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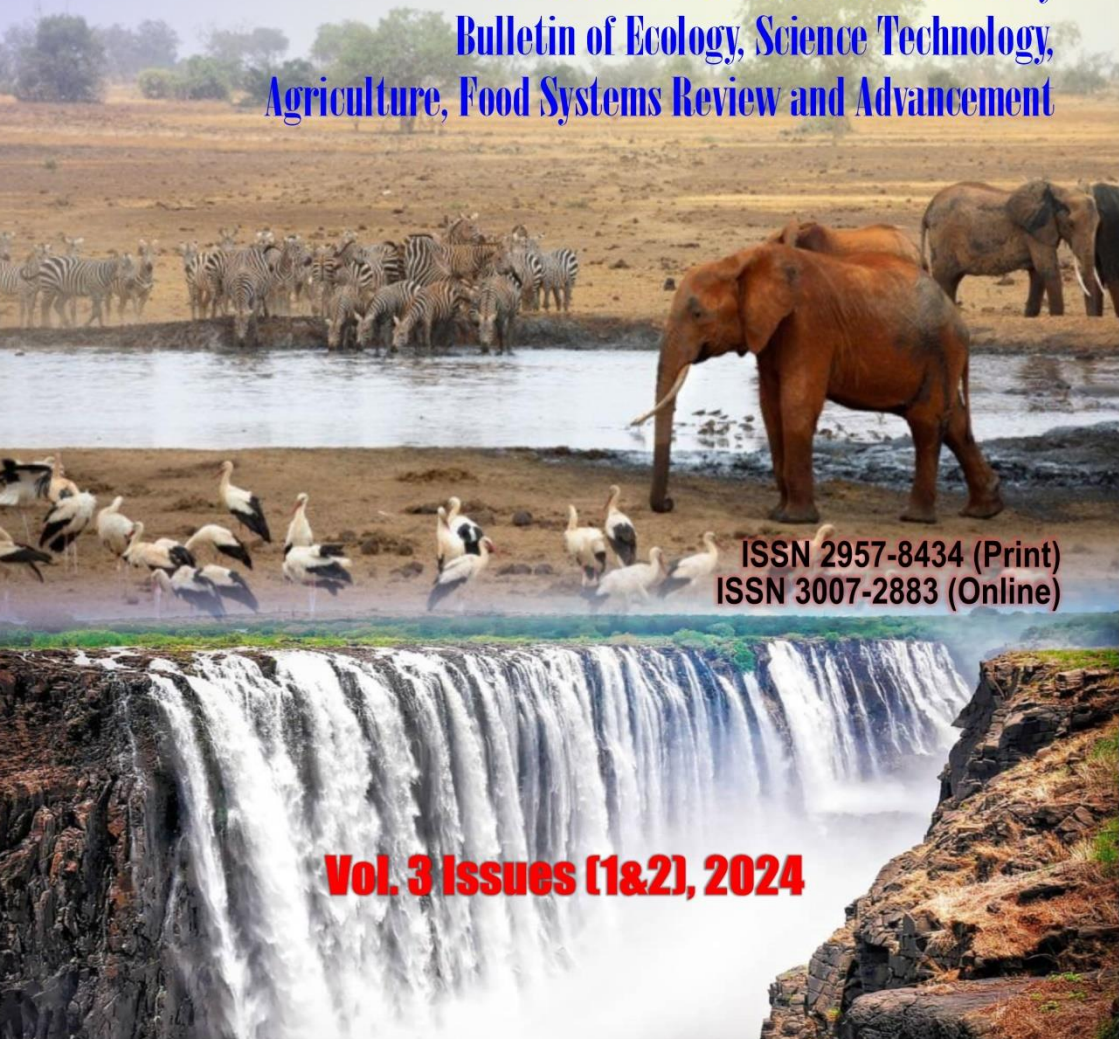
The Zimbabwe Ezekiel Guti University Bulletin of Ecology, Science Technology, Agriculture, Food Systems Review and Advancement



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The purpose of *the Oikos - The Zimbabwe Ezekiel Guti University Bulletin of Ecology, Science Technology, Agriculture and Food Systems Review and Advancement* is to provide a forum for scientific and technological solutions based on a systems approach and thinking as the bedrock of intervention.

