

# An Assessment on the Effects of Modular Teaching and Learning in Achieving Education 5.0. A Case of Women University in Africa

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**Abstract**— The purpose of the study was to assess the effect of modular teaching and learning in achieving objectives of Heritage Based Education 5.0. This was triggered by the adoption of modular approach by most institutions of Higher Learning in Zimbabwe. The study aimed to find out whether the highlighted template curriculum goals were being achieved or not. This follows the fact that practical teaching is expected to provide learners with real-world skills. This research had three specific objectives namely; to identify the current modular teaching practice for Heritage Basic Education 5.0; to find out the effects of modular teaching and learning approach based on the 5.0 objectives and; to recommend useful strategies for effective modular teaching and learning practice. In line with the interpretivism research philosophy adopted, the study used the qualitative research method, case study research design and interviews on a sample of 12 participants drawn using purposive sampling. Both descriptive and inferential statistics were used to analyse data. Data gathered from key informant interviews and documentary reviews underwent thematic analysis. The study revealed that modular teaching and learning practice could have a positive effect in attaining quality Heritage Based Education and rhyme with 5.0 objectives in Zimbabwe on the condition that adequate infrastructure is implemented in tertiary institutions to support the framework. It was also established that there is need to offer training on instructional strategies and technologies that align with Education 5.0 among other strategies.

**Keywords**— Modular Teaching and Learning; Education 5.0, Learning platforms.

## INTRODUCTION

Teaching and learning in the contemporary era of Heritage Education 5.0 requires an educational approach that emphasises the mastery of specific skills or competencies rather than the completion of a set number of credit hours or courses.

According to Tamin, Du Plooy, Solms and Meyer (2018) modular learning is a type of flexible, competency-based education, it allows students to progress through material at their own pace and master specific skills before moving on to the next level.

In most cases, each module is designed to be completed in a certain amount of time. However, some modular learning programmes allow students to move through the material at their own pace.

There are several different ways that modular learning can be delivered. Some programs use physical materials, such as textbooks and workbooks, while others rely solely on digital resources. Additionally, some modular learning programs are self-paced, while others require students to complete modules within a specific timeframe.

## Heritage Education 5.0

The current Higher and Tertiary Education Minister, Professor A. Murwira, espouses a heritage-based philosophy that encourages the application of knowledge gained about the local environment to produce relevant goods and services (Ministry of Higher and Tertiary Education, Science and Technology Development, 2018a). Pre-colonial, colonial, and post-colonial education are the three categories into which Zimbabwe's educational system has been divided after certain revisions.

There are two more subcategories of post-colonial education: 3.0 and 5.0. Two pillars were added to Education 3.0 to create Heritage Education 5.0. The focus of Education 5.0, according to the Ministry of Higher and Tertiary Education, Science and Technology Development, (2018a), is on teaching, research, industrialization, community service, and innovation.

## Modularisation

Yoseph and Mekuwanint (2015) asserts that, modularisation refers to the process of organizing academic programs or courses into discrete, independent modules.

Teaching and learning through modularization consists of brief learning sessions in one or two courses, culminating in an exam after roughly four-six weeks. Since students receive feedback and scores nearly immediately after completing an assessment, modular teaching and learning improves retention and pass rates. This is in contrast to the semester model, in which assessment papers are typically returned much later (Palis & Quiros, 2014).

Ideally, modular teaching and learning increases retention and pass rates since students are given feedback and grades almost from day one, as opposed to the semester model whereby assessments are generally not returned until much later. However, the implementation at some higher education institution has been disastrous.

Most of the time the lecturers only attend 10 days for the face-to-face lectures, leaving much of the load on the students' shoulders (Gora, 2023). Students end up cramming specific topics to write examinations rather than having a thorough knowledge of the module.

Modular teaching and learning is now being viewed as an examination oriented kind of teaching and learning system (Tamin et al., 2018).

Students are now only concentrating on whatever it takes to pass the examination. After the examination, the students focus on the upcoming module, this makes it impossible to focus on the grey areas of the previous module.

Modular teaching and learning, also known as competency-based education, has been growing in popularity world over to help students learn more effectively.

Locally in Zimbabwe, the approach was initiated by the University of Zimbabwe where the institution implemented modular learning to all its programmes as from the year 2020 and implemented starting from 2021.

Most institutions of Higher Education gradually adopted a modular approach to teaching and learning, which was first implemented online at the University of Zimbabwe

### **Conceptual framework**

The study conceptual framework is displayed in figure 1 below

(UZ) at the height of the COVID-19 pandemic (Gora, 2023).

