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Synthesizing Social Constructivism and Cybergogy for Student Engagement in Open Distance and e-Learning (ODeL) Environments: An Integrative Review and Framework

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Abstract: This paper synthesizes and integrates the concepts of social constructivism theory and the cybergogy framework to provide a comprehensive understanding of technology use to enhance student engagement in open distance and e-learning (ODeL) contexts. To meet this objective, we conducted an integrative review of the literature to map the conceptual terrain of current literature on student engagement in ODeL environments. The literature search was conducted across five databases, and themes were extracted from the literature to provide new perspectives and insights on student engagement in ODeL. The study underscores the role of facilitating technologies in ODeL. We found that student engagement in ODeL depends on developing an active digital pedagogy that promotes student empowerment and a sense of agency to apply digital tools to interact, collaborate, and enable purposefulness in the learning process. The findings also suggest that academic instructors require institutional support through training and continuous professional development to effectively utilize digital technologies to enhance student engagement. Additionally, ODeL institutions should be aware of the hidden workload impact on instructors that implementing active digital pedagogies for student engagement has. Therefore, instructors also require support with workload management interventions. Based on these findings, we develop a conceptual framework for engaged learning in ODeL environments.

Keywords: Student engagement, Social constructivism, Cybergogy, Digital pedagogy, Open distance and e-learning (ODeL)

Introduction

One of the most often mentioned features of open, distance, and e-learning (ODeL) educational environments, also referred to as distance education, is the geographical distance between students and the institution. The distance is not only geographical, with students being physically separated from the institution (Bates, 2019), but it is also a transactional distance, a perceived psychological and social gap between the student and the institution (Moore, 2019). This physical and psycho-social distance creates a sense of isolation, alienation, and disengagement for students, which impacts learning outcomes (Schoeman, 2021). The challenges in ODeL environments negatively affect ODeL institutions and their students. Resultingly, ODeL environments are characterized by higher attrition rates, lower throughput rates, lower performance, and lower interactivity and engagement rates (Bolliger & Martin, 2018).

Student engagement is a multifaceted concept broadly defined as the degree of commitment and involvement students invest in their educational pursuits (Yates et al., 2014). This commitment manifests in various ways, including observable behaviors (such as effort, attendance, and positive conduct), cognitive behaviors (including purposefulness, critical thinking, and self-regulation), or affective behaviors (like enthusiasm, interest, and enjoyment) (Bond et al., 2020). Student engagement has a demonstrated correlation with enhanced student

success rates, reduced attrition rates, and increased throughput rates (Bagriacik Yilmaz & Banyard, 2020). It is, therefore, in the best interests of the ODeL institutions to find viable approaches to foster and enhance student engagement.

Use of Technology in ODeL

ODeL education is often lauded for its inclusivity. ODeL offers access to education to students from previously disadvantaged backgrounds, students of different abilities, and students who might not be able to access education full-time, such as mature and working students (Ngubane-Mokiwa, 2017). To enable access, ODeL institutions often heavily leverage technological tools and innovations to deliver teaching and learning that is flexible and at a distance.

Technological tools and innovations are ubiquitous in higher education in the Fourth Industrial Revolution (4IR) era. The education literature substantiates using technology to enhance learning outcomes (Pickering & Swinnerton, 2019). However, despite the widespread adoption of technology, Ng and Lo (2023) argue that student engagement in online education is one of the aspects of the educational experience that has seemingly not benefitted from increased technology use in education. While ODeL institutions often invest significantly in technological infrastructure to enhance teaching and learning, these tools often fail to adequately bridge the physical and psycho-social distance between the institution and its students (Isabirye et al., 2017). (Muir et al., 2022) argue that there is a lag in developing pedagogical approaches to enhance student engagement in distance education and online learning.

Digital pedagogies are defined as the use of digital technologies to enhance all aspects of teaching practice, such as teaching, learning, assessment, and curriculum. Väätäjä and Ruokamo (2021) and De Leon (2023) argues that students in the digital age are fundamentally changed by the use and application of new technologies and correspondingly require new and appropriate pedagogies for learning and engagement. Several studies have investigated the use of technological tools to facilitate student engagement in higher education (Bergdahl et al., 2020; Díaz-Noguera et al., 2022). However, the reasons why technological measures fail to enhance student engagement are still poorly understood. Appropriate frameworks that adequately tackle digital pedagogies to support student engagement in ODeL contexts are still missing in the scholarly literature.