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Dynamics of Digital Pedagogies in Geography Education at Institutions of Higher Learning in Zimbabwe

TRUST MACHAYA[1] AND RUVIMBO SHELTER GOMO[2]

Abstract

This study aims to critically explore the matrixes of digital pedagogies in geography education at institutions of higher learning. Explicitly, this article examines how digital pedagogies are implemented in the geography education. Across the globe, modern learning processes have been metamorphosed by digital technologies facilitating tailored educational paths that cater for individual student needs and learning styles. Both educators and students ought to increase their skills to navigate through the dynamic educational and pedagogical environments. This is a paradigm swing from traditional, classroom-confined learning methodologies. While there are several benefits of digital pedagogies, there are numerous challenges that comes with its implementation for instance; the need for continuous professional development for educators, need for critical engagement with digital content and calls for the reworking of old pedagogical backgrounds. To explore these dynamics in digital pedagogies in geography, the Rogan and Grayson 2003 curriculum implementation theory acts as the basis that grounds this study. A mixed method approach was used in this study as it caters for both quantitative and qualitative data. Data are collected from the geography educators through the use of

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questionnaires, observations and document analysis. Statistical analysis of data together with thick description is utilised in data analysis.

Keywords: *Digital pedagogies, geography education, institutions of higher learning, curriculum implementation*

INTRODUCTION

Classroom interaction, as part of the curriculum, be it at institutions of higher learning or primary and secondary education, involves the concepts of design and implementation. This study critically explores aspirations and implementation of digital pedagogy in the geography education in institutions of higher learning in Zimbabwe. In pursuance of the definition of digital pedagogy, Howell (2013) posits digital pedagogy is the study of how to teach using digital technologies. While, JISC (2020/ 2021) defined digital pedagogy as the study of how digital technologies are used to best effect in teaching and learning. Istrate (2022) categorized: digital pedagogy as: an open pedagogy, innovative pedagogy and indeed a pedagogy. In this regard digital pedagogies are dynamic technological tools and advancements that are employed in teaching and learning. The article explores the dynamics of digital pedagogies in geography at institutions of higher learning in Zimbabwe.

Previous studies about digital pedagogy represent E-learning platforms, modes of learning, communication tools and equipment that facilitate collaborative and interactive teaching and learning among the participants without any constraint on time and place (Mupa *et al*, 2012). During the peak of Covid 19, digital pedagogy become pivotal in transmitting the intended curriculum across the globe both at tertiary institutions and the primary and secondary education. This study thus explores the dynamics of digital pedagogy in the geography education in institutions of higher learning using the mixed method research approach. The education system has not remained static in both designing and implementation. Digital

pedagogy has brought a plethora of changes, and has with it major benefits and challenges in all disciplines including geography. Novel pedagogical strategies are coming in and the change is inescapable. Higher learning institutions are indulging in the use of Information Communication Technologies (ICTs), e-books, videos and e-transcript facilitating learning. The benefits of these pedagogical dynamics are: their adaptability and remote utilisation at any time and to increase the prospects of ubiquitous learning without any restriction on place and time (Kabanda, 2014). Digital pedagogies are meant to enhance a wide and equitable access to education, and these methods have the advantage to students as they become innovative and solve societal challenges. However, the drawbacks of these digital pedagogical strategies remain in the lack of interactions in a course, facilitator incompetencies including lack of physical resources.

STUDY BACKGROUND AND OVERVIEW

Digital pedagogy has its background starting from the 20th century. It was initiated to cater for distance learning: for example, the Rapid Results College (RRC) established in 1928. In Zimbabwe, the Zimbabwe Open University, and the Open Distance E-Learning at the University of Zimbabwe's Faculty of Education have been at the forefront of pioneering digital pedagogy. In both cases, course materials were delivered through the post mails, radios and television, emails, WhatsApp platforms, zoom meetings and google class, among other digital learning platforms. These different platforms have been incorporated at various points in the human technological development time line.

As observed by Boczar and Jordan (2022), from the Covid 19 era, there is a drastic shift from offline to online, teaching and learning. Globally however, it is noted that digital pedagogy faces some problems due to lack of-coordination between learners and teachers, technological problems, attitudinal difference (Froehlich, 2023), fear of new technology and fear of losing reputation.

