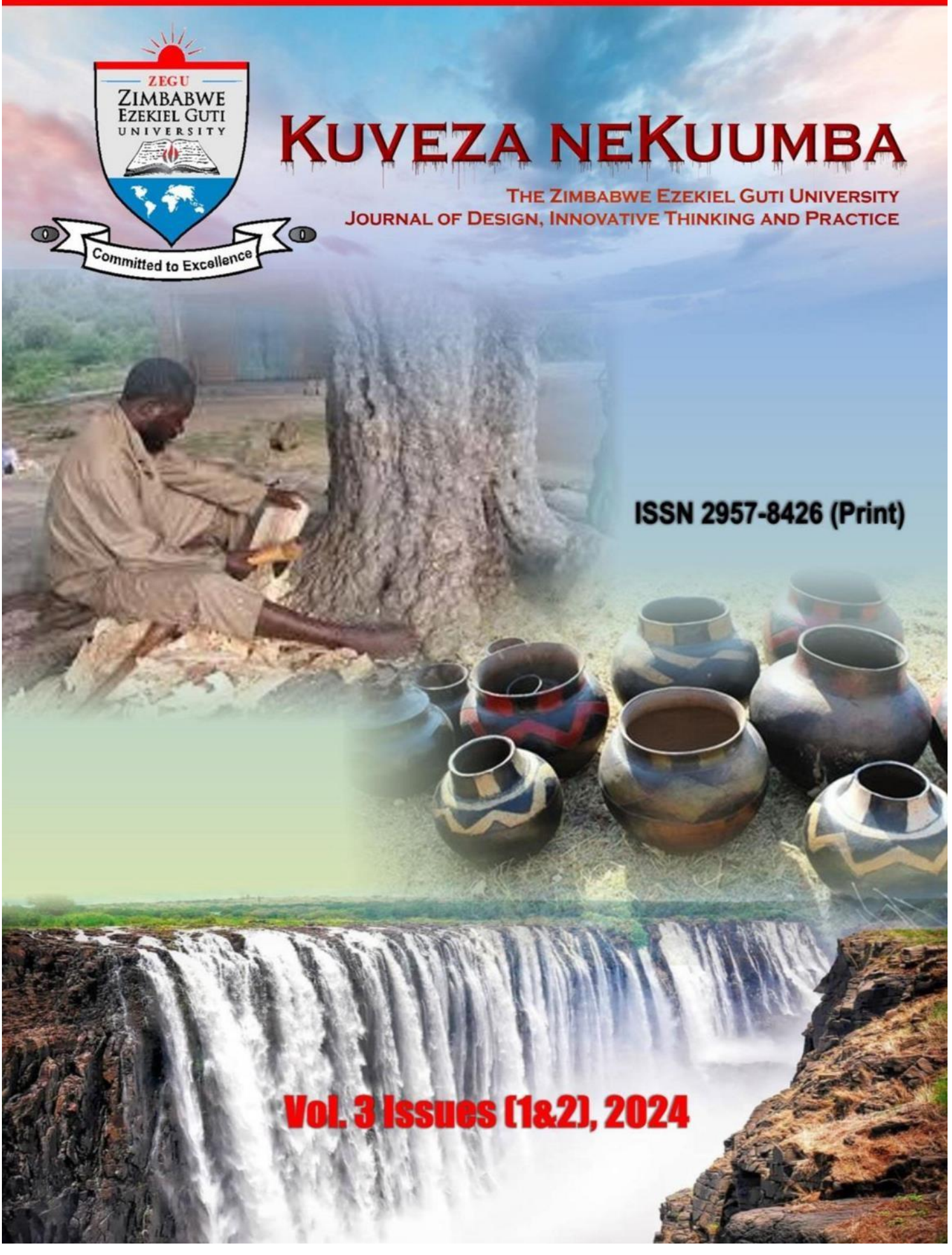

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Towards A Higher and Tertiary Institutional Design in the Context of Education 5.0 in Zimbabwe

VENGAI TABINGA[1]

Abstract

The study evaluated teaching-learning designs for higher and tertiary institutions before the adoption and after the adoption of the Education 5.0 philosophy in the year 2020. It seeks to make a comparative analysis of the designs to establish the connoisseurship of teachinglearning in institutions of higher learning. The study focuses on pedagogic and andragogic methodologies during these two epochs. The study found that the application of pedagogic instructional design and delivery methods characterised the Education 3.0 epoch with less andragogy. However, Education 5.0 has been characterised by more of an andragogic design and delivery with the learner, community and industry-centred teaching-learning. Despite the wide use of pedagogy and andragogy as the main models of teaching-learning, the existence of a holistic model that drives the innovation and industrialisation thrusts of Education 5.0 has been non-existent. To this end, the study found out that there are other models in addition to the combination of andragogy and pedagogy (humanagogy) that characterise university learning. These include ergonagy, heutagogy and ubuntugogy. Despite the advocacy for pragmatism through Education 5.0, forms of assessments and teaching methodologies are yet to change.

