life they value according to set reasons (Wells, n. d.).

As a theoretical framework, CA focuses on four key concepts, functionings, capabilities, freedom and agency, which directly address the quality life that individuals are able to achieve

(Dang, 2014), thus critiquing traditional welfare economics that equate well-being either with wealth (income) or utility (desire fulfilment or happiness) (Wells, n.d.). Sen (1983) acknowledged the necessity of the expansion of goods and services and economic growth as essential for human development, however, he agrees with ancient Greek philosophy that the greater good people seek is not wealth and quality of life should be premised upon what people are able to achieve (Dang, 2014), highlighting the fact that different people and different societies also have differing capacities to transform revenue and commodities into valuable achievements (Stanford Encyclopedia of Philosophy, 2020).

The CA framework has been applauded for extending the information base when doing an economic evaluation of different groups or societies, doing away with using one framework to fit all (Bajmócy et al, 2022). Sen's framework focuses on people not merely as the means of production in economic indexing but also as an end in themselves (Sen, 2004). The approach takes cognizance of the concept of humans as heterogeneous and diverse in their capabilities in conversion of perceived asserts which are obviously impacted by issues such as race, caste, gender, age etc., usually and sorely ignored (Hart, 2019), in essence, bringing the emphasis on disparities in human agency and acknowledge that cultures, peoples and societies have different aspirations and values that are to be considered in economic assessments and evaluations (Stanford Encyclopedia of Philosophy, 2020).

Quality of life therefore should be judged or evaluated in relation to what a particular group of people are able to achieve (ibid), to what extent are a given group able to function with those things as goods and services within their reach as opposed to the utility approach which ignores the fact that life is made up of much more than mere utility (Clark, 2006). For instant, the ability to achieve with say the same amount of money for two differing families; one may be slightly well-off and use it to pay fees and give a child social advantages with education, another may be very poor and use it for basic survival such as food and clothing; same amount but differing conversions based on differing economic situations (Sen, 2004).

Agency theory

This theory, is rooted in organizational behavior and economics (Jensen and Meckling, 1976; Pepper & Gore, 2012), as a principle used to resolve or explain relational issues between shareholders as principals and company executives as agents (Kopp, 2023). The relational issues are based on the actions of the principals when they hire and delegate decision making authority to the agent to perform services on their behalf. The theory, thus, assumes a Principe-Agent problem, premised on the concept of the differing interests of an agent and a principal (Kopp, 2023). By definition, the resources used by the agent in the execution of duties on behalf of the principal belong to the principal who entrust them and has little to none day-to-day input but incurs loss if anything happens (Bendickson et al., 2016).

Agency theory gives individuals and entities autonomy to act towards desired goals or outcomes (Zogning, 2017). According to Syafriadi et al. (2023), agency is a framework that mediates misalignments of interests and potential conflicts due to differences in goals and motivations. They argue that it is most suitable in its mandate as it deals with basic human economic endeavors by using strategies such as incentives and contracts to control agent compliance and minimize losses. Applied to digital transformation, agency emphasizes the role

of administrators and other decision makers within higher education institutes in driving technological transformation and innovation for organizational change as opposed to leaving the job for government initiatives only (Wood, 2011). The proxy within university structures, through adoption of agency framework, can be made to bring about noticeable development when goals are clarified, incentives are aligned and accountability fostered through mutually agreed work contracts (Urbanek, 2020).

Reconceptualizing capability and agency for digital transformation

Converging the capability approach and the agency theory offer a unique and comprehensive framework for addressing the multifaceted obstructions towards digitally transformed higher education in South Africa. This can be achieved by building digital innovation on the diverse cultural and socio-economic contexts within the country (Du Plessis, 2021), establishing capabilities needed by preservice teachers for navigating digital transformation within those contexts. We will do that by focusing on the major tenets of the capability approach and converging them with those of the agency theory in relation to digital transformation for the South African context, which besides being sub-Saharan, is also post- colonial (Timmis et al., 2021).