This paper aims to integrate the concepts and literature on social constructivism theory and the cybergogy framework to provide a more comprehensive understanding of how digital pedagogies may enhance student engagement in ODeL environments. In doing so, we develop a conceptual framework for student engagement in ODeL. This framework synthesizes existing knowledge and provides a more in-depth understanding of technology use for student engagement in ODeL environments, in general, and also the ODeL context in developing and emerging economy contexts, in particular. The research questions that will be addressed are:

- How can technology use support enhanced student engagement in ODeL environments?
- What should ODeL institutions consider for the successful implementation of digital pedagogies for student engagement in ODeL environments?

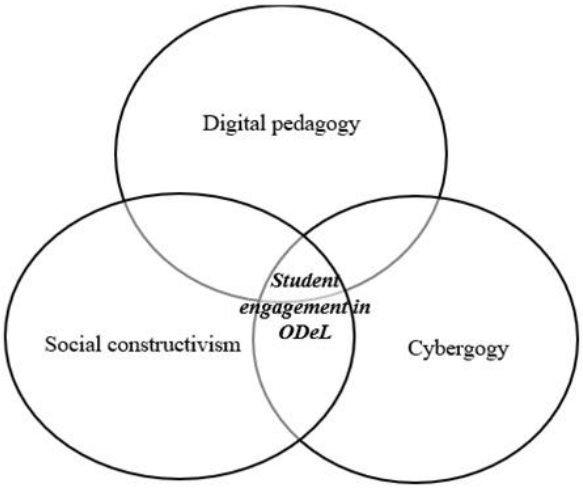

Figure 1. Research focus

The research focus of this paper is at the intersection of ODeL, social constructivism theory, and the cybergogy framework as they relate to student engagement, as highlighted in Figure 1. We synthesize the concepts underpinning social constructivism and cybergogy to develop a conceptual framework that addresses technology use for student engagement in distance education.

The rest of the paper is structured as follows: In the next section, we discuss the methodology of the paper, followed by a presentation of the literature on digital pedagogies, social constructivism theory, and the cybergogy framework as they relate to student engagement in ODeL. In section four, we present and discuss our findings, leading to the development of a conceptual framework for technology use for student engagement in ODeL. In the concluding sections, we discuss possible future work and offer recommendations for practitioners.

Methodology

To address the research questions, we conducted an integrative review of the literature (Tricco et al., 2016) to synthesize evidence on the conceptual terrain of current literature in social constructivism and cybergogy to determine the digital pedagogies that may facilitate student engagement in ODeL environments. By assimilating and combining previously developed concepts and theories, new perspectives and novel insights on student engagement in ODeL were developed (Jaakkola, 2020). Figure 2 shows the steps involved in the methodology of the paper.