Keywords: pedagogy, andragogy, ubuntugogy, ergonagy, humanagogy, heutagogy and connoisseurship.

INTRODUCTION

Education 5.0 is a philosophy of education that was adopted by the Zimbabwean government in 2020. It is premised on five pillars: research, teaching, community service, innovation and industrialisation. Whilst it is a new phenomenon in Zimbabwean education, it has been adopted in other countries like Saudi Arabia, Malaysia and Sri Lanka (Alharbu, 2023). The development of the philosophy was a reaction to the failure of Education 3.0 to perpetuate innovation and industrialisation as seen by an influx of graduates who could not provide solutions to the country's developmental demands through innovation. The advent of Education 5.0 philosophy meant a paradigm shift from the traditional way which produced theoretical graduates to graduates bent on the production of goods and services. This is as far as what the philosophy seeks to achieve and what the public knows. However, what has been happening in institutions of higher learning has not been in tandem with the dictates of the philosophy.

From a global perspective, studies by Raymond (2008) at the University of Exeter show that there still exist some inconsistencies about the approaches or models that constitute the connoisseurship of higher education teaching-learning. The traditional pedagogic and andragogic orientations have remained in as far as the delivery of instruction and students' assessment are concerned. Despite the acute shortage of material, financial and technological resources to implement the necessary pedagogies, Dingindawo and Trenance (2021) assert that the traditional pedagogies have remained because of the unchanging mindset of the professoriate, the students and some administrators.

The failure to adjust the instructional delivery methodologies has rendered Education 5.0 a mere theoretical narrative. The continuation of this problem will affect the developmental

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discourse of the country, including Vision 2030. While many studies have been done on the implementation of Education 5.0, none focused on the delivery of instruction within the philosophy. Togo and Gandidzanwa (2021) cite the lack of financial resources as impacting the operations of the University of Zimbabwe's innovation hub. Mwanyisa (2024) also concludes that the implementation of the Education 5.0 philosophy would require changing the mindset of the students and does not focus on the necessary transition of pedagogies from traditional to Education 5.0 compliance. The existence of this conceptual gap justifies the conduct of the study.

THEORETICAL FRAMEWORK

The study seeks to evaluate the effectiveness of educational models and thus is informed by the Educational Effectiveness Theory. The theory has its early roots in the works of Brookover *et a;.* (1979) in the US. It is a holistic theory that measures the effectiveness of an educational system based on the inputs, the processes, the contexts in which learning takes place and the subsequent outcomes which could be immediate or long-term. In the context of Schreens (2015), educational effectiveness is a theory rooted in a combination of system-level, classroom level and school-level factors. The study is informed by this theory because, in determining the impact of instructional designs, the focus is on the national philosophy of education and the curriculum which are represented by the system factors. The determination of learner needs by a particular institution, its policies, practices and its general orientations about pedagogical and andragogical paradigms can be summed up as the school factors. The methodological approaches which characterise institutional programmes in higher education, the student-teacher relations, the environment and the audiovisuals, are characteristic of the classroom factors.

The Educational Effectiveness Theory is a theory that does nt focus on the academic achievements of learners only, but goes beyond the classroom. In the broader context, education would then be deemed effective and functional if it produces men and women who are not only in the world, but with the world, which means learners who are responsive to the world's social order (Nyerere, 1968). In this same vein, Freire (1974) argues that education should radically transform society and should not produce conformists and docile graduates whom he describes as products of _Silencing Education'. It, therefore, follows that there cannot be talk of the effectiveness of instructional design and delivery in Education 5.0 without considering Freire's (1974) Critical Theory or Reconstructionism. The Educational Effectiveness Theory is also supported by Dewey's (1941) pragmatism and progressivism. In the context of Dewey (*ibid.*), education would be dysfunctional if it restricted learners from producing the best out of themselves. Learning should have practical implications and should not constitute empty idealism (Elias and Merriam, 2002; Saleh, 2013). The forgoing is in tandem with the tenets of Education 5.0 which are to research, teach, community serve, innovate and industrialise.

Beyond institutional horizons, educational effectiveness, to a larger extent, is informed by national policies, strategic guidelines or system dictates. The migration along the education continuum from Education 3.0 to Education 5.0 is one strategic narrative which would then influence the functionality of the education system in Zimbabwe. It is a national policy that would then inform pedagogical and andragogical orientations of institutions, lecturers and students. In short, the success of developmental or institutional programmes, would, to a greater extent, be determined by the national education philosophy. This philosophy would then inform the curriculum, the methodologies, the purpose or aims of education, the role of the learner and that of the facilitator. If the philosophy informs the design and delivery of instruction, it, therefore, implies that there are methodologies that are peculiar to Education 5.0 that would ensure its successful implementation. It is important to highlight that the impact of both pedagogy and andragogy falls within the confines of the national philosophy, down to the classroom factors. This means that the impact of pedagogy and andragogy in institutional programmes should be looked at holistically in light of the Educational Effectiveness Theory from the system factors to the classroom factors.