Empowering individuals

Both the CA and AT share a three-fold strength, the first being their cognisance of human diversity in their abilities as regards the extent to which individuals are able to convert available resources to achieve success (Dang, 2014; Pepper & Gore, 2012). For South Africa, apartheid did not impact the same on rural educational institutes and urban ones (Du Plessis, 2021), while it is important to provide infrastructure in both rural and urban settings, conversion for use processes must differ to consider context of access and use for true transformation (Hart, 2019; Bajmócy et al, 2022). This holistic approach to development ensures that all equipment provided is put to full potential use by users at their differing levels of efficacy and skills acquisition measured in a continuum where all concerned make a conscious free choice of extent of use for their individual wellbeing (Dang, 2014). In preservice teacher training, the emphasis on empowerment from AT makes preservice teachers' agents of their own professional development and learning (Pepper & Gore, 2012), in a South African context, where educational systems are predominantly top-down, to facilitate dismantling this colonial legacy (Christie, 2020).

Disregarding the foregoing is why we are where we are as SSA, with lots of infrastructure in many universities and bare use or modelling for teacher educators resulting in widening digital gaps (Knaus et al., 2022; Zavale, 2023). In some instances, none participation in the 21st century global knowledge economy (Isaacs, 2020; Moosavi, 2020; Batisai, 2024), making evaluation of digital transformation rates much more comprehensive than just based on uniform resource availability.

Equipping universities with digital infrastructure is assumed to mean digital transformation for education, yet on its own, it has proved inadequate (Tunjera & Chigona, 2020). Teacher educators are facing challenges in integration and modelling for preservice teachers (Olayinka

et al., 2024). CA's focus, not only on material resources but also on how individuals have freedom of choice and ability to convert resources available into valuable functionings (Sen, 1983). This makes it imperative for providers to consider empowerment of individuals aligned to their individual differences and tasks (Clark, 2006).

Conjoining Agency theory with capability approach means institutes acquire autonomy to convert the digital infrastructure according to their unique cultural, political and economic situation (Zogning, 2017). This is done to address functionality and optimum access within given communities the university finds itself in (Safriadi et al., 2023). By working on the digital capabilities of educators and administrators, institutes ensure preservice teachers are empowered to fully participate in the global knowledge economy, first steps in scaling the digital divide. The approach is far removed from the present evaluations focused on digital literacy skills acquisition divorced from subject specific integration [individual task differences] (Stanford Encyclopedia of Philosophy, 2020), which would enable educators to develop comprehensive capabilities critical for effective pedagogical practices.

Fostering agency

Agency achievement in CA is defined as the totality of a person's success in pursuit of their goals and objectives as a measure for their wellbeing (Urbanek, 2020), while AT provides autonomy for higher education institutions to provide agents that work towards satisfying individual goals and aspirations of educators and preservice teachers alike through contractual relationships and incentives as a basis for commitment (Zogning, 2017). The availability of committed agents towards excellence of performance in the transformation of institutes through focused training of educators and support systems cognicence of social, cultural and economic realities of particular institutes, provides a conducive environment for professional growth and wellbeing in the execution of their duties as teachers and role models for preservice teachers. Striving towards attainment of requisite skills becomes a choice which is readily attainable. AT entails that preservice teachers are given the space to be responsible for their own learning through methodologies that involve participatory approaches, opportunities for collaborative learning and encouraging innovation (Stanford Encyclopedia of Philosophy, 2020).

Adopting a convergence approach with tenets of CA and those of AT upholds universities' pivotal role as change agents driving technology innovation with a slant towards decoloniality for SSA countries. The framework fosters collaboration, as policy makers work with university administration as agents to achieve unique African goals and aspiration (Anjani & Simmonds, 2022). Administrators in turn work with staff for professional development (Lumadi, 2021), all for the benefit of the student, in this case the preservice teacher. Such seamless adaptations by universities leverage digital technologies to improve pedagogical quality and expand access (Mwapwele et al., 2019; Tunjera & Chigona, 2020). Wholesome support and digital technology availability eradicates fear and increases confidence for use by teacher educators promoting research excellency as they try new things and utilize commodity for goal attainment and aspirations. Infrastructure is not just put there, as scholars attests that in some public schools' digital tools are locked up, never used and safe from damage so government will find them intact when they come for inspection (Ndlovu & Meyer, 2023; Olayinka et al., 2024).