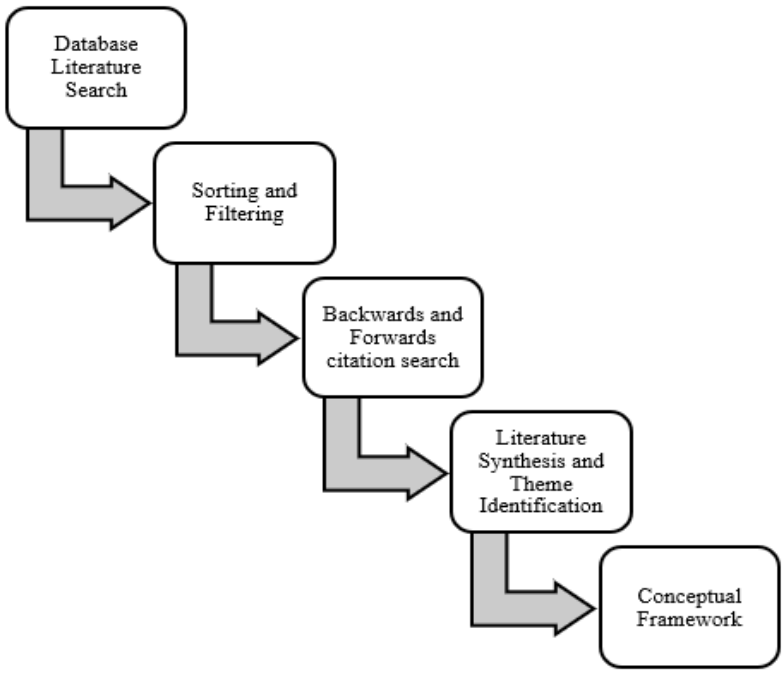

Figure 2. Methodological process

A literature search was conducted across five databases, namely, Education Resources Information Centre (ERIC), African Journals Online (AJOL), ProQuest, EBSCO Information Services, and Web of Science (WoS), using the following keywords: digital pedagogies, online pedagogies, eLearning strategies, student engagement, student participation, open distance, and eLearning, ODeL, distance education, online education, best practices, innovation, social constructivism, and cybergogy. Articles were also found using backward and forward citations on Connected Papers (https://www.connectedpapers.com/). Both conceptual and empirical papers were included in the literature selection.

The articles were sorted to remove duplicate findings. Only studies that addressed digital technology use and student engagement in higher education, that is, undergraduate and postgraduate studies, were included for further review. The articles included in the final review were analyzed for concepts of social constructivism and cybergogy as they relate to student engagement in ODeL and the challenges thereof. Themes were inductively extracted from the selected literature to determine best practices for technology use for student engagement in ODeL environments.

Literature Review

Utilizing the evidence synthesis methods outlined in the Methodology section, concepts underpinning social constructivism theory and the cybergogy framework are used in the development of pertinent themes and to inform the conceptual framework.

Digital Pedagogy and Student Engagement

Digital technologies are increasingly necessary for the effective and efficient delivery of teaching and learning in ODeL. As ODeL institutions continue to leverage technological innovations for teaching and learning, these changes require a corresponding change in instructors' teaching practices. However, several studies have shown that the large-scale implementation of digital infrastructures in distance education does not always yield the intended positive outcomes (Sammel et al., 2014; Isabirye et al., 2017).

Teaching and learning practices that enhance student engagement in ODeL require that instructors continuously evolve how they deliver educational content. Literature highlights the pressing need for faculty and instructors to be supported with the skills and capabilities that enable effective teaching practices in the digital era (Bond et al., 2020; Jarvie-Eggart et al., 2023; Muir et al., 2022; Sammel et al., 2014). Instructors require training and continuous professional development opportunities to adapt their teaching practices to enhance student engagement in ODeL. This finding is supported by a literature review of student engagement in distance education by Bond et al. (2020). Additionally, a study by Jarvie-Eggart et al. (2023) involving faculty at an American university who underwent training in best practices in digital pedagogies self-reported improvements in online teaching instruction capabilities after the training.

Diaz-Noguera et al. (2022) argue that engagement in distance and online contexts goes beyond using a learning management system (LMS). Additionally, Sammel et al. (2014) highlight that while students can usually use the LMS to access course content, often they may not know how to use the LMS beyond this to engage with the institution and other students actively. Lockman & Schirmer (2020) suggest that effective teaching practices in online environments include using online discussion forums, social media applications, and instructor presence. Bigatel and Edel-Malizia (2018) suggest using various technology modalities to communicate, such as synchronous and asynchronous video content and emails, and utilizing various assessment techniques. (Denning et al., 2021) also found text-based group discussions and group projects to enhance student engagement online. Thus, instructors may need to develop digital pedagogies to engage students in ODeL actively.

Social Constructivism and Student Engagement

Social constructivism is the prevailing theory of learning in ODeL (Denning et al., 2021). This theory of learning emphasizes the importance of social interaction for learning to occur and recognizes that students are active collaborators in the learning process (Bates, 2019). However, for this collaboration to occur, quality interaction between the institution and the students is required. Technology is often used to simulate institutional presence in ODeL contexts where learning is from a distance. As such, one of the measures of quality in distance education is the interactivity ratio (Trentin, 2000). From a social constructivist viewpoint, three types of interaction are purported to influence student engagement, namely: student-student, student-instructor, and student-content interaction (Denning et al., 2021; Muir et al., 2022).

