

Challenges in Implementing Education 5.0 in Higher Education in Zimbabwe: A Qualitative Analysis

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ABSTRACT

This study employed constructivism research philosophy and a case study research design to analyse the challenges in implementing education 5.0 in higher education in Zimbabwe. It employed a qualitative methodology including interviews and documentary analysis to gather data from 20 participants who were drawn from 5 universities in Zimbabwe. Data were analysed using thematic procedures. The study found that limited technological resources, resistance to change, inadequate budgetary support and inadequate training among faculty members, were the major challenges affecting the implementation of Education 5.0 in higher education in Zimbabwe. These findings provide evidence-based insights upon which practical recommendations are proffered to help higher education institutions to align their educational practices with the principles of Education 5.0, thereby fostering innovation, student-centered learning, and holistic development in the African higher education landscape, including Zimbabwe. This study contributes to the ongoing discourse on innovative education approaches and their transformative potential in Zimbabwe and beyond.

Keywords: Education 5.0, higher education, innovation, transformative education

INTRODUCTION

The rapid advancements in technology and the changing landscape of education demands the application of new paradigms in teaching and learning in higher education. One such paradigm is Education 5.0, which represents a transformative approach to higher education that integrates emerging technologies, learner-centered pedagogies, and real-world applications. In the context of Zimbabwe like many other countries of the world, where higher education plays a crucial role in shaping the country's socio-economic development, understanding the application, challenges, and implications of Education 5.0 is of paramount importance. This article provides insights into the implementation of Education 5.0 in higher education in Zimbabwe, exploring the challenges encountered, and the potential implications for educational stakeholders. The study analysed the experiences and perspectives of administrators, educators and students to provide valuable insights that can inform policy decisions, instructional practices, and the future direction of higher education in Zimbabwe. Ultimately, this study contributes to the ongoing discourse on innovative education approaches and their transformative potential in the Zimbabwean higher education landscape.

Background of the Study

Education systems inspire what students learn, how they learn, why they learn and where they learn, influencing their way of thinking, doing and being. Traditional education approaches in higher education in Zimbabwe were rooted in essentialist and behaviorist philosophies, where the primary focus was on the

acquisition of knowledge and adherence to rigid structures (Gerstein, 2014). These approaches place more value on the "three Rs" - receiving, responding, and regurgitating, a focus which limited the educational experience to passive reception of information. Historically, education systems focused on imparting knowledge and skills to students. The primary objective was to transmit information from teachers to learners. The emphasis was on content mastery and adherence to standardised curricula. Students were expected to listen attentively to the teacher, take meticulous notes, and reproduce the same information during standardised assessments. The goals of traditional education included academic achievement, discipline, and conformity while preparing students for predetermined career paths (Sobirova & Karimova, 2021).

The tragic challenge was that this standardised approach treated all learners as uniform entities, disregarding their unique strengths, interests, and learning styles (Huk, 2021). The one-size-fits-all nature of traditional education systems often stifled creativity and critical thinking, as students were confined to a predetermined curriculum that left little room for exploration and self-expression (Kubiszyn & Borich, 2023). The scope for discovery and creation of new knowledge was limited because of the rigid nature of the old educational systems. These systems equipped students with foundational knowledge and basic skills necessary for entry into the workforce or for higher academic pursuits. Instead of being active participants in their own learning, students were seen merely as receptacles waiting to be filled with knowledge, denying them the opportunity to develop and showcase their own creative ideas and perspectives (Erbes, Wizner & Powlis, 2021). Career paths were often achieved through teacher-led instruction, rote memorisation and standardised testing, assessment and predetermined grading systems.

In contrast, modern education systems have evolved to address the changing needs of society and the demands of the 21st century. The objectives of modern education systems go beyond content delivery to encompass the development of critical thinking, problem-solving, creativity, collaboration, and adaptability skills (Corbu & Neamtu, 2017). Modern education fosters holistic development, nurturing students' social, emotional, and cognitive growth. It prioritises personalised learning experiences, student agency, and the integration of technology and real-world applications. Srivastava and Agnihotri (2022) opined that the objectives of modern education systems include preparing students for lifelong learning, equipping them with the skills and competencies necessary for success in a rapidly evolving global landscape, and cultivating a sense of global citizenship and sustainability. Abidjanovich (2022) concurred that modern education systems emphasise the development of transferable skills necessary for students to navigate complex challenges, contribute to society and thrive in a diverse and interconnected world.