The benefits and challenges of digital pedagogies are many, while this is so, on the ground, curriculum has to be implemented. Curriculum implementation, refers to how the teacher translates the planned or officially designed course of study into syllabuses, schemes of work, and lessons to be delivered to students. As an essential part of curriculum development, implementation brings the anticipated changes into existence. The changes can occur in several ways, as put by Ornstein and Hunkins (2007). The two most obvious ways are:

Slow change: this occurs, for instance, when we incorporate minor adjustments in the course schedule, when we add some books to the library, or when we update the unit plan, etc., is a slow change. Rapid change happens due to new knowledge or social trends influencing the curriculum, such as computer education being introduced in the curriculum.

Akwesi and Tsivanyo (2014) asserts that curriculum implementation is the practical application of theory into practice in a way that the eventual outcome is evidenced through the learners' performances in and outside the classroom. When teachers deliver curriculum contents and instructional strategies in the way they were designed to be delivered, curriculum implementation is said to have occurred. However, the ability and effectiveness of the teacher to carry out curriculum implementation depend largely on variables like knowledge/experience qualification, availability of resources, and motivational issues, among matrixes. The dynamics of digital pedagogies in institutions of higher learning become a mirror into the various educational institutions. Digital pedagogy encompasses implementing and studying contemporary digital educational settings. It is an emergent field that caters to online and hybrid learning environments and enhances face-to-face instruction (Croxall and Koh, 2013). Digital pedagogy, being a new variation of curriculum implementation, brings to the fore the question: how are the implementors prepared to put it into practice? The following objectives act as basis for this study:

- To determine how digital pedagogies are implemented in geography education

- To identify the benefits of digital pedagogies
- To explore the challenges in the use of digital pedagogies
- To develop a schematic framework for the implementation of digital pedagogies in institutions of higher learning

THEORETICAL UNDERPINNINGS

This study is informed by the Rogan and Grayson's (2003) Curriculum implementation theoretical framework. Rogan and Grayson (2003) proposes that in the analysis of curriculum implementation, three major constructs need to be taken into account: profile of implementation (PoI), capacity to support innovation (CtI), and outside influences (OI).

Each of the three constructs has its own sub-constructs as shown in Figure 1. Following:

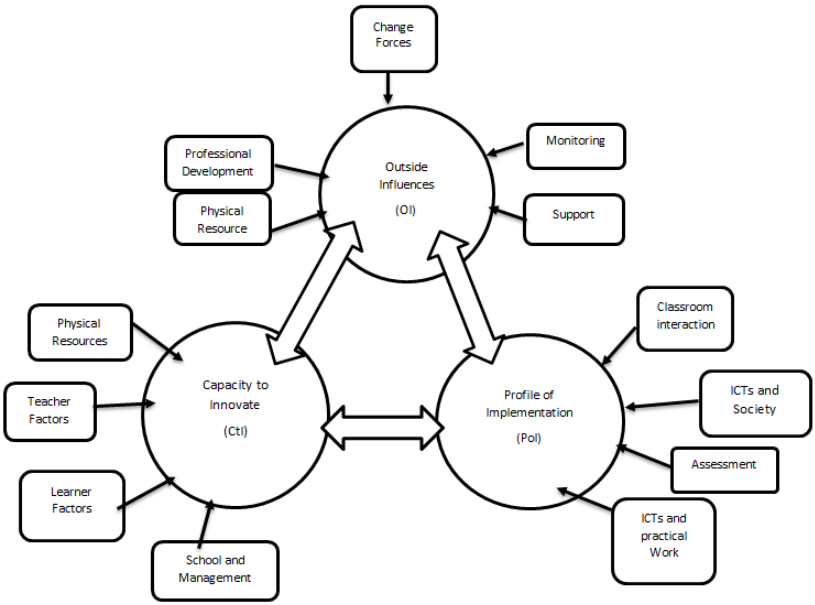

Figure1: Model theory for curriculum implementation (Adapted from Rogan & Grayson (2003: 1188).

The dynamics of digital pedagogies in geography, are better understood and informed by the Rogan and Grayson 2003 framework. The three constructs of PoI, CtI, and OI need are crucial as the digital pedagogies are infused and implemented in geography in higher learning institutions.