Student-Student Interaction

Student-student interaction is essential for student collaboration and exchanging resources and ideas (Bolliger & Martin, 2018). Social constructivism theory emphasizes student collaboration to exchange ideas, share meaning, and foster collaborative problem-solving (Redmond et al., 2018). For example, discussion forums where students engage and exchange ideas have been shown to significantly enhance student engagement in online contexts (Ng & Lo, 2023).

Additionally, student-student interaction in ODeL reduces feelings of isolation among ODeL students and enhances engagement with the institution (Sadeghi, 2019). Alienation from the institution impacts student performance and has been found to have additional unintended outcomes, such as academic misconduct (Fatemi & Saito, 2020).

Student-Instructor Interaction

In a study across several universities in the United States, Martin and Bolliger (2018) found that students value interactions with their instructors above interactions with other students. Instructors are typically more knowledgeable and competent in their subject matter than their students. As the more competent person, instructors can thus guide students to accomplish more and attain higher levels of knowledge through the zone of proximal development (Eun, 2019). The perceived benefits of interaction with instructors likely make student-instructor interactions seem more valuable to students than other interactions.

Research shows that instructor presence on online platforms was a significant predictor of student engagement (Dwivedi et al., 2019). In addition, student interactions with instructors have been found to foster a sense of community and belonging in students (Bolliger and Martin, 2018). However, faculty often resist online activities beyond traditional teaching practices (Khan et al., 2017). This is likely due to resistance to change (Isabirye et al., 2017) and being overwhelmed by other responsibilities to effectively take on new instructional duties (Khan et al., 2017).

Student-Content Interaction

Muir et al. (2022) contend that student-content interaction is the least researched area of student engagement. Additionally, Lawrence et al. (2019) found that student-content interaction had the lowest interactivity rates in online education, which Blackburn (2016) argues is due to the implementation of educational technologies that are not student-centered. Furthermore, students tend to disengage from learning when it is not connected to real-life contexts and activities (Martin & Bolliger, 2018; Milad, 2021). Digital modalities such as simulation and gamification have been found to be useful in enabling a sense of authentic real-life activities in online contexts (Lawrence et al., 2019; Ng & Lo, 2023).

Students nowadays are often thought of as digital natives who prefer digital tools and digital communications (Prensky, 2001). However, this assumption is challenged by several studies that highlight that students often do not have the technological competencies to successfully engage with various learning tools beyond using learning platforms to access learning materials (Bolliger and Martin, 2018; Sammel et al., 2014). In many instances, students must be taught how to effectively use and navigate the various technological tools available to enable active student engagement (Ng & Lo, 2023).

These challenges are exacerbated in developing and emerging economies struggling with infrastructural gaps and socio-economic inequalities (Ge et al., 2019). Students' digital skills have been found to correlate with engagement in online learning (Rajeb et al., 2022). King et al. (2018) assessed the challenges inherent in online learning in the so-called global South. They found that problems related to poor access to information and communication technologies (ICTs) and a lack of digital skills led to poor enrollment rates in freely available massive open online courses (MOOCs).

Rajeb et al. (2022) also point out that students in developing countries resisted forced online learning during the COVID-19 pandemic due to the low technological competencies of students and instructors and a lack of technical assistance from institutions. In the South African context, the challenges of the digital divide, which refers to unequal access to digital technologies (Lembani et al., 2020), persist mainly for poor black South Africans who cannot access digital technologies due to a lack of affordability or lack of supporting infrastructure in certain areas such as rural areas. This has led to vastly different educational experiences for marginalized communities (Lembani et al., 2023; Ngubane-Mokiwa, 2017).

Resultingly, distance education provision needs to be cognizant of the various ways in which students access course material and interact online. This is supported by the concept of cybergogy discussed in the sections below.

Cybergogy and Student Engagement

Scholars highlight that implementing digital technologies in education does not always lead to improved learning outcomes (Isabirye et al., 2017; Sammel et al., 2014). As a result, institutions need to consider various factors to ensure that educational technologies are accessible while taking cognizance of the needs of a diverse pool of students. The cybergogy framework was conceptualized by Wang & Kang (2006) as a way of thinking

about the strategies that enable engaged learning online. Cybergogy is the application of instructional design principles in online and digital learning environments (Nurmalisa et al., 2023).