LITERATURE REVIEW

DESIGN AND DELIVERY OF INSTRUCTION BEFORE THE ADVENT OF EDUCATION 5.0

Literature on the design and delivery of instruction before the adoption of Education 5.0 encompasses Indigenous Knowledge Systems (IKS). before colonialism and colonial and postcolonial education. However, the study targeted literature in postcolonial education. Postcolonial education reforms can be categorised into two, Education 3.0 and Education 5.0. During Education 3.0, subjects relevant to developmentalism, such as food science, urban planning and veterinary sciences, were taught, indicating that despite its inherent flaws which led to Education 5.0, post-colonial education sought development. The education systems established technical universities such as provincial polytechnics and various nonformal education centres for skills development (Zvobgo, 1986). The methodologies used were inherently prescriptive because the concepts were prescribed to the learners in response to industrial demands. This is known as pedagogy. Pedagogy is the art and science of teaching children (Knowles, 2012). However, it also applies to the learning of adults, when the facilitator assumes the repository of knowledge and prescribes concepts to learners as if they were *tabula rasa* or clean slates that do not know anything. On the other hand, andragogy refers to the art and science of facilitating the learning of adults. It is premised on the assumption that learning must be learner-centred, from needs analysis to the classroom and beyond.

According to Muzira and Bondai (2020), curriculum design in Education 3.0 sought to generate industrial competencies as prescribed by the government and industry. It sought to create a large pool of labourers to respond to industrial demands, rather than producing employers. Resultantly, the production of many graduates from universities led to a lack of employment as all the graduates were never trained for employment creation. The process of needs analysis has already alluded to be centred on the needs of the government rather than those of the community or learners, thus minimum bodies of knowledge (MBK) for institutional-centred rather than learner-centred. In the context of Freire (1974), instructional designs of the Global South, post-colonisation borrowed much from colonial education, thus perpetuating the continued legacy of Silencing Education that drove learners into industries without a grain of innovation. Thus, Education 3.0 promoted work-related learning which, in the context of Tanaka and Evers (1999), is ergonagy. Contrastingly, Education 5.0 emphasises on curriculum that must include the concerns of the industry, the community and learners. The content must be designed in such a way that development moves along the values of a particular society, thus it must be heritage-based and cognisant of the cultures of a country (Muzira and Bondai, 2020; Alharbi, 2023;).

In terms of philosophy as the driving force behind any education design and delivery model, Education 3.0 relied on the banking of knowledge, which is perennial. According to Cohen (1999), the purpose of education in perennialism is to ensure that students acquire great Western ideas of civilisation which have the potential to solve any problem in any era and these ideas are considered to be constant, unchanging and everlasting. Cultivation of the intellect is the highest priority and thus is based on the Western civilisation of great books with a prescriptive curriculum. Whatever was propounded by these authors, is relevant in every era of education. To this end, this can be argued to be the pedagogy of adults, as students are encouraged to develop their intellect from renowned authors rather than their needs. Against the principle of orientation to learning that stresses the immediate use of knowledge, perennialists argue that education should be for the long haul and not for the immediate era (Maheshwari, 2013). Gomba (2018) argues that the perpetuation of Western ideals in the curriculum created dysfunctional education, as graduates continued to bank knowledge with the hope that one day. it would be useful. It can, therefore, be seen from the forgoing that the philosophy that informed post-colonial education before the 5.0 epoch, was

pedagogy-driven because it had nothing to do with the learners, was not determined by the community and sought to address the dictates of government as the policy-maker.

In contrast, the philosophy that drives the current education discourse, Education 5.0, is a combination of pragmatism, progressivism and the Zimbabwean morals or *Ubuntu*. Learning must not be done for theorisation, but must always have practical implications and thus must produce goods and services. The education narrative reflects not only the needs of the learners, but also those of society and industry. Thus, teaching-learning starts with the learner needs analysis, moving to learner-centered curriculum and then on to learnerscentred instructional methodologies that expose learners to industry.

Over and above, the heritage-based teaching-learning process must promote Zimbabwean morality.

In terms of the delivery of instruction in Education 3.0, lectures, presentations and individual and group assignments took centre stage. The lecturer remained an oasis of knowledge. Outdoor activities were very minimal, with much of the teaching-learning confined within the traditional four walls. The instruction in Education 3.0 tended to be teacher, institutional and content-centred (Mathende and Beach, 2021; Kangara *et al.*, 2022;), rather than being learner and needs-centred, thus could be argued to have been more inclined to pedagogy than andragogy. The methodologies, as advocated for in Education 5.0, relate well with Knowles *et al.* (2012) who discuss on the application of theory to the real world. Learning should not be all about theorisation and mindless idealism (Merriam, 2002). It should aim at addressing practical and real-world situations (Wankel and DeFillip, 2003). Real-world issues must be brought into the classroom through simulations, role plays, group discussions, field projects, skills practice and case studies.