The value gap between traditional and modern education systems has driven the continuous evolution of education from Education 1.0 to 5.0, presenting a significant transformation in teaching and learning approaches. Alharbi (2023) attributed the educational evolutions to the evolution of technological advancements that continue to underpin changing educational philosophies. Whereas Education 1.0 was purely teacher-centered approach to education, where knowledge transmission was primarily one-way, with teachers imparting information to students through lectures and textbooks, Education 2.0 introduced interactive learning experiences and expanded access to information beyond the confines of the classroom due to the advent of the internet and digital technologies (Collis & Moonen, 2008). Although it retained some traditional elements, Education 2.0 witnessed the emergence of learning management systems, online resources, and collaborative tools facilitating communication and knowledge sharing among students and teachers.

However, with the rapid technological changes, Education 2.0 did not last long. It was succeeded by Education 3.0, which emerged with the rise of web-based technologies and social media platforms. Education 3.0 emphasised personalised learning and learner autonomy. It also focused on individualised instruction, adaptive learning platforms, and the integration of multimedia resources to cater for the students' diverse learning styles (Gerstein, 2014). It also places emphasis on the need for students to actively participate in their learning process through self-directed learning and collaborative learning with peers. As the world experienced rapid technological advancement, Education 4.0 emerged with the advent of the Fourth Industrial Revolution (FIR), which was characterised by the fusion of digital, physical and biological technologies (Huk, 2021). This phase highlighted the integration of emerging technologies such as artificial intelligence, virtual reality, augmented reality, and big data analytics into the educational landscape. The objective of Education 4.0 was to develop

future-ready skills, including creativity, critical thinking, problem-solving, and digital literacy, to prepare students for the rapidly evolving digital era.

As technology continued to evolve, so was education approaches. The transition from Education 1.0 through to 5.0 reflects a shift from traditional teacher-centered instruction to learner-centered, technology-enhanced, and future-oriented education. While each phase builds upon the previous one, incorporating new tools and methodologies to improve learning outcomes and align with the needs of a rapidly changing world, Education 5.0 represents a transformative approach that combines the best elements of previous paradigms while emphasising the integration of emerging technologies, learner-centered pedagogies, and real-world applications. It represents a vision for education that prepares students to thrive in a complex and interconnected global society, equipping them with the skills and mindset required for lifelong learning and success in the 21st century (Sugianto, Darmayanti & Humaidi, 2022; Togo & Gandidzanwa, 2021). It seeks to develop holistic skills, including emotional intelligence, cultural competence, entrepreneurship, and sustainability awareness. Education 5.0 promotes collaborative learning, interdisciplinary approaches, and the integration of authentic, real-world problems into the curriculum (Abidjanovich, 2022; Togo & Gandidzanwa, 2021). Like in other developing countries, higher education in Zimbabwe plays a critical role in addressing the country's socio-economic challenges and preparing students for an increasingly digital and globalised world. However, the traditional education system in Zimbabwe faces several limitations in meeting the changing demands of the 21st century. Hence, Zimbabwe embraced Education 5.0 approach to leverage the potential of emerging technologies, to address the country's growing need for innovation and industrialisation to drive its aspired economic development.

The efficacy of Education 5.0 is well documented in extant literature (Brown & Green, 2021; Srivastava & Agnihotri, 2022; Smith & Johnson, 2020; Moyo & Chikodzi, 2021). Education 5.0 represents a paradigm shift in higher education. It seeks to combine technological advancements, societal and business needs within the framework of learner-centered approaches, in response to the changing needs of students in the digital age (Smith & Johnson, 2020). Studies have shown that strength of Education 5.0 hinges on its ability to integrate emerging technological advancements into pedagogics to improve educational outcomes through learner-centered approaches (Alharbi, 2023; Sugianto et al., 2022). Recent studies (Srivastava & Agnihotri, 2022; Togo & Gandidzanwa, 2021) observed that Education 5.0 can be tailored to address individual learners' needs, interests, and abilities, promote learner agency and autonomy and allowing students to have more control over their learning pathways. Smith and Johnson (2020) further noted that if implemented effectively, Education 5.0 has unparalleled potential to initiate a continuous learning process that extends beyond formal education. In terms of collaboration and networking, Education 5.0 is commended for its potential to cultivate collective learning experiences, both within and beyond traditional classroom settings, encouraging students to connect, collaborate, and learn from diverse individuals and communities (Alharbi, 2023; Smith & Johnson, 2020).