The cybergogy framework conceptualizes student engagement as a multidimensional construct. It considers three domains of engagement in online education: the cognitive domain, the social domain, and the emotive domain (Wang & Kang, 2006). Similar to social constructivism theory, the theoretical concepts underpinning the cybergogy framework, such as student-centered design, self-regulated learning, collaboration, social interaction in online learning, flexibility, and accessibility, are suggested to facilitate student engagement in distance education (Muresan, 2014; Rahma et al., 2021). The cybergogy framework assumes that technological tools with specific characteristics can be developed to enhance student reflection and collaboration in online settings (Wang & Kang, 2006).

According to Dunn & Kennedy (2019), cognitive engagement refers to the extent to which students are challenged by their course content and mentally invested in it. Rahma et al. (2021) suggest that instructors should develop authentic assessments contextualized to the real world to cognitively engage students in online settings. Bond et al. (2020) suggest incorporating teaching practices that encourage student autonomy and self-regulation.

Social engagement relates to students' personal attributes towards their learning (Wang & Kang, 2006). Other scholars refer to the social engagement dimension as behavioral engagement (Dunn & Kennedy, 2019; Bond et al., 2020). This dimension relates to students' motivation, time, and effort in their educational activities. Muir et al. (2022) suggest that students demonstrate behavioral engagement when instructors give consistent and timely feedback. In a study across several Australian universities, Lawrence et al. (2019) found that setting clear expectations by using course analytics to remind students to prioritize and complete tasks timeously led to behavioral change in students who engaged more successfully with course content on an LMS. According to Dunn & Kennedy (2018), emotional engagement refers to students' positive emotions towards their learning, institution, instructors, and other students. Emotional engagement is greatly enhanced when students feel a sense of belonging to their institution. Emotional engagement is facilitated by learning environments that foster communication and collaboration (Redmond et al., 2018).

ODeL institutions, as the name implies, should be open and inclusive. This relates to providing educational access to students who might, under other circumstances, have been unable to access the institution due to geographic distance time constraints, for example, in the case of working students, disabled students, and students from previously disadvantaged backgrounds (Dalton et al., 2019; Lembani et al., 2020; Ngubane-Mokiwa, 2017). To fulfill the mandate of inclusivity and flexibility, the cybergogy framework suggests ways of instructional design that consider accessibility concerns, such as multi-modal digital tools to engage students with different learning styles and interactivity to facilitate collaboration and enhance the various dimensions of student engagement (Muresan, 2014; Nurmalisa et al., 2023). By applying the principles of cybergogy, educators can create online learning experiences that prioritize student engagement. The student-centered design, active learning strategies, technology integration, collaboration, flexibility, and multimodal approaches evinced by the cybergogy framework provide opportunities for students to be actively involved, motivated, and connected in ODeL.

Findings and Discussion

A comprehensive review and synthesis of the literature on social constructivism and cybergogy as they relate to student engagement in ODeL provided several findings that can be grouped into two main themes: active digital pedagogy and student empowerment. The findings suggest that technology can best be used for student engagement in ODeL by embracing active digital pedagogies. Additionally, to facilitate student engagement in ODeL, technologies and pedagogies that foster student empowerment are required. These findings are presented below.

Active Digital Pedagogy

The literature on teaching and learning in the digital age emphasizes the need for instructors to develop digital pedagogies that enhance learning outcomes in online and distance education (Bolliger and Martin, 2018). As seen from the literature review, many teaching practices have been found to enhance student engagement in ODeL, including discussion forums, online instructor presence, gamification, authentic assessment and feedback

practices, podcasts, etc. (Bigatel & Edel-Malizia, 2018; Denning et al., 2021; Lockman &Schirmer, 2020; Ng & Lo, 2023). As a primary consideration, whatever tools and practices are used for engagement in ODeL should be interactive and emphasize collaboration.