Following suit, other universities have customized the system to fit the needs of their students, including Great Zimbabwe University, Chinhoyi University of Technology, Bindura University of Science Education (BUSE), Midlands State University (MSU), Zimbabwe Ezekiel Guti University, National University of Science and Technology (NUST) and Women University in Africa (WUA).

Women University in Africa (WUA) adopted e-learning modular learning during the Covid 19 era. This is whereby teaching materials were shared on the University Portal.

Lectures were conducted online that is on Google scholar, zoom, whatsapp and other online platforms. After Covid lockdown a modular blended approach was used in whereby both physical and online classes were conducted.

The current modular teaching and learning approach entails students take one or two courses in short bursts of time, culminating in a test at the end of about four weeks.

As a result, retention and pass rates would rise because students would receive feedback and grades nearly immediately, as opposed to the semester model when tests are typically returned much later (Palis & Quiros, 2014).

There has been a general observation that modular teaching and learning approach has increased workload of lecturers, since they need rush in order to finish the module before the examinations (Dargo & Dimas, 2021).

This results in lack of exposure to other extracurricular activities hence limiting learners' self-confidence to become well-rounded individuals (Naik, 2018).

It was against this background that the research sought to assess the effects of Modular Teaching and Learning in Achieving Education 5.0. with reference to Women University in Zimbabwe.

**Independent Variable**  
**Modular Teaching and Learning**

**Dependent Variable Heritage Based Education 5.0 Objectives**

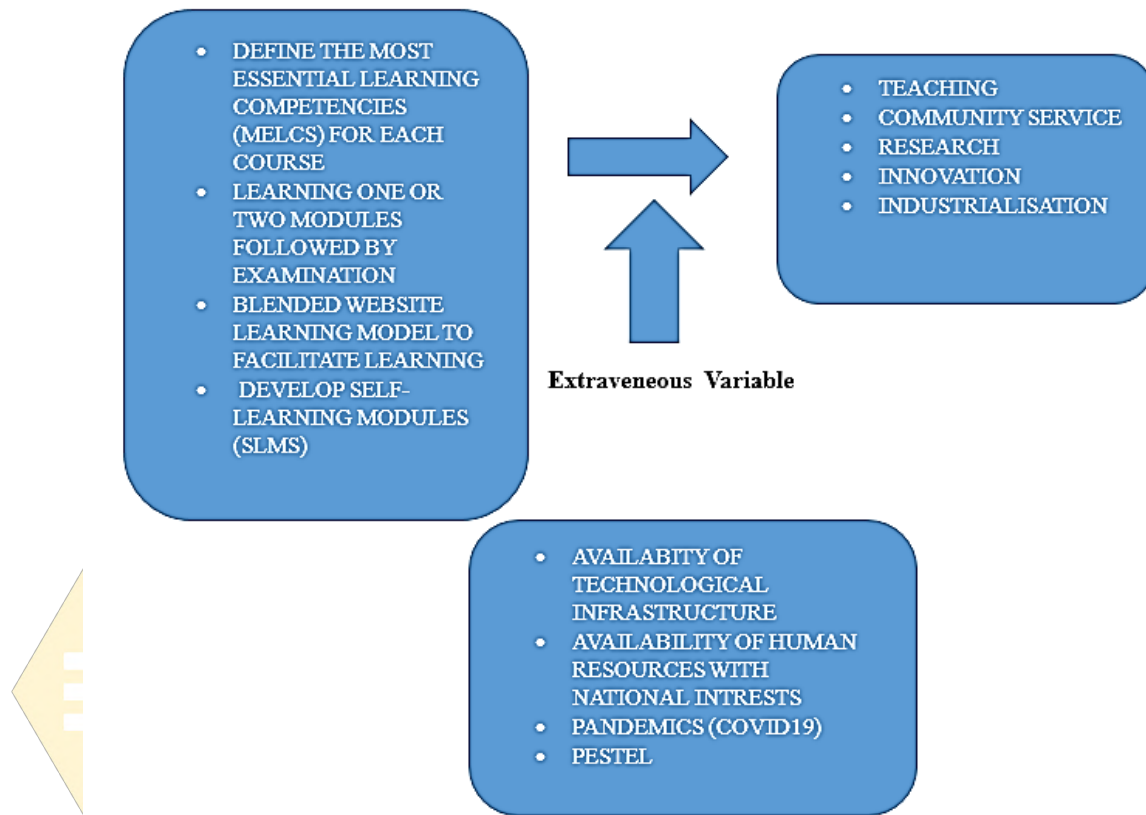


Figure 1 shows the schema of the study constructs that contains both dependent, independent factors and extraneous factors that can occur during the process. The study postulates theories explaining how the independent variable, modular teaching and learning, influences the dependent variable, Heritage Based education 5.0. It is important to note that environmental factors such as PESTEL also influence modular learning enabling the implementation of Education 5.0. A conceptual framework may include key concepts, definitions, assumptions, and propositions that guide the research process (Kivunja, 2018). It helps researchers develop a clear understanding of the factors influencing the phenomenon under investigation and how they are interrelated.