The learning must be collaborative, experiential, transformative, experimental, investigative and problem-solving. These are the typical methodologies in andragogy and resonate well with the thrust of higher education of dealing with reality and application to the learners' lives. Chan (2010) adds that the methodologies must be complemented by a conducive physical and psychological environment of mutual respect and reciprocity. In summary, the methodologies in Education 5.0 have been summed as having an organic and relevant curriculum; innovative delivery supported by technology; competent and inspiring educators; a transformative learning environment, industry and community-located learning; heritagebased learning (*Ubuntu*); experience, problem and project-based learning. The teachinglearning environment must produce graduates who are competent nationally and globally. The diagrammatic illustration is shown in Figure 1.

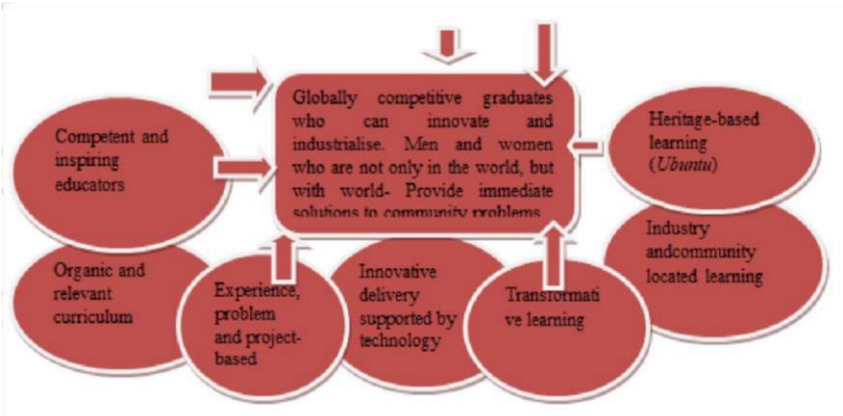

Figure 1: *Design and Delivery of Instruction in Education 5.0* (Researcher, 2024)

However, the design and delivery of instruction in Education 5.0 have not changed much when it comes to instructional methodologies. Education 3.0 was characterised by much of

pedagogy and ergonagy through prescribing content necessary for graduates to work in industry. These have continued into Education 5.0 in that straight lectures, rote-learning, recitation, mere presentations, a culture of examinations and prescriptive learning, have remained, in which the lecturer assumes the repository of knowledge. These have contributed much to the academic excellence of students in terms of grades, but lack application to the real world. In her research at Kennesaw State University, Thompson (2018) found out that this type of instructional design was progressively regressive in that it focused on the passing of students and theorisation, with very little application. In the context of Mlambo (2008) and Raftopoulos (2004), these pedagogical methodologies have detached Zimbabwean institutional learning from societal problems.

Whilst the preceding arguments have exposed the prominence of models in the two epochs, with pedagogical methodologies being very prominent during education 3.0 and andragogical methodologies having been advocated for in Education 5.0, it is just an indication of one model that was or is more pronounced, but it does not mean that it can be applied alone. As indicated by Kerechi (2021), andragogical approaches also existed well before the advent of Education 5.0, thus, it would be wrong to conclude that pedagogy was the only model that characterised Education 3.0. The curriculum was work-related, thus ergonagy existed together with andragogy because the teaching-learning process, to an extent, involved community engagement and the application of theory to practice. From the experience of the author in adult education and lifelong learning, certain fundamentals, such as learnercentred learning and application of theory to practice, were emphasised by the University of Zimbabwe's Department of Adult Education well before Education 5.0.

A Crisis for Higher Education Model of Instructional Design and Delivery

Whilst the economy may prevent the proper implementation of a model that drives Education 5.0, the crisis has been identified in the delivery of instruction. Methodologies in Education 5.0 have tended to remain too theoretical. Thus, methodologies that situate learners in industry and community have been lacking. Lectures, presentations, examinations and assignments still characterise institutional learning. In their studies in West African universities, Fredua-Kwarteng and Ofosu (2018) observe that the efficiency of institutional programmes is dependent on the qualifications of lecturers, the degree programme requirements, a rigorous examination system and course content. They observe that there is very little attention paid to the teaching-learning process of adults. It is assumed, without even a shred of evidence, that lecturers by being experts in their disciplines, would effectively and efficiently impact the teachinglearning process. They also noted that theories, abstracts and figures are thrown to the students in the classroom in what they have described as _Straight Lectures' (*ibid.)*.