STUDY DESIGN AND METHODOLOGY

This study adopted the mixed method approach in exploring the dynamics of digital pedagogy in institutions of higher learning in Zimbabwe. The mixed method approach was adopted because of its ability to use both the quantitative data and also providing in-depth study of the phenomena (Firomumwe, 2019). Questionnaires, observations, and document analysis were part of research instruments used in gathering information on the implementation of digital pedagogies in geography. Population of the study include Geography lectures and students at three colleges in Zimbabwe. There were ten geography lecturers. The population of students was made up of 204 geography students (some who are undergoing training for their diplomas in education, and some who are already teachers but upgrading their qualification to bachelor's degrees). Informed consent was obtained from all participants. Confidentiality and anonymity were ensured by using codes instead of identities (Israel and Hay, 2006). Approval from relevant colleges acquired before data collection. The study upholds guidelines for responsible research (Jobin *et al*., 2019).

With the students' consent, their WhatsApp numbers were fed into research randomizer and randomly select 30 participants to make up the research. The instruments were distributed to the lecturers and student who formed the sample of the study. Questionnaires were sent to the participants. The documents that were analysed included module outlines, module content, PowerPoint presentations. The

researcher directly observed learning platforms, adaptive courses, virtual simulations/labs, and other technologies used at the three higher education institutions to get first-hand experience of implementation (Creswell and Poth, 2016). During the observation, the researchers were taking notes and recording on an observation guide. Participants' views from questionnaires, evidence from document analysis and lesson observations were merged for triangulation purposes. The collected data from questionnaires, documents, and observations were was analysed using thematic analysis. Recurrent themes in the context of the research topic were identified and categorized (Braun and Clarke, 2006). Researchers' interpretation was balanced with participants' perspectives through member-checking (Lincoln and Guba, 1985).

FINDINGS

To determine how digital pedagogies were implemented, lectures and students were asked about their knowledge about digital tools and pedagogies. The study investigated the dynamics of digital pedagogies in geography education in institutions of higher learning in Zimbabwe. It reveal that lectures and students had knowledge of digital pedagogical platforms (online modes) like internet, WhatsApp, google classes and emails. The 10 lectures could name and identify the digital tools and pedagogies. 0nly 40% of the students were able to name digital tools, while the majority could not pin point the tools. The percentage even reduced to 25% of the students who could name the different digital pedagogical approaches or modes. Both the lecturers and the teachers were quick to point to the usage of WhatsApp mode and sometimes emails in the digital class interactions. For the proper implementation of digital pedagogies, there is need for lecturers' competencies in this field. Without adequate knowledge, the proper implementation of digital pedagogies remains a utopian vision.

On the benefits of digital pedagogies in geography, both the lecturers and students were quick to argue that digital pedagogy has allowed anytime and everywhere learning. One student had this to say,

> "You see some of us are now old, we could feel comfortable to attend physical classes but now can learn from our homes."

These sentiments are common among the older generation of students who feel uncomfortable to be in the same class with the age mates of their children. The use of digital pedagogies in geography allows for students to co-create knowledge and learn from each other hence collaboration. This is in line with constructivists theories and also transformative pedagogies in education. The use of digital pedagogies enable students to easily tap into an extensive pool of digital libraries and Open Educational Resources and become active learners. Thus, with this kind of learning, students can be innovative. Actually, digital pedagogies are a weaning point for the dominance of the lecturing method at Zimbabwe's schools is contrary to the recommendation by (MOPSE, 2015) that facilitators use more learner centred teaching approaches.

All students and lecturers who took part in this study indicated that the use of digital pedagogies enhances students' engagement and improve knowledge retention. The students had this to say;

> "We access lectures online and utilise class time for discussions and applying concepts and thus we grasp knowledge fast."

Thus, the use of digital pedagogies should be advocated in all institutions as they have these benefits.

Several challenges were highlighted during the implementation of digital pedagogies in geography. Lectures pointed out that they needed re-education on digital pedagogies in geography, this fall under the outside influence on professional development. They indicated that it is a complex task to achieve, it needs much training to comprehend

with digital technology (Abah, Masheeb and Denuga, 2015). From the above analysis, the lectures lacked professional training.

Furthermore, there was lack of pedagogical tools in the classroom. "Classrooms must be equipped digital pedagogic tools like computers, Projectors and the different software." The need for physical resources is in line with Rogan and Grayson curriculum implementation farmwork on the sub-construct of physical resources under capacity to innovate. While lecturers might have the knowledge and the attitude to implement the digital pedagogies, it was found to be practically impossible with the absence of the physical resources.