**Statement of the Problem**

Ideally, modular teaching and learning increase retention and pass rates, unlike the semester approach, where assessment feedback is typically not delivered until much later, this model provides comments and grades virtually immediately. However, the implementation at some higher education institutions has been disastrous. Some lecturers only attend 10 days for the face-to-face lectures, leaving much of the

teaching and learning load on the students' shoulders (Gora, 2023). Learners end up cramming specific topics just to be able to write examinations rather than grasping some knowledge of the module. Modular teaching and learning is now being viewed as an examination-oriented kind of teaching and learning system (Tamin et al., 2018). Students are now only concentrating on whatever it takes to pass the examination. After the examination, the students focus on the upcoming module, this makes it difficult to focus on the unclear areas of the previous module. Modular teaching and learning do not leave space for one to actively participate in extracurricular activities as students are often occupied by academics and are always in panic mode because of examinations in three to four weeks. This raises a question on the effectiveness of modular learning and teaching systems in implementing Education 5.0. Studies on the effectiveness of modular teaching and learning approaches were done by Dargo and Dimas (2021) relatedly a study entitled Effectiveness of Modular Approach in Teaching at University Level by Sadiq and Zamir (2014) was done. These studies could not fill the geographical gap since they were both done in Asia. Additionally, the studies focused on modular distance learning whilst in



Zimbabwe a blended teaching and learning approach incorporating face-to-face and online learning was adopted. The researcher sought to explore the effects of blended modular learning in the African context and come up with possible solutions to make it effective in achieving Education 5.0 objectives.

### **Objectives of the Study**

The general objective of the study

The general objective of this study was to assess the effectiveness of modular teaching and learning practice at Women University of Africa.

### **Specific Objectives of the Study:**

This study had the following specific objectives:

- a) To identify the current modular teaching and learning practice at Zimbabwe's Women University of Africa.
- b) To evaluate the effects of the modular teaching and learning method with reference to 5.0 Educational Goals.
- c) To propose useful strategies for effective modular teaching and learning practice at Zimbabwe's Women University of Africa with reference to 5.0 educational Goals.

## **RESEARCH METHODOLOGY**

### **Research Paradigm**

Hancock et al. (2021) asserts that a research paradigm is a comprehensive framework or viewpoint that directs the methodology of the researcher. It includes a range of presumptions, convictions, theories, and approaches that influence how scholars view and explore the nature of reality, knowledge, and the research process in general. Three primary research paradigms exist these are positivist, interpretivist and pragmatic paradigms. The foundation of the positivist paradigm is the conviction that knowledge may be acquired by means of impartial observation and measurement. The interpretivist paradigm acknowledges the subjective and socially constructed nature of reality. The pragmatic paradigm looks for workable answers to research issues while recognising the importance of positivist and interpretivist methodologies (Alharahsheh and Pius, 2020). Thus, this study used the interpretivist paradigm.

### **Research Participants**

Participants who were most knowledgeable judging from their experience, educational backgrounds, and also those who experienced the phenomenon. A total of 12 key informants were interviewed. Key informant

interviews allowed the researcher to gather in-depth insights from individuals who had direct knowledge or experience of modular teaching and learning (Momoh, 2023). Through direct communication with people who are aware of the reality on the ground, the researcher was able to pinpoint particular difficulties that students, instructors, and the institution have when attempting to manage modular teaching and learning and attain Education 5.0 objectives.

### **Procedure**

This study took on a case study method. This is a theory-based strategy, where the researcher is primarily concerned in describing the topic that is the focus of the research (Arturo, 2018). It is applied to case studies, and surveys which include questionnaires and interviews, in this study the researcher used the descriptive research method to describe the findings of the study about education 5.0. This method comprises data gathering, investigation, and discussion of findings for the study. The case study has a clearly defined problem: the negative effects of modular teaching and learning at Zimbabwe's Women University in Africa. It focused on Women University in Africa (Zimbabwe) which introduced modular teaching and learning of two blocks per semester. This focus allowed for in-depth analysis. The study yields important insights on how to improve the modular teaching and learning approach.

### **Sampling**

The sampling technique provided equal chance to all participants to participate in this study (Creswell, 2022). Participants who were most knowledgeable judging from their experience, educational backgrounds, and also those who experienced the phenomenon. A total of 12 key informants were interviewed.