While numerous studies have investigated the rationale for Education 5.0 in various global contexts, including in Zimbabwe, there is a dearth of research focusing on its implementation challenges within the specific context of Zimbabwean higher education institutions. Understanding the specific implementation challenges was vital for the purpose of informing both policy and practice. This study narrowed this research gap by providing a qualitative analysis of the challenges faced by higher education institutions in Zimbabwe, in their quest to implement Education 5.0.

Research Question

What are the challenges affecting the implementation of Education 5.0 in higher education in Zimbabwe?

THEORETICAL FRAMEWORK

This study used the lens of Technological Pedagogical Content Knowledge (TPCK) and Diffusion of Innovations Theory (DIT), to analyse the challenges in implementing education 5.0 in higher education in Zimbabwe. The TPCK framework was developed by Mishra and Koehler in 2006 while the DIT was developed by Rogers in 2003. The TPCK highlights the importance of pedagogical techniques that apply technology in

robust and constructive ways and advocates for the effective integration of technology into teaching and learning practices while considering the specific content and pedagogical strategies (Mishra & Koehler, 2008). It also acknowledges the potential of technology in developing new epistemologies that reinforce existing ones. On the other hand, the DIT highlights the role of social systems in the diffusion of technology process (Rogers, 2003). In this study, the DIT framework provided the lens for analysing the characteristics of technology adopters, particularly the challenges they faced in implementing education 5.0. As elaborated by Nyangani and Chakaingesu (2018), the DIT offers insights into the stages of the adoption process, such as knowledge, persuasion, decision, implementation, and confirmation. Using the DIT philosophical insights, this study managed to identify contextual factors that hindered the implementation of Education 5.0 by focusing on the norms, values, and institutional structures within the context higher education in Zimbabwe.

The selection of the TPCK and the DIT as the guiding theoretical frameworks therefore, enabled this study to provide a comprehensive understanding of the challenges faced in implementing Education 5.0 in higher education in Zimbabwe. This understanding informed the development of strategies that enhance the adoption and diffusion of Education 5.0 practices, address barriers, and create a conducive environment for innovative pedagogical approaches in Zimbabwean higher education institutions.

LITERATURE REVIEW

Moyo and Chikodzi (2021) conducted a study titled “Towards Education 5.0 in Zimbabwe: Challenges and Opportunities.” Their study explored the challenges and opportunities related to the implementation of Education 5.0 in Zimbabwe. The study found that several challenges were faced in the implementation of Education 5.0 in Zimbabwe. These challenges include limited access to technology and internet connectivity, inadequate digital infrastructure in educational institutions, insufficient funding for educational technology initiatives, and a lack of teacher training and digital literacy skills. The collective effects of these challenges were hindering the effective integration of technology into educational settings in Zimbabwe.

The reviewed literature contributes to the understanding of Education 5.0 as a paradigm shift in higher education, highlighting its principles, features and challenges, in the contexts of both the developed and developing countries. However, divergences in findings also exist. Some studies point out challenges associated with the implementation of Education 5.0. These challenges include resistance to change among faculty, inadequate technological infrastructure, and the need for appropriate pedagogical strategies for effective integration of emerging technologies

The other knowledge gap within the reviewed literature pertains to the implications of Education 5.0 in higher education, that vary across studies. Some studies suggest that higher education institutions need to adapt their curricula, teaching methods, and assessment practices to align with the principles of Education 5.0 while other studies emphasise the need for institutional support through increased investment on technological resources in higher education institutions. While the reviewed literature provides a snapshot of the current knowledge landscape, emphasising the convergences and divergences in findings related to the studied phenomenon, the identified knowledge gaps show the need for further studies to bridge the existing knowledge gaps. Therefore, this study analysed the application, challenges and implications of education 5.0 in higher education in developing countries, using higher education institutions in Zimbabwe as the case study.