Lecturers are considered the sole actors and repository of knowledge without allowing for students' perspectives and critical thinking. They also argue that straight lecturers are a poor approach to preparing university students for employment (*ibid.)*. This is because the pedagogical straight lectures are noncollaborative, non-reflective, non-transformational and _cognitively boxed'. Over and above, the approach does not facilitate the connection of students to their societies and economies. This has been blamed as part of the causes of high unemployment of university graduates in African countries. According to Kanyongo (2005), the Zimbabwean situation is neither different nor better than the rest of Africa. He argues that students who graduate from universities and colleges lack the requisite skills to be employed. The status quo has remained because of poor delivery methodologies used in Education 5.0.

The line of argument as postulated by Kanyongo (2005), Shizha and Kariwo (2012), and Fredua-Kwarteng and Ofosu (2018), extrapolates that, generally, African, and in particular

Zimbabwean, higher education systems are devoid of holistic learning models that connect the teaching-learning process with society and economy. Dambudzo (2015) postulates that the contribution of lecturers to the effectiveness of university learning is through teaching that is problem-based, collaborative, project-driven, enquiry-based and promotes critical thinking. In the context of Brundiers and Redman (2010), classroom activities, the curriculum and the methodology must be linked to the realities of the world. There should be an extension of the learning organisation to the learning community through community engagement (Kearney and Zuber-Skerrit, 2012). There is also need for subject competence from the professoriate, consistent with societal and learner needs. The crux of university institutional learning should be problem-solving, employability, functionality, innovation and industrialisation (Khali *et al.*, 2013; Ratiu and Anderson, 2014; Bidabadi *et al.,* 2016;).

The problem of teaching-learning ineffective processes has been blamed on the lecturer by Ward (2001), who posits that a mediocre lecturer is good at telling, while a good teacher finds time to explain. He argues that the very good teacher emphasises demonstrations, while the superior teacher inspires. It is, therefore, the superior teacher who can exhibit the connoisseurship of university teaching because he/she has the subject matter competence and the art and science of delivery. The preceding argument relates well to Zimbabwe's Education 5.0 discourse in which the teaching-learning process has been negatively affected by the professoriate's inability to embrace new methods of facilitation, far from the pedagogical orientations that dominated Education 3.0. This could be a training gap for the lecturers or a failure to conceptualise the thrust of Education 5.0. Generally, there has been a lot of talking about Education 5.0 without necessarily unpacking what it entails in terms of content design and the delivery of instruction. There is talk of innovation and industrialisation, but lecturers have not embraced the methodologies that promote innovation and industrialisation. The material and financial resources for such implementation are very scarce as argued by Togo and Gandidzanwa (2021).

Hiatt (1991) in his research on American universities shows that most of the colleges in the USA in the 1980s and 1990s still had a significant chunk of untrained professors. Kapur (2017) observes that the qualifications of university lecturers in India have more to do with pedagogues dealing with the pedantic. He argues that lecturer training has taken very little cognisance of non-traditional students flocking to universities. To this end, he posits that Indian universities, notably Rajasthan, Madras, Sri-Venkateshwara, Garhwal and others, have introduced lecturer training in andragogy to facilitate nontraditional students. In the Russian Federation, universities have colleges of andragogy to ensure that those who deal with adults have an additional qualification of andragogy in addition to the pedagogical qualification (Yoon, 2009). Rule (2017) argues that teaching at the university level required that the professoriate acquire the requisite knowledge and skills in the teaching process. Schmidt (2008) argues that the professoriate does not necessarily need to focus on pedagogy training alone to impact the teaching-learning process. He argues that the lecturers should attend to university learning the way they attend to their research, implying experimentation, practicability, collaboration and attention to student experience. They should not focus on the content that they want the students to learn only, but also on the development of cognitive and critical thinking skills (Berret, 2012). The existence of lecturers not trained in either pedagogy or andragogy could be contributing to the ineffectiveness of university education in Zimbabwe.

A HOLISTIC MODEL FOR THE DESIGN AND DELIVERY OF INSTRUCTION IN EDUCATION 5.0

Having exposed the model crises as emanating from a lack of implementation of delivery methods enshrined in the Education 5.0 philosophy by the lecturers due to resistance to change or lack of resources, a holistic model would entail a combination of various concepts or models for functional overlaps. Weighing in on this argument, Knudson (1980) argues that _humanagogy' which is a combination of pedagogy and andragogy, would be the starting point in the development of a holistic model. Humanagogy takes education as a matter of

degree and not kind. It takes the development of the whole being from birth to death, combining teaching-learning moments of pedagogy and andragogy in the lifelong learning continuum (Holmes and Abington-Cooper, 2001). Oyeleke (2018) argues that some adults learn better in self-directed mode while others do better in the teacher-centred mode. This, therefore, means that humanagogy is necessary for learning of adults within the confines of Education 5.0. He argues that the two cannot be absolute models standing on their own but need complementarity for effective and efficient learning. To this end, their application must continue beyond the traditional four walls of institutional learning in what has been termed heutagogy.