The articles reviewed present compelling cases of the various ways to engage students and the digital pedagogies that facilitate engagement in online and distance learning. Teaching practices should consider that students have different learning styles that may be visual, auditory, or tactile (Lockman &Schirmer, 2020). Visual learners might prefer illustrated learning material, while auditory learners may prefer video lectures or podcasts (Bates, 2019). However, students often present with a combination of various learning styles (Nurmalisa et al., 2023). Therefore, digital pedagogies need to be multimodal. Multimodal digital pedagogies also enhance equitable access to learning content for students with disabilities (Dalton et al., 2019).

Considering the need for student-centered digital teaching practices requires a significant investment in time and effort by instructors. Many instructors will likely be unfamiliar with suitable digital pedagogies, such as gamification, podcasts, online presence, etc., that are deemed to enhance student engagement in ODeL (Khan et al., 2017). The findings from the literature reviewed indicate that many studies on digital pedagogies do not adequately address the concern that instructors are often not adequately capacitated to develop digital teaching practices that may improve student engagement in ODeL settings.

ODeL institutions should consider supporting instructors in acquiring new skills and capabilities to learn new teaching practices that support learning and engagement in ODeL. This finding is supported by a study of American faculty by Jarvie-Eggart et al. (2023), who found that instructors who underwent training in best practices in digital pedagogies self-reported improvements in online instruction capabilities at the completion of training. In addition, a study of Finnish academics by Clavert et al. (2015) concluded that participating in communities of practice was a practical way of promoting pedagogical development among academics.

Additionally, institutions should be mindful of the work pressures on academics to juggle several duties, such as instruction, assessment, research work, committee work, and other responsibilities. (Gregory & Lodge, 2015) note that using new technologies in teaching and learning often significantly adds to academic workloads, and yet, compared to academic research, teaching is undervalued by institutional management. The continuous professional development of staff required by technology-enhanced learning modalities may require that additional time be allocated to instructors for this purpose. Gregory & Lodge (ibid.) argue that the time spent by academics in training and upskilling to implement new digital pedagogies needs to be appropriately incentivized. The authors suggest revisiting institutional policies to address the risks of hidden workload overwhelm necessitated by a shift to digital pedagogies.

Student Empowerment

Another central theme from the literature reviewed is that student engagement in ODeL requires empowering students with a sense of agency to take control of their learning journey. Providing students with flexible and accessible learning modalities allows them to develop a sense of independence and autonomy (Muresan, 2014). It is not a coincidence that many pedagogies suggested for online learning, such as authentic assessments and online instructor presence, empower students with a sense of belonging and agency to self-direct themselves throughout the learning process.

A systematic literature review of student engagement by Bond et al. (2020) notes less published literature on technology-enhanced learning and student engagement from the African context than in other regions. This is true for our literature findings as well. The limited quantity of research content from the African perspective is problematic because the developing nation context differs significantly from the developed nation setting. Students will likely face different experiences and challenges in accessing ODeL education in these different contexts. For example, Lembani et al. (2020) refer to the challenges of a digital divide in South Africa as one of the main concerns relating to inclusion and access to distance education for all. Additionally, a recent report by the University of South Africa (UNISA) on students' perceptions of online examinations in distance education found that during the 2022 academic year, at least 54% of respondents relied on their mobile phones to access and complete their online examinations (UNISA, 2023).

When students cannot access course content or interact and collaborate with instructors and other students, this may demotivate them and disempower them from actively participating in their learning. Not all students will have laptops and high-speed internet access in developing and emerging economy contexts. Digital pedagogies

in ODeL should consider inclusion and access to all students across the economic spectrum for ODeL to maintain its openness. This is echoed by Ngubane-Mokiwa (2017), who argues that a lack of intentionality in developing digital pedagogies contextualized to the developing nation context may eventually lead to the exclusion of marginalized groups in ODeL. Any technology-enhanced teaching practices should emphasize inclusivity and accessibility of content.

Another approach to empower students in ODeL is by enhancing their digital skills. Given the previously discussed digital divide, it is unsurprising that Sub-Saharan Africa and other developing economies suffer from low digital literacy rates (Kerkhoff & Makubuya, 2022). Diaz-Noguera et al. (2022) highlight that for online students to be truly engaged, they need to use educational technologies for more than accessing course material. Students should be able to engage with learning platforms to interact with other students, communicate, and participate in learning activities for enhanced engagement. Bolliger and Martin (2018) argue that the assumption that students are 'digital natives' who can fully utilize digital technologies for active learning should be examined further. Sammel et al. (2014) recommend that students be taught how to use digital technologies and the various ways the LMS can be utilized to develop their technological competencies. Following the synthesis of social constructivism theory and the cybergogy framework, we developed a conceptual framework for engaged learning in ODeL environments, as shown in Figure 3.