Contextually inclusive development

When preservice teachers come into higher education institutes, they are from diverse circumstances and contexts. The impact of apartheid on South Africa as a country was not uniform (Timmis et al., 2021). Some rural schools were never exposed to digitalization in all its facets (Radovanović et al, 2020). The CA takes cognicence that people's capabilities are shaped by diverse factors that include but not limited to cultural, social, political and economic contexts (Gumbo, 2023). In teacher training, this would imply an acknowledgement and focused addressing of these diverse needs, challenges and backgrounds that they bring to their education. Bringing in AT to this CA, digital transformation initiatives become flexible and responsive to contextual realities and individual differences (Sen, 2004), in this case, one size does not fit all in the use and choices of digital tools. Converging CA and AT towards digital transformation of educational institutes ensures that initiatives are such that they would also prioritise the aspirations and needs of the marginalised from underserved population groups and from rural communities, at the same time equally serving those from 'better' environments.

Colonialism in education has left an indelible mark in the minds of former colonized groups, that of being content with very little and failure to recognize subtle oppressive systems even years after independence, evident in the struggle to decolonize higher education curricular (Du Plessis, 2021). According to Sen (2004), people can co-opt their hardships and circumstances so much such that they cease to desire or strive for what they perceive as unattainable for them. Thus, with teacher education, instead of perpetuating traditional modes of education with cosmetic technology integration which foster the colonial status quo, CA's focus on objective evaluation of adaptive preferences combined with AT to create environments based on context (Kopp, 2023), that provide students with capabilities to convert digital tools into functions that allow for achieving the life that hitherto was unachievable, the ability to fully participate in the global information economy as equal players (Sen, 2004; Woldegiorgis, 2022). Critical to CA is the concept of empowerment and agency, encouraging preservice teachers to engage in collaborative inquiry, develop their professional identity and question existing practices.

Addressing Structural Constraints

Both CA and AT theories highlight the crucial concept of addressing organisational constraints that may obstruct digital transformation attempts (Dang, 2014; Zogning, 2017; Hart, 2019; Baymocy et al., 2022; Kopp, 2023). While universities in South Africa have invested in infrastructural development for digital transformation, there still exist some gaps in tools, software and more so in human capacity development (Tunjera & Chigona, 2020). The situation for rural higher education institutes is compounded by load shedding and power outages. These disparities in educational resources result in unequal opportunities to learn for preservice teachers (Jita & Sintema, 2018), perpetuating colonial legacies. Through AT, social justice interventions that are institution specific can be designed with a view to both provide resources and conversion capabilities for all preservice teachers to achieve the lives they value (Sen, 2004), regardless of the institution they train from. This becomes possible through systemic changes actuated by autonomous activities of individual institutes towards

transformative educational provision aligned to the existent global economy (Ramnund-Mansingh & Reddy, 2021).

The World Bank (2019), on universal connectivity through broadband by 2030, especially aimed at connecting Africa, indicated that sub-Saharan Africa has the most extremely poor people than the rest of the world combined and is home to 27 out of 28 poorest countries of the world. Of significance are the reasons for such a scenario given by the report as income inequalities, weak institutions and failure to channel resources for poverty reduction. The rate of globalization and the growth of information technologies is increasing the digital gap for the region such that an estimated over 300 million people will be unemployed between 2015 and 2035 (ibid) as they would lack 21st century skills demanded by the information economy. According to the UN (2019) roadmap for connecting sub-Saharan Africa, they aim for an acceleration of broadband connectivity for every individual, government and business at the same time promoting technical skills for digital operation and infrastructure maintenance. These sterling ambitions beg an answer to the question of finances and the high cost of digital technologies (Woldegiorgis, 2022), World Bank (2019), acknowledged that, affordability has remained the major challenge in resolving this global digital divide.