Heutagogy means self-determined and transformative learning that incorporates pedagogy and andragogy in action learning (Hase and Kenyon, 2000). Learning for university students must be action-centred, thus they should spend much of their time learning in industries, identifying problems and developing intervention frameworks and models. In the context of Tanaka and Evers (1999), university learning must be work-related, meaning that every theoretical concept must find its practical implication in industry, thus ergonagy. Lecturers must assess their students in the field, be it assignments or examinations. Students must continuously engage the community through the establishment of community labs so that there is action learning where they apply concepts in response to problems that they encounter in society and industry. It can, therefore, be seen from the preceding discussions, that apart from pedagogy and andragogy that characterised Education 3.0 and 5.0, the dictates of the latter philosophy in terms of innovation and industrialisation, require a more holistic model that combines various facets of teaching-learning.

Zembere (2018) argues that university education in Zimbabwe can effectively respond to the political, socio-economic and environmental problems being faced by the country. She draws this argument from Dewey's (1916) explanation that education creates a critical faculty so that a person articulates the complexities of the socioeconomic and political environment. This does not merely happen because adults have attended university education. The university pedagogy or teachinglearning to which students are exposed, can empower them to think critically, radically and practically or disempower them through _silencing education‘ or oppressing pedagogy. Therefore, higher education should be used as a platform in which the classroom environment is used to openly discuss the issues and challenges affecting developmentalism without fear of victimisation. Zembere (2018) calls this Democratic Citizenship Education. This is supported by Waghid (2010a), cited in Zembere (2018), who argues that the teaching model in universities should advance democratic teaching-learning processes. It should also promote the students‘ autonomy in thinking and participating in the design and delivery of instruction. The professors and students must actively participate in the teaching-learning process as change agents (Subba, 2014).

In the context of Shizha and Kariwo (2012), Zimbabwean higher education requires to be indigenised so that it moves away from the colonial legacy to issues that are peculiar to Zimbabwean society and economy only, but also being considerate of the benefits of a global appealing education system. It, therefore, means that the education system should be heritage-based. The implication is that Zimbabwe‘s education system should provide solutions to her problems and must be cognisant of her cultures and *ubuntu* and, at the same time, taping technologies and good practices from other systems. This relates to the need for ubuntugogy as a tenet for effective institutional learning. Ubuntugogy is the art and science of teaching and learning within the confines of humanity towards others (Ganyi and Owan, 2016; Bangura, 2017;). The aim is to develop an adult who is cultured and operates within the dictates of the whole society as a collective entity. Morals are of paramount importance and anything that violates the moral fabric and peace of others is taboo (Makuvaza and HapanyengwiChemhuru, 2014). The rationale behind this African epistemology, as argued by Bangura (2017), is that universities in Africa have for long relied on the Western models, causing Africa‘s underdevelopment, mal-development, civil conflicts and low literacy rates. In this regard, the models that are applied in African tertiary institutions do not resonate well

with the philosophy of *Ubuntu* and how African societies should progress. It is important to highlight that the preceding arguments have opened up on the need to combine different approaches to the design and delivery of instruction that include humanagogy, ergonagy, heutagogy and ubuntugogy. This is because effective learning in university learning, relates to the contextual effectiveness of these, where, for example, pedagogy would be more applicable than andragogy and viceversa.

METHODOLOGY

The study is informed by interpretivism philosophy due to the need to construct knowledge and meaning from the opinions, attitudes and beliefs of those that are grounded in the teachinglearning process. The study follows the inductive approach to gain insight into the phenomenon by interrogating the lived experiences of those who interact with the phenomenon. The case study design was adopted with the University of Zimbabwe as the sampled case. Data were gleaned through interviews from the university's eleven faculties (**n=15**). For anonymity and confidentiality, the participants were numbered alphabetically from **_A**' to **_P**'. The interview guide formed the sole instrument for data collection. Data were analysed through thematic analysis.

NUANCING THE EVIDENCE ON THE GROUND TO TRUTH

DESIGN AND DELIVERY MODELS BEFORE AND AFTER THE ADOPTION OF EDUCATION 5.0.

The design and delivery of instruction in Education 3.0 were informed largely by a perennial philosophy of learning where concepts were dumped on the students with the hope that one day the concepts would be useful. This argument by the participants is supported by Gomba (2018), who argues that the post-colonial philosophy of learning hinged on the perpetuation of Western ideals that were not relevant to Zimbabwe's development. Participant A said:

> —The reason for reorganising the programmes at the university, where certain departments and programmes were merged or removed, is because it was seen that some of the programmes were not relevant to the attainment of Vision 2030 through Education 5.0.‖

Contrastingly, the Education 5.0 philosophy focuses on the immediate application of knowledge to societal and industrial problems. In terms of content, all participants thought that Education 3.0 emphasised the prescription of certain competencies to produce a large pool of labourers. Participant C argued that the focus of education before Education 5.0, was to address the need by industry to have conformists who would be employed to perform certain taught competencies. This argument is supported by Muzira and Bodai (2020), who assert that education before 5.0 created labourers rather than employers. They further allude to the fact that the focus of Education 5.0 is to create graduates who are bent on the production of goods and services. Zvobgo (1986) also weighs in with the industrial skills orientation of post-colonial education before Education 5.0.