It was also observed that there was inadequate financial support to help institutions to purchase learning support materials that are also critical for successful implementation of digital pedagogies in education programmes (Loubser and Simalumba, 2016). Also, financial support is necessary for professional development support of teachers. For example, the trainers who come to colleges, need to be transported to and from the schools and to be given allowances for them to do carry out their duties effectively (Bellei and Munoz, 2023).

Another challenge that was rampant among all participants was categorised as support. The data on support were categorised under three main themes, that were financial support, materials support, and professional development support digital pedagogies in geography education.

All the participants who partook in the study complained about the insufficient or total lack of financial support to facilitate digital pedagogies in geography education. Although the institutions receive financial aid from the government, it is for general purposes, rather than directed at supporting the implementation of digital pedagogies in geography education. There was inadequate material support

referred to the poor provision of teaching and learning support materials, and Information Communication Technologies (ICTs).

The study also reveal that lectures and students did not receive substantial professional development. Data reveal that teachers did not receive pre-service training nor in-service training on digital pedagogies. The few workshops that were organised for lecturers and students in digital pedagogies.

All lectures who participated in the study indicated that they lacked both pre-service and in-service training in the use of digital pedagogies in geography education.
During all the lessons that were observed throughout the study, the researchers noted the overreliance on the use of the lecture method in the teaching.

While this study succeeded in attaining its objectives, it lacked in the small sample sizes that were involved. The study investigated only three institutions of higher learning and only one subject: geography. A larger sample size would have contributed to more comprehensive results.

CONCLUSION AND RECOMMENDATIONS

The study brought to the fore the fact that the implementation of digital pedagogy in institutions of higher learning ineffective. Several factors were identified as major reasons to the incompleteness and ineffectiveness: insufficient knowledge by lecturers and students, lack of professional training, poor support in terms of professional, material and financial. Lastly the proposed model can be used during the implementation of digital pedagogies in the geography education at institutions of higher learning.

This study recommends that initial teacher training courses include modules on digital pedagogies. Provision of workshops digital pedagogies in colleges and universities. This study also recommends that institutions of higher learning to have fund raising projects that allow them to get funds. Finally, the researcher offers a real-world, comprehensive and straightforward model to guide the implementation of digital pedagogies in institutions of higher learning. The model is called Implementation Model for Digital Pedagogies (IMDP).

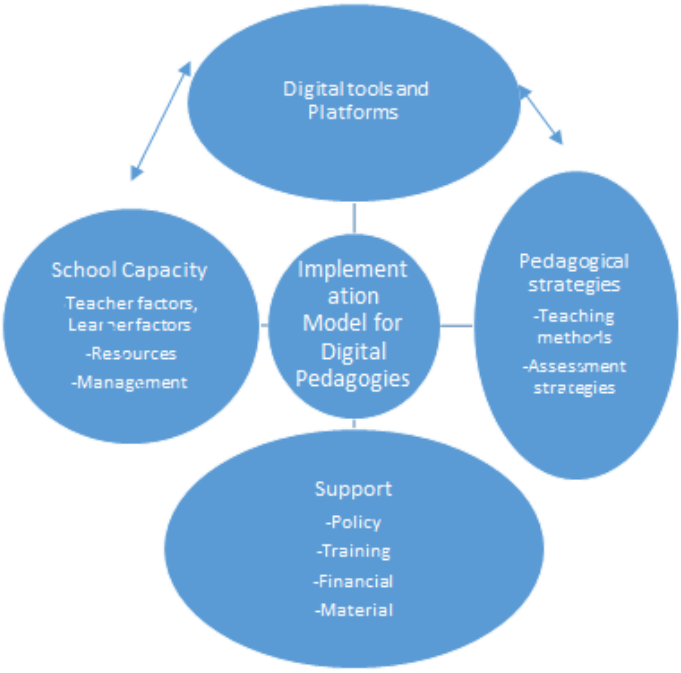

Figure 2: Proposed implementation framework for digital pedagogies in the geography education.

The proposed framework is depicted on Fig. 2. The model is guided by the study's findings and the reviewed literature.

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