### **Data Collection**

Primary data was collected through a questionnaire that was physically dispatched by the researcher to participants. The questionnaire method enabled respondents to fill the questionnaire concurrently, thereby allowing the researcher to finish the study timeously (Salkind, 2022).

### **Measures/Instruments**

According to Chinelo (2016), data collection is a process of gathering information from all relevant sources to find answers to the research problem, test the hypothesis and evaluate the results. There are various methods of gathering data and these comprise interviews, experiments, surveys or questionnaire, observations,

and content analysis. This study adopted the key informant interview and documentary analysis as data collection methods (See Appendix 1) for the Informed consent form and Appendix 2 for Interview guide. Key informant interviews are a qualitative research method involving in-depth, semi-structured conversations with individuals who possess specialised knowledge or experience relevant to the research topic (Solarino, Angelo & Herman, 2021). These individuals are considered "key" because of their unique perspective and ability to provide valuable insights that might not be readily available from other sources. The key informants include the Dean, Faculty coordinators, students, and education policy makers. The process involved a one-to-one interview between the researcher and the key informant. Using key informants has several advantages including their expertise, access to information, ability to provide in-depth information and sharing personal perspectives. The investigator employed these advantages to acquire a thorough comprehension of modular instruction and learning.

## RESULTS AND DISCUSSION

Theme 1: Derived from research question 1: Current modular teaching and learning system at Women University in Zimbabwe

This section dissects the modalities of the existing modular teaching and learning framework at Women University in Africa in Zimbabwe's education system. From the interviews conducted by the researcher, the participants gave their insights into the attributes of the above mentioned approach defined within the higher education sector in Zimbabwe. From the interviews conducted with the participants, several subthemes were formulated from the above research question.

### *Development and assessment of specific competencies, skills, and dispositions*

The study's findings showed that modular teaching methods can help students develop critical thinking, creativity, communication, teamwork, and digital literacy—all of which are crucial for success in the twenty-first century.

### *Participant AH said as quoted below,*

"By emphasizing specific competencies, skills, and dispositions within modularised units, educators have managed to design assessments that measure the acquisition and application of these skills."

### *Participant BH also commented that,*

"It initially faced resistance when it experienced technical glitches, but everything has been refined since. Lecturers in modular learning have more time to concentrate on certain facets of Education 5.0, especially research, community engagement, innovation and industrialisation that are often skipped."

### *Participant CH was quoted,*

As an academic, whatever we teach students, they have to have the skills to apply the knowledge, especially when they commence work in the industry. Potential designers are among us. Either multimedia designers or industrial designers will be among them. We consequently anticipate that by bringing something new, they will make an impression wherever they go. We expect them to be creative and come up with new products to meet the society needs.

### *Participant DH said as quoted below,*

"Teachers are able to give appropriate evaluation and concentrate on particular facets of digital literacy by segmenting the subject matter into modular courses. Prior to this method, the difficulty was having six or more tasks due at once while attending lectures all day. I can now easily understand the work, adequately prepare for exams, and fully immerse myself in a particular field of study thanks to the one or two lectures per day, maybe two or three assignments at any given time, and properly spaced exams. This allows me to thrive to the fullest extent possible during that time."

These findings are consistent with a study by Ibyatova, Oparina, and Rakova (2018) titled "Modular Approach to Teaching and Learning English Grammar in Technical University," which noted that the study's findings demonstrated the effectiveness of the modular approach in teaching and in enhancing students' comprehension and critical thinking. Additionally, Nardo (2017) pointed out that using modules encourages autonomous study. Improved learning skills or self-study among students is one benefit of this kind of framework. Now that the topics in the module have been introduced, students can grasp them and grow in their sense of accountability for doing the assignments. With minimum or no help from others, they are now able to formulate their progress.

### *Customised and lifelong learning*

The findings suggested that educators should use learner-centered strategies which view learners as active agents in the learning process whereby modular learning

allows students to design their own learning pathways by selecting modules in a sequence that makes sense to them. They can personalise their learning journey by choosing modules that build upon their existing knowledge and skills or explore new areas of interest. Commenting on this argument;

***Participant DH: was quoted saying***

“Students can take tests when their knowledge of the material is still current. Since it helps them to efficiently manage their time, I believe they have accepted it and are now enjoying it..”

***She further commented that,***

“A student has sufficient resources and support in their studies when they are working with fewer sets of concepts and deadlines at a time. According to him, this works well for "boring" or mandatory modules that students put effort into. This method gives students the opportunity to concentrate on one particular module or up to three modules in a timeframe of no more than four weeks, which can be sufficient if both the instructors and the students are aiming toward the same goals.