METHODOLOGY

This qualitative research study employed a constructivism research philosophy and a case study research design to explore the application, challenges and implications of Education 5.0 in higher education in Zimbabwe. The study gathered comprehensive insights into the experiences and perspectives of educators, students, and administrators regarding the studied phenomena. Data were collected from a diverse group of 20 participants, including educators, students, and administrators, using multiple data collection methods. In-depth interviews were conducted to delve into the individual experiences and understandings of participating administrators and educators. Focus groups were administered to students and provided an opportunity for interactive discussions and the exploration of shared perspectives on Education 5.0 in their institutions.

Additionally, document analysis was conducted to gather supplementary information from relevant institutional documents and policies. The use of in-depth interviews, focus groups, and document analysis allowed for a comprehensive analysis of the issues at hand, capturing diverse perspectives and providing triangulation of data sources. This approach ensured a rich and multi-faceted understanding of the complexities surrounding the implementation of Education 5.0 in the higher education context of Zimbabwe.

The study used thematic data analysis procedures to analyse the collected data. This analytical approach involved systematically identifying patterns, themes, and categories within the data. Data were organised into meaningful themes to enable the researcher to gain a deep understanding of the challenges affecting the implementation of Education 5.0, as perceived by the participants, who were the key stakeholders in Zimbabwean higher education.

DISCUSSION OF RESULTS

The study identified several findings related to the challenges of Education 5.0 in the Zimbabwean higher education context. The key findings include limited technological resources and infrastructure, resistance to change, inadequate budgetary support, brain drain of professionals in higher education, and inadequate training.

The study found that Zimbabwean higher education institutions face significant challenges due to limited access to technological resources and inadequate infrastructure. Participants attributed these challenges to various factors, including financial constraints, outdated equipment, and insufficient network connectivity. The lack of technological resources and infrastructure was hampering the effective implementation of Education 5.0, which relies heavily on advanced technologies such as artificial intelligence, virtual reality, learning and data analytics. Without adequate technological resources, institutions were struggling to incorporate innovative teaching methods, personalised learning experiences, and interactive digital platforms, which are fundamental aspects of Education 5.0. This finding shows that lack of resources and infrastructure impedes the integration of technology into teaching and learning processes, limiting the potential benefits of Education 5.0, which relies heavily on advanced technologies and digital tools. The finding confirms similar findings from other studies (Moyo & Chikodzi, 2021; Ahmed & Rahman, 2020), that have shown that while Education 5.0 adds value in higher education through its emphasis on practical skills and competencies relevant to real-world contexts, implementation remains problematic. Similar findings by Ahmed and Rahman (2020), revealed several challenges faced in implementing Education 5.0 in Bangladesh. The key challenges include limited access to technology and internet connectivity, inadequate digital infrastructure in educational institutions, lack of awareness and training among teachers and students. Encouragingly, the same study also identified opportunities that Education 5.0 presents in the context of Bangladesh. Ahmed and Rahman (2020) found that technology could be leveraged to overcome geographical barriers, promote flexible learning pathways, enhance the quality of education through digital resources and interactive learning platforms.

This study found resistance to change as one of the significant challenges in the adoption of Education 5.0 in higher education institutions in Zimbabwe. Resistance to change was crosscutting, various university stakeholders, including faculty members, administrators and students. Participants voiced concerns relating to issues of unfamiliarity and discomfort with new technologies and pedagogical approaches. Some participants attributed the resistance to change to factors such as fear of shifting from old to new teaching and learning approaches while others thought that the resistance was due to insufficient training in the use of technological tools in teaching and learning settings, and skepticism about the effectiveness of Education 5.0. The resistance to fully embrace the technological aspects of education 5.0 by participants, is well elaborated by the Rogers' (2003) DIT. The DIT's insights provided the theoretical aspect to appreciate the resistance to change that were voiced by the participants. Their concerns were also echoed by Sobirova and Karimova (2021), who cautioned against overreliance on technology and called for careful consideration of the ethical implications, such as privacy concerns and the digital divide. Other scholars also acknowledged the utility of Education 5.0 in higher education but noted the need to strike a balance between individualism and collectivism to maintain a sense of community and shared learning experiences (Moyo & Chikodzi, 2021; Sobirova & Karimova, 2021; Smith & Johnson, 2020). Despite the diverse findings surround the problem of resistance to change, the

findings of this study highlight the need for comprehensive change management strategies and professional development programs to address resistance to Education 5.0 adoption, and promote a smooth transition to this transformative education system.