In terms of curriculum design, the participants thought that Education 3.0 was more prescriptive, pedagogical, content and teacher-centred, whilst Education 5.0 advocates for content that is learner, community, industry and andragogically centred. Participant P argued:

> —The process of needs analysis during Education 3.0 was done to ensure that certain industrial competencies were met. Little focus was given to the needs of the learners, the community and those who delivered the instruction.‖

The submissions by the participants in terms of curriculum design were lamented by Muzira and Bondai (2020), who argue that post-colonial models in terms of curriculum design relied on the needs of the government, thus were content and teachercentred and focused on subject competencies deemed relevant to produce a large complement of labourers. Togo and Gandidzanwa (2021) further allude to the fact that the curriculum in Education 5.0 seeks not only to create a competitive industrial labour force, but also graduates who can innovate and industrialise through the inclusion of subjects that are learner, community and industriy-centred. The delivery of instruction in Education 3.0 was characterised by rote

learning, lectures, presentations and assessments in terms of assignments and examinations. Whilst Education 5.0 advocates for a paradigm shift from this, lecturers have continued to use straight lectures and other traditional methodologies. Participant I bemoaned the delivery of instruction in Education 5.0*:*

> —I think there is a need to seriously look at this because we are talking of innovation and industrialisation, but the methodologies that support such are not forthcoming. What change and value are we bringing if we are resistant to change to this extent? The lecturers are just using the same methodologies that we were using in Education 3.0. How many times have you heard in your department or faculty of cases where a lecturer would have taken his students to conduct a lesson in the community or industry? How many lecturers have examined their students on physical models in the industry?‖

There is a lot of theoretical assessment that does not add value to the Education 5.0 thrust. The submissions by the participants resonate with Kerechi (2021), who asserts that there is no change that Education 5.0 has brought because what was happening before in terms of delivery, is still being practised.

The conclusion drawn from the participants is that postcolonial education before Education 5.0 was driven by perennials, the design and delivery of instruction were prescriptive in terms of content and instructional delivery. It aimed at producing labourers in large numbers. Pedagogy in terms of needs analysis, curriculum design and delivery methods assumed a dominant role over pedagogy. Education
5.0 is informed by a pragmatic and progressive orientation to education. The curriculum is learner, community and industrycentered. Whilst it advocates for delivery methods which situate the learner and the lecturer in the industry and community in terms of being project and problem-based, there is rampant use of straight lecturers, assessments through theoretical assignments and examinations which do not support the thrust of innovation and industrialisation. Methodologies that include open-book assessment, teaching-learning in the community and taking students to industry settings for lecturers, assignments and examinations, are necessary for Education 5.0. Learning, as alluded to in Figure 1, must be premised on relevant and organic curriculum; innovative delivery supported by technology, industry and community-located learning; competent and inspiring educators; experience, problem and project-based; heritage-based; and transformative learning.

A CRISIS FOR HIGHER EDUCATION MODEL OF INSTRUCTIONAL DESIGN AND DELIVERY

The participants acknowledged the existence of a crisis in terms of a model of institutional learning in universities in line with Education 5.0. Despite the complementarity of pedagogy and andragogy, as seen in the two eras, Education 3.0 and 5.0 have not asserted themselves as the connoisseurship of instructional design and delivery in institutions of higher learning. Some issues need to be addressed in terms of needs analysis, content development and delivery methods. In this regard Participant H said:

> —Pedagogy was very dominant during the Education 3.0 era though complemented by andragogy and these two are also found in Education 5.0 for the teaching of principles, especially at lower levels of university education and self-directed and learner-centred learning at later stages and beyond. However, university learning needs to be work-related (ergonag), action-centered in industry (heutagogy) and must be within the moral confines of our society. All these tenets cannot stand alone to reflect the best teaching-learning practice in universities, but must be combined.‖

The crisis was also noted to be emanating from the lecturers who were not implementing methodologies consistent with innovation and industrialisation. This was seen to be attributable to a lack of knowledge on the part of lecturers on how to deal with adults, a lack of appreciation for the thrusts of Education 5.0 and a lack of financial and material resources needed for industrial and community engagements. The arguments are in sync with Shizha and Kariwo (2012), who extrapolate that, generally, African, and in particular, Zimbabwean, higher education systems, are devoid of holistic learning models that promote critical thinking.