***Participant DH also added that,***

“Compared to the old semester approach, it enables students to focus their attention and energy on one subject, or at least fewer subjects.”

These results echoed the findings of CHed Chairperson Prospero de Vera, who noted that “flexible learning encompasses the design, delivery of programs and learning interventions thereby addressing the learners’ unique needs in terms of pace, place, process and learning outcomes” as articulated by (Parrocha, 2020).

Modular learning provides students with the opportunity to personalise their learning journey by selecting modules that align with their interests, strengths, and learning styles. This promotes individualisation and inclusive education as it acknowledges the diverse needs and preferences of learners. Students can engage with the content in ways that suit their unique learning styles and foster a sense of ownership and motivation in their education. This was also echoed by Ambayon's (2020) research, that modular instruction is more effective in the teaching-learning method when compared to traditional teaching techniques because students know at their own pace with this modular approach.

The flexibility of modular learning allows for self-pacing and customisation, enabling students to pursue lifelong learning. By choosing modules that align with

their specific goals and aspirations, individuals can continue their education at any stage of life, adapting to their changing circumstances and needs. Instructors can assist students in the process of reflection and application by utilizing various learning resources such as videos, discussion forums, online lectures, and modules (Kourieos, 2016; Shine & Heath, 2020). Microlearning has the potential to improve students' autonomy and involvement with the material in several ways.

***Problem-solving, and project-based activities within the modular framework***

It was raised by interviewees in this study who augmented that modular framework incorporated problem-solving and project-based activities whereby educators would create meaningful learning experiences that bridge the gap between classroom learning and real-life contexts. These activities therefore allow students to apply their knowledge, develop practical skills, collaborate with others, and see the relevance of their learning in authentic situations. Regarding this observation, one of the participants (DH) was quoted as indicated below

‘It has always been crucial to impart practical skills to graduate students in addition to theory’.

***Correspondingly, another participant EH said:***

“Modular framework allows learners to acquire abilities in invention and creativity. They must be able to create in addition to being creative, coming up with components that will influence technological advancement wish your pupils to be able to apply the knowledge they have learned to make a difference in the industry, not only to understand your theory.”

The opinions show an affinity with the teaching and learning paradigm of modularity as a solution to the practical shortfall that most Zimbabwean colleges have carried over from the colonial era. There are arguments that industrialization and innovation are key ideas that can drive education in postsecondary and higher education institutions. Beyond the two comments from participants 1 and 2, generally, modular teaching and learning is glorified by higher and tertiary educators as it transforms the application of theory to the production of goods and services.

According to the lecturers interviewed, teaching and learning should not stop at articulating dry, academic text because doing so is a waste of time. Instead, education through books needs to be turned into tangible



goods that can be sold. Emerging countries like Zimbabwe's may be able to avoid local and international debt if higher education and training institutions foster creativity, innovation, and industrialization. This might lead to the production of new commodities and services. This is in line with O'Neill (2015), who made a big impact on how higher education and training were developed. Additionally, Barnett and Coate (2005) modify. While this was the case, Participant FH stated otherwise,

“Yes, we still have difficulties. Lecturers are encouraged to plan their module outlines so that students are guided to build on practical skills; the problem lies in the fact that some of the modules are structured in a way that, while the student is being taught new skills and instruction, they are also being given a syntax of how an operation is done; the primary method of teaching practical skills is having the student perform the operation while the lecturer watches”

This helps in identifying the areas the student is doing both accurately and erroneously, after which they will re-deploy. It is not something that can be accomplished with a syntactic manual, and it gives the pupils the opportunity to hone their abilities without the instructor's constant supervision. The demonstrator must identify the student's areas of weakness.”

From the preceding statements, the participant appears to have a notion that modular teaching and learning have a long way to go if they are to meet the Heritage Based Education 5.0 objectives. This correlates to Polgampala et al (2016) who proposed that, in accordance with strict,