The study revealed that inadequate budgetary support poses a significant barrier to the implementation of Education 5.0 in Zimbabwean higher education. Participants reported that their institutions were allocating limited financial resources to technology acquisition, infrastructure development, and training programs that promote effective utilisation of technology to support the adopted education 5.0. One of the participants stated that;

The lack of sufficient funding hampers our ability to invest in the necessary resources and training required for successful implementation of Education 5.0, which is resource intensive. It is vital for higher education institutions to securing adequate financial resources to support the full implementation of Education 5.0.

The lack of funding to invest in modern technologies, update infrastructure, and provide ongoing training and support to faculty members, was affecting all higher education institutions in Zimbabwe. These institutions relied on fees to fund all their activities. Besides paying salaries for teaching staff and key administration staff, Government was not providing funding for other critical needs including staff development programs and acquisition of technological resources among many other needy areas that are critical for the effective implementation of Education 5.0. Institutions are left to address these funding gaps using fees, which are mostly lowly pegged, especially in government-controlled institutions.

Zimbabwe was experiencing a brain drain, with skilled professionals and experts, including educators leaving the country for better opportunities abroad. The study found that this brain drain was negatively impacting the adoption and implementation of Education 5.0, as it leads to a shortage of qualified personnel with the necessary expertise to design and deliver innovative educational practices. One of the participants commented that;

Higher education institutions are losing experienced and qualified educators in their numbers, at a time when they are needed most to implement Education 5.0. Addressing the challenge of brain drain requires strategies to attract and retain highly skilled professionals, such as providing competitive salaries, professional development opportunities, and a supportive work environment.

It was apparent from the participants that higher education institutions in Zimbabwe could build the necessary expertise to effectively implement Education 5.0 and drive educational transformation by nurturing and retaining local talent.

The study identified inadequate training as another challenge in the implementation of Education 5.0. in higher education institutions in Zimbabwe. Participants reported a lack of comprehensive and ongoing training programs to equip educators with the necessary skills and knowledge to effectively integrate technology and pedagogy. They argued that the introduction of Education 5.0 was supposed to have been done in phases, starting from training educators, administrators and other relevant ministry officials. One of the participants opined that;

Before implementation into higher education institutions, there was need for professional development initiatives to provide educators with the training and support needed to navigate the complexities of Education 5.0 and leverage its potential to enhance teaching and learning. This was not done in the inception stage but it can still be done if the system is to be effectively implemented.

This study noted that it was crucial to establish comprehensive professional development programs tailored to the needs of educators in Zimbabwean higher education institutions. The same argument was submitted by several scholars(Alharbi, 2023; Smith & Johnson, 2020; Ahmed & Rahman, 2020).These programs should focus on enhancing digital literacy, technological proficiency, and pedagogical strategies aligned with Education 5.0 principles. Training initiatives can include initial training at higher education institutions, workshops, seminars, online courses, and collaborative learning opportunities.The idea of implementinga

variety of training initiatives aligns with the notion that Education 5.0 should be viewed as an ongoing process rather than a one-time implementation event. By investing in continuous professional development, educators can gain the necessary knowledge and skills to effectively integrate technology, adapt their teaching methodologies, and create engaging teaching and learning experiences that delivers the objectives of Education 5.0. This finding supports earlier observations by Moyo and Chikodzi (2021), who identified lack of training and low digital literacy levels as hindering factors in the integration of technology into educational settings in Zimbabwe.

Based on this finding, this study argues that in addition to training educators, it is also important to extend professional development opportunities to administrators and other relevant stakeholders. This holistic approach can ensure that the entire higher education ecosystem is equipped with the knowledge and understanding required to support the successful implementation of Education 5.0. Collaboration with educational technology experts, industry professionals, and international partners can contribute to the design and delivery of high-quality training programs. This study argues that the execution of comprehensive training initiatives in higher education institutions can bridge the gap between existing educator skills and the demands of Education 5.0. This proactive approach can empower educators to embrace technology, leverage its potential, and adapt their teaching practices to create dynamic and student-centered learning environments. Ultimately, investing in professional development will enable educators to maximize the benefits of Education 5.0 and prepare students for the evolving demands of the digital age.