A HOLISTIC MODEL FOR THE DESIGN AND DELIVERY OF INSTRUCTION IN EDUCATION 5.0

The general argument from the participants points to the absence of what can be called a holistic model of design and delivery of instruction in institutions of higher and tertiary education. The existence of pedagogy and andragogy, in postcolonial education as means of instructional design and delivery, has been noted not to be enough for Education 5.0. It was noted that at each stage of learning and, depending on the desired outcome and level of study, all models are contextually applicable. Despite the variations on what constitutes the connoisseurship of teaching-learning in university learning, submissions from the participants pointed to the need to combine pedagogy and andragogy (humanagogy) with ergonagy, heutagogy and ubuntugogy. Learning should be done within the confines of functional values as a people (*Ubuntu*). Learning should be an interwoven process where all models work together in a continuum of Pedagogy – Andragogy –Humanagogy – Heutagogy – Ergonagy – Ubuntugogy. Whatever is learnt should, at the end of the day, lead to the production of goods and services, thus the envisaged model should take cognisance of the dictates of Education 5.0. The complementary nature of the individual models must be understood and used contextually in the teaching-learning discourse to produce a whole graduate who can compete internationally, contribute to society through research and innovation and be morally upright. Institutional learning must lead to qualitative and quantitative development in all aspects, be it economic, political, human, social, cultural or environmental. To this end, the envisaged model which combines all the different models and named the UEH2 model by the researcher, is shown in Figure 2.

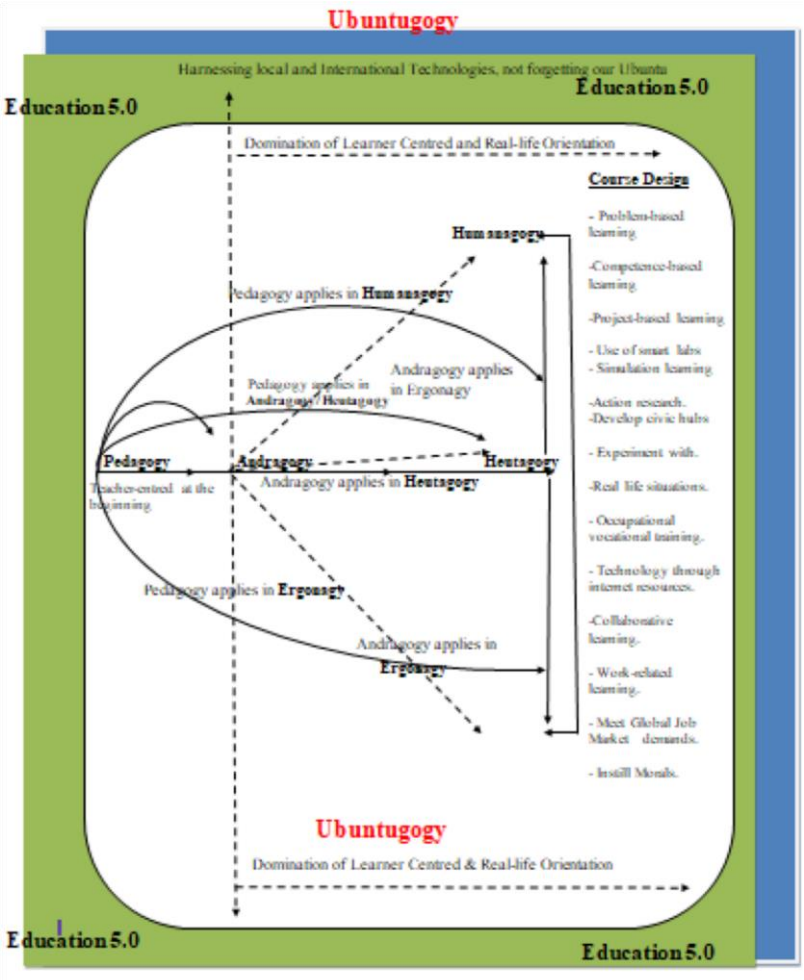

Figure 2: *UEH2 Model of Institutional Learning in Higher Education*

CONCLUSION AND RECOMMENDATIONS

Post-colonial education has been characterised by pedagogy and andragogy as means of instructional design and delivery operating in a complementary role. The advent of Education 5.0 required not only a change in the curriculum, but also in the delivery of content. This implied a paradigm shift from pedagogical instruction to andragogical instruction. However, such change has not been observed because the delivery of instruction is still being done through straight lectures and presentations. The assessment is still through theoretical assignments and end-of-semester examinations. It is recommended that universities adopt problem and projectbased teaching and assessments that situate the learner and the lecturer in the industry and community. There is need for more outdoor teaching and learning. This requires that lecturers be trained in this nature of instructional delivery and on how to facilitate the learning of adults towards the innovation and industrialisation thrusts. Institutions of higher learning need to be provided with the relevant financial and material resources that promote more outdoor teaching and learning. The best model for university education should, among other things, combine humangogy, heutagogy, ergonagy and ubuntugogy for their functional overlaps. It is, therefore, recommended that institutions of higher and tertiary education adopt the UEH2 model. It is further recommended that future researchers interrogate the model for its refinement.

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