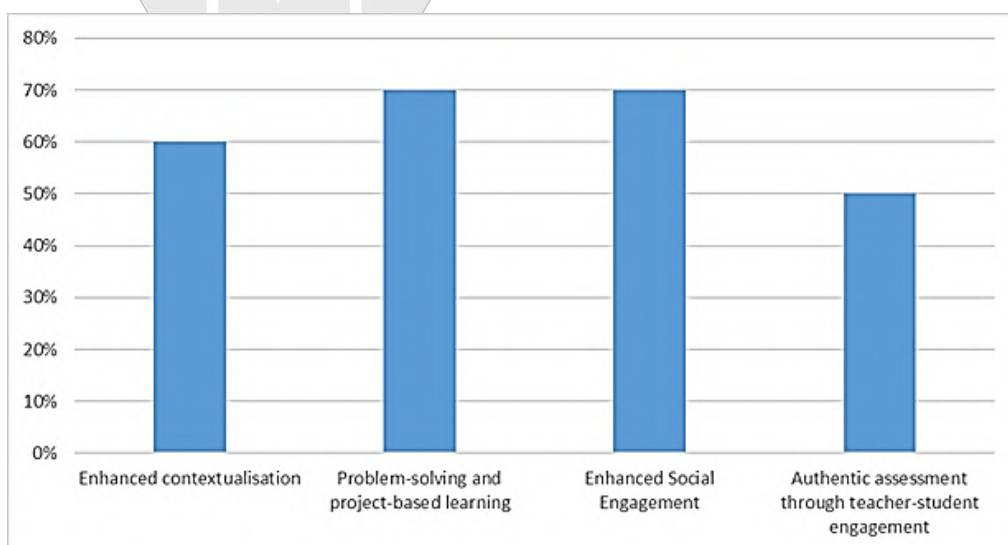
creative steps that should be made to enhance pre-service scientific teacher preparation, mathematics teachers should possess advanced degrees at admission points.

***Theme 2: Derived from research question 2: Effects of the modular teaching and learning system to achieving Education 5.0.***

From the interviews that were conducted by the researcher, the participants gave an insight into the attributes of the above-mentioned approach defined within the higher education sector in Zimbabwe. Responses observed by the researcher from the participants were used to create the subthemes detailed below.

***Modularised framework on authentic and real-world application***

Data illustrated below depicted a significant impact of modular teaching and learning, combined with a blended approach, on Heritage Education 5.0 objectives in Zimbabwe. As per the results, sixty percent of the individuals mentioned that modular learning and teaching lead to enhanced contextualisation in students. Seventy percent of the participants mentioned that the framework provided the learners with problem-solving and project-based learning skills. From the data, the researcher also noted that seventy percent of the participants mentioned that the curriculum allowed for enhanced social engagement for both the students and lecturers. The graph also showed that fifty percent of the participants mentioned that the framework incorporates authentic assessment through teacher-student engagement.



**Figure 4.3 - Modularised framework on authentic and real-world application**

Source Author 2024

### ***Enhanced contextualisation***

Data revealed that sixty percent of the participants were in support of the notion that modular learning often incorporates real-life examples, case studies, and scenarios that contextualize the content being taught by presenting learning material in meaningful contexts, students can see how the knowledge and skills they acquire can be applied to authentic situations. They also added that these aided students to understand the importance of practical learning and enabled them to make connections between theory and real-world application. This is congruent with the result of the study of Van de Pol et, al (2015), argued that each learning module is structured to progress from basic to complicated concepts, allowing students to identify how the ideas relate to one another and facilitating easy conceptual understanding. Additionally, Madrazo and Dio (2020) stressed that a well-prepared module could help the student understand the topic easily.

### ***Problem-solving and project-based learning***

Data revealed that seventy percent of the participants acknowledged that modular learning frequently includes problem-solving activities and project-based learning opportunities. They noted that such approaches require students to apply their knowledge and skills to solve complex problems or complete real-world projects. Through these kinds of exercises, students get a firsthand look at the difficulties and complexities of real-world situations, which helps them to build their critical thinking, problem-solving, and decision-making abilities in real-world settings. One of the interview participants (TH), whose quote is included below, can support this argument:

“As an academic, our students need to be equipped with the abilities necessary to apply what they learn in the workplace. Some of our pupils plan to become designers. Whether or not a person designs products, we still want them to be creative thinkers. We anticipate that they will be imaginative and provide new goods that the public need.”

The finding relates to the study of Belecina and Ocampo (2018), which specified that sufficient activities improve their attitudes, abilities, knowledge, and critical thinking. They are motivated by situational issues, which also offer a means of organizing thoughts. They can also grow in metacognition and become contemplative thanks to these.

### ***Enhanced Social Engagement***

Data revealed that seventy percent of the participants were in agreement that modular learning often encourages collaboration and communication among students. They cited that by working together in teams or groups through the blended modularised approach, students can engage in authentic interactions, share ideas, and collectively solve problems. According to their opinions, this mirrors real-world work environments where collaboration and effective communication are essential. Through collaborative activities, students were able to practice teamwork, negotiation, and interpersonal skills, preparing them for real-life situations. Thus, teachers are encouraged to apply a learner-centered approach in most activities in the module. The outcome validates the research conducted by Madrazo and Dio (2020), who elucidated that the learning module benefits students by serving as a substitute tool. Through its exercises, students can improve their cognitive, motor, and skill sets.