Financial constraints are common among universities especially rural public ones in South Africa and elsewhere in the sub-Saharan Africa region (World Bank, 2019). However, by converging CA and AT, administrators make decisions that leverage transformational goals contextually. AT underscores the critical concept of empowering organizational leaders and stakeholders which would include teacher educators and preservice teachers with autonomy and needed resources within institutional context to drive their own changes (Pepper & Gore, 2012). Including CA in this matrix provides the lens through which decisions are made and executed. Digital technology and software licenses, acquiring and maintaining them are high-cost endeavors, thus to achieve transformational goals under such daunting impediments, convergence of theories ensures technology is provided within the framework of both availability of public goods and conversion factors, enhancing preservice teachers' actual ability to convert digital tools and software at their disposal into 'doings and beings' (Stanford Encyclopedia of Philosophy, 2020).

Research indicates lack of qualified experts in educational technology and instructional designs as major factors militating against effective application of digital pedagogies in SSA, leading to wholesale borrowing from western pedagogical practices with their impact on decoloniality attempts (World Bank, 2019; Adu, 2014; Bravo et al., 2021). Contextualizing digitalization developmental strategies through collaboration, policy reforms and resource mobilization (concepts which both CA and AT uphold), dismantle change resistance (usually in-built within institutional structures), inadequate opportunities for educators' professional development towards confident integration of technology driven pedagogies and general bureaucratic impediments.

Ethical considerations, accountability and governance

Combining AT with the CA proffers a robust framework for improved ethical considerations, governance and accountability, for digital transformation in higher education especially where preservice teacher training is concerned. When CA's emphasis on individuals' freedoms and

capabilities to lead lives of value is applied to digital transformation for teacher training, institutes tend to improve ethical considerations by ensuring that resource provision is inclined towards social justice and inclusivity (Chukwueren, 2017; Hayes et al, 2021; Gumbo, 2023). Thus, paying focused attention on the colonial baggage students bring into the university for improved ethical digital practices and incorporation of indigenous knowledge systems of these students (Hart, 2019; Bajmócy et al, 2022; Gumbo, 2023). Both theories highlight the ethical considerations as important in decision-making for resource allocation (Ajani & Simmons, 2022). In the context of teacher training and digital transformation, for SSA region, it involves guaranteeing culturally sensitive technological interventions, respect of and adaptation of indigenous knowledge systems and taking the wellbeing of both students and communities as a priority (Lumadi, 2021).

The strength of AT is its insights on the roles and responsibilities of stakeholders as they drive development through enhanced accountability and governance. This involves putting on-board all stakeholders and providing them with the incentives and resources needed for effective change driven activities (Kopp, 2023). When incentives are aligned, transparency fostered and objectives are clear, there is effective allocation of resources (Zogning, 2017), coupled with conversion empowerment, resulting in sustainable development (Du Plessis, 2021). The overarching purpose in digital transformation is the product, the graduate. In the case of preservice teacher training, by increasing agency in students embracing and integrating technology, universities foster innovation culture which preservice teachers carry with them into the world of work and cause digital transformation at grassroots levels. This synergistic approach to digital transformation for teacher education, besides skills endowment, includes ethics, accountability and transparency, which is quality education and social development.

Conclusion

From a global perspective, all higher education institutes are in the throes of digital transformation. For SSA countries who are former colonies, true transformation must ensure equality and inclusivity through a decoloniality process, besides quality and access. In this paper, we explored how CA and AT can be converged as a possible solution to enhance this digital transformation in higher education especially in preservice teacher training as a way of transforming the rest of the education system in South Africa and enabling citizenry participation in the information driven global economy for quality life. We argued that the capability approach, when used in tandem with the agency theory has the impetus to provide actionable steps towards inclusive equitable access to digital technologies in education.

Through CA, the paper showed that the relationship between individual agency and the power of social systems must be prioritized when drafting developmental programs. Individual capabilities and freedoms for valuable lives emphasize the crucial concept of equitable access to digital resources linked to social justice and ethical considerations for effective digital transformation. Simultaneously, AT stressed the roles and responsibilities of the sum total of stakeholders, contextually, in driving structural objectives through empowering individuals with incentives, resources, and autonomy necessary for this change. Moreover, the approach promotes practical governance structures that can facilitate communication, decision-making and collaboration which is a sustainable way of continuous digital development initiatives for higher education in the context of the SSA. We believe that as South Africa continues to

navigate the intricacies of digital transformation in higher education, leveraging the combined theories of CA and AT, is a possible pathway towards ethically responsible, equitable and inclusive, education in the present digital age.

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