In sum, the key findings of this study underscore the complex nature of integrating technology to enhance the implementation of Education 5.0 in higher education. The findings highlight the need for strategic planning, adequate resources, faculty development, continuous training programs and robust technological infrastructure, to effectively harness the potential benefits of Education 5.0. Strategies to overcome existing challenges include investing in infrastructure and resources, providing comprehensive training programs, securing adequate funding, and implementing policies to attract and retain skilled professionals in the field of higher education.

CONCLUSIONS

The findings of this study highlight several key challenges that need to be addressed to successfully implement Education 5.0 in Zimbabwean higher education. The key challenges include limited technological resources, resistance to change, inadequate budgetary support, brain drain, and inadequate training. The study concluded that to overcome these challenges, increased investment and infrastructure development are necessary to ensure access to necessary tools and resources that leverage effective implementation of education 5.0. The study also concluded that retaining skilled faculty members who possess technological skills required for the effective implementation of aspects of education 5.0. Retaining skilled academic staff can be achieved through benchmarking their salaries and allowances with neighboring countries. This study also concluded that comprehensive faculty training programs are essential to enhance technological literacy and pedagogical skills, enabling lecturers to embrace and effectively utilize emerging technologies. Furthermore, the study emphasized the importance of developing robust and reliable networks, internet connectivity, and digital infrastructure within educational institutions to facilitate the seamless integration of emerging technologies and achieve the goals of Education 5.0.

Implications

The study's findings underline the importance of addressing challenges such as limited technological resources, resistance to change, inadequate budgetary support, brain drain, and inadequate training to successfully implement Education 5.0 in Zimbabwean higher education. Limited technological resources and inadequate budgetary support point to the need for increased investment and infrastructure development to ensure access to necessary tools and resources (Abidjanovich, 2022). The brain drain of professionals in higher education raises concerns about the availability of skilled faculty who can effectively leverage and integrate emerging technologies in teaching and learning. Skilled professionals can be retained through benchmarking their salaries and allowances with what obtains in countries in the region. On the other hand, resistance to change

among faculty is a common challenge when introducing new educational paradigms as elaborated by the DIT(Rogers, 2003). This problem can be addressed through comprehensive faculty training programs to enhance their technological literacy and pedagogical skills, enabling them to embrace and effectively utilise emerging technologies in their teaching methods. The study found that without the necessary infrastructure, the effective integration of emerging technologies and the realisation of Education 5.0 goals were hindered. The inadequate technological infrastructure underscores the importance of developing robust and reliable networks, internet connectivity, and digital infrastructure within educational institutions.

RECOMMENDATIONS

Based on the key findings of this study, it is recommended that;

1. Policymakers and institutional leaders allocate sufficient financial resources to acquire modern technological equipment, upgrade infrastructure, and improve network connectivity. This investment would enable institutions to establish the necessary foundation for integrating advanced technologies, such as artificial intelligence, virtual reality, and learning and data analytics, into the teaching and learning processes.
2. Higher education institutions should enter into partnerships with government agencies, private organisations, and international donors to secure additional funding for technological resources and infrastructure development. Such collaborative efforts can alleviate the financial burden and accelerate the implementation of Education 5.0 initiatives.
3. Higher education institutions should conduct thorough needs assessments to identify specific technological requirements and prioritise investments accordingly. This assessment should consider factors such as the number of students to be supported, technological demands of various disciplines, and the scalability of resources to accommodate future growth and advancements.
4. Government through the Ministry of Higher Education (MoHE), should create awareness and provide clear communication about the goals, benefits, and rationale behind the adoption of Education 5.0. in higher education. This awareness can help alleviate concerns and skepticism among faculty members, administrators, and students.
5. Institutions should establish comprehensive and ongoing professional development programs for both administrators and educators to develop change management strategies to address the challenge of resistance to change and facilitate effective implementation of Education 5.0. in higher education.

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