### ***Authentic assessment through teacher-student engagement***

According to data, 50% of participants said that authentic evaluation techniques that encourage students to show off their knowledge and abilities in real-world situations may be incorporated into modular learning. Their narration was that the curriculum involves performance-based assessments, portfolios, presentations, or simulations that simulate real-life scenarios. In addition, they acknowledged that authentic assessments also aided in providing students with opportunities to showcase their abilities and apply what they have learned in practical ways, rather than relying solely on traditional tests or exams. This bolsters the findings of the San Antonio (2020) research, which stressed the importance of tracking student progress and putting in place a feedback system to assist students in meeting the necessary learning competencies and understanding how one lesson relates to another in order to strengthen the curriculum's coherence. This implies that instructors will stress how learning will be evaluated by evaluating students' performance and output at the conclusion of the course.

Contrary to the above findings, few participants had other opinions towards the above-mentioned attributes.

### ***Participant MH said,***

“The curriculum before the pandemic on emphasizing Education 5.0. however, a transitioning it into modularised approach has not been done. We were only



augmenting the class tutorials when we reviewed our curriculum to emphasize on Education 5.0.”

The feelings expressed here provide clear evidence that even though institutions have embraced modular teaching and learning at tertiary education in Zimbabwe there is still refinement and support that needs to be done to attain Heritage Based Education 5.0 objectives. This implied that in order for students to live long and prosper, they must have a practical education. Furthermore, if pupils are not prepared to acquire real-world skills, international economic disputes would worsen. This demonstrates the need for cooperation and thorough curriculum reform to identify problems and offer answers in order to modernize nations. The process of teaching and learning generates creative ideas that promote economic growth. This is in contrast to the third generation of education, which did not consider industrialization, creativity, and invention to be essential components of advanced learning and training.

Additionally, they recommended that the first curriculum revision concentrate solely on in-person instruction. This means that the necessity to embrace the Internet of Things online teaching and learning was missed by the local Education 5.0 directive. This supports O'Neill (2015)'s assertion that instructional philosophies and didactic goals that prepare students for real-world experience are valued in 21st-century curriculum reform.

### **Connection to local contexts**

Generally, most of the participants argued that tutors have succeeded in aligning the new curriculum with the Heritage Based Education 5.0 template objectives.

### **Participant TH said that,**

“The industry is taught to students in the same manner as tourism or geographic concepts, like the existence of Victoria Falls and Great Zimbabwe. They also have only a theoretical knowledge of Mosi-oa-Tunya, the Great Zimbabwe. They are also familiar with the nation's geographic locations, cultural landmarks, and natural areas, all of which we have been highlighting more in their coursework”.

### **Likewise, Participant MH commented that,**

“Through the use of a face-to-face approach, whatever we teach students needs application. Whether or not a person designs products, we still want them to be creative thinkers and we anticipate their inventiveness. We therefore anticipate that industrial

designers will create novel products that address societal demands.”

The above-mentioned quote highlighted the role of teachers being refined as facilitators rather than sole transmitters of knowledge. They guide and support students in their learning journey, helping them navigate through modular content, resources, and activities. Teachers create a conducive learning environment, foster critical thinking, and encourage students to take ownership of their learning. This idea is consistent with the Undersecretary for Curriculum and Instruction Diosdado San Antonio (2020) study, which found that the presence of a strong communication channel between teachers, students, and parents or guardians is likely another factor that influences how effective the learning activities are for the distance learning delivery modality. This is due to the fact that learners would have been tasked with taking on and solving challenging tasks or problems that require efficient communication, as well as doubts, confusions, and uncertainties.

### **Theme 3: Derived from research question 3: Possible strategies that can be implemented to improve modular teaching and learning system**

This section presents possible strategies to be implemented by the highlighted institution and education policymakers in Zimbabwe to enhance the modular teaching and learning system. From the interviews conducted with the participants on the above-mentioned notion, the following interpretations emerged

#### **4.4.1 Technology integrated in modular learning and teaching.**

The Government of Zimbabwe sponsored and raised donations for computer hardware and other ICT-related gadgets, which helped with the integration process. According to the survey, the majority of participants were acclimating to the demands and rigors of blended learning through modular instruction. Since the blended learning enabled them to use technology in their daily jobs, the majority of participants were enjoying the online delivery of learning materials.

### **In this regard, Participant DH stated:**

“By implementing technology in these ways, universities can effectively support Education 5.0, which includes learner-centered education, individualized learning, improved digital literacy, and the development of critical thinking and problem-solving skills. Students can have more flexible and engaging learning options and develop the skills they

need to succeed in a world that is changing swiftly with the help of technology.”

***On the other hand, Participant LH had the following comment,***

Long lectures in the face-to-face classroom which lecturers and students had become accustomed to had to be broken into small chewable chunks so that students maintained their attention. If online lectures are to proceed, the use of interactive and communication utilities must be made utilised to make online discussions and problem-solving the centre of focus.

Participants mentioned that technology had improved creativity in both the learners and teachers. It also shows that ninety percent of the participants mentioned that ICT was providing both the learners and teachers with more academic information. From the data one may also note that seventy percent of the participants mentioned that ICT allowed for a smooth teaching and learning experience for both the learners and the lecturers. This entails the need for acquiring more ICT tools to enhance modular teaching and learning.

***Teacher Training and Professional Development***

Workshops, seminars, and online courses can be organised to familiarise teachers with blended learning methodologies, digital tools, and online platforms. Supporting teachers in integrating technology effectively will ensure quality modular education delivery. They need to be trained and equipped with adequate skills and knowledge on how they improve their teaching process.

***To quote this, one academic participant NH suggested that,***

“Facilitators such as lecturers need proper education and training on how they can facilitate modular teaching and learning for effective implementation. Without the skills and expertise, the framework defeats the whole thrust towards Education 5.0 as there is hardly any time for innovation”

This correlated with secondary data which revealed the most important aspects for providing an opportunity for upskilling and reskilling to the trainers who are the backbone of the entire transformation in that choice-based training in terms of technology usage, industrial collaboration and research are absolutely required to make the march towards Education 5.0 successful (Meenakumari, 2021). Education 5.0 is a practical approach to education which seeks to produce goods and service, it therefore requires the teaching and learning

approach to be engaging (Ministry of Higher and Tertiary Education, Science and Technology Development, 2018a). Magnanimous appreciation in terms of incentives and rewards to the achievers would induce interest among all to achieve more and more.

### LIMITATIONS

The study was confined to Women University in Africa a private institution in Zimbabwe. It is difficult to generalise the findings to public institutions. Hence, further research may focus on other Higher Learning Institutions in the Public Sector.

### CONCLUSIONS

Based on the research findings, modular teaching and learning was found to be an appropriate strategy for achieving the objectives of Heritage Based Education 5.0 in Zimbabwe's higher and tertiary sectors. This is the fact despite some constraints that the approach encounters due to various implementation factors in the education framework of Zimbabwe. Blended modular teaching and learning analytics are critical in monitoring students' progress, identifying learning gaps, and providing personalised feedback and interventions. This is done by keeping track of students' performance, engagement, and learning patterns to inform instructional decisions and improve effectiveness through the involvement of lecturers and parents in the pedagogy. Modular teaching and learning is an approach that had an effect in attaining Heritage Based Education 5.0 objectives in Zimbabwe if adequate infrastructure is implemented in tertiary institutions to support the framework. With the incorporation of Information and Communication Technology (ICT), modular teaching and learning opened access to various learning fields for learners.

### RECOMMENDATIONS

After analysing the findings of the study the researcher managed to come up with the following recommendations. The recommendations are informative to lecturers, students, education policymakers, and the Government as follows:

***Recommendations to Lecturers***

Collecting feedback from students, teachers, and stakeholders and use it to refine and improve the modular approach by continuously updating modules to reflect emerging trends, changing needs, and advancements in technology and pedagogy.

### Recommendations to Students

Participate in peer-to-peer learning activities, such as study groups or collaborative projects, to enhance your understanding and problem-solving abilities.

### Recommendations to Policy Makers

Offering training on instructional strategies and technologies that align with Education 5.0 principles by supporting lecturers in designing modules, assessing competencies, and leveraging technology for personalised and collaborative learning.

### To future researchers

Due to time and resource constraints, this study was limited to a sample of 11 participants from Women University in Africa and 1 representative from the Ministry of Higher and Tertiary Education in Harare, Zimbabwe. By using a bigger sample size this would further enhance the generalisability of the study findings. Researchers can study further on innovative assessment strategies that align with achieving Education 5.0 goals. This is done by exploring alternative methods of assessing competency mastery within modular learning pathways, such as performance-based assessments, portfolios, and digital badges, reliability and validity of these assessment approaches.

### Implications

The findings of this study implies that with the incorporation of Information and Communication Technology (ICT), modular teaching and learning has the potential to open access to various learning fields for learners. Ensuring that the necessary technological infrastructure was in place to support the modular teaching and learning system is required. Reliable access to devices, high-speed internet, learning management systems, and regular maintenance of the infrastructure should also be enforced. The results also imply that policy support is required in order to optimise achieving Education 5.0 goals through modular teaching and learning approach.

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