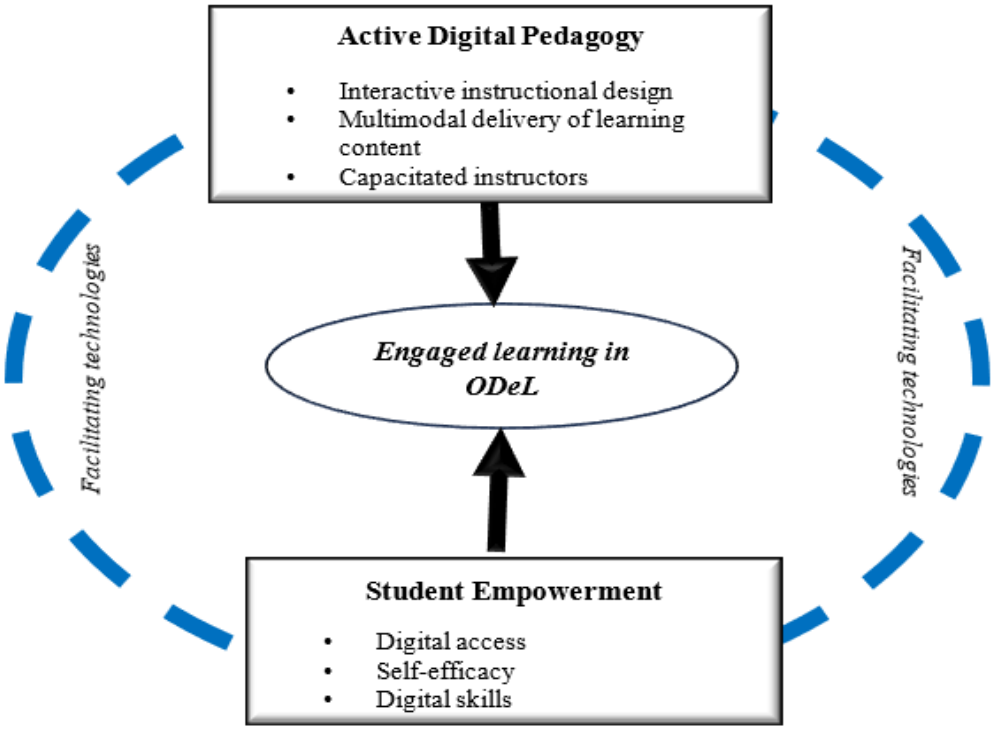

Figure 3. Framework for engaged learning in ODeL environments

The framework for engaged learning in ODeL, presented in Figure 3, highlights that student engagement in ODeL leverages facilitating technologies to develop active digital pedagogies that support student empowerment to allow students to be active co-creators of their learning outcomes. The framework acknowledges that appropriately capacitated instructors with technological capabilities and work capacity can deliver effective digital pedagogies through interactive designs and multimodal delivery to enhance student engagement in ODeL. To have agency over their learning outcomes, ODeL students need to be empowered with digital skills and access to digital tools that enable student engagement. Digital skills and access may give ODeL students the autonomy to shape their learning journey purposively.

While numerous theoretical frameworks and pedagogical approaches can be applied to enhance student engagement in ODeL, we propose that the principles articulated within the realm of social constructivism theory relating to students as co-creators of learning, coupled with the concepts of the cybergogy framework for student-centered technology enhanced instructional design, offer viable solutions for addressing the intricacies of student engagement in ODeL.

Conclusion

This paper conducted an integrative literature review to synthesize the literature on social constructivism and cybergogy for student engagement in ODeL. Literature was sourced across five databases and integrated into a conceptual framework. We proposed a conceptual framework of engaged learning in ODeL contexts to consider appropriate mechanisms to effectively engage students in ODEL using technology-enhanced learning.

This paper's integrative review and conceptual framework suggest future work that could be explored further. A quantitative study to survey students at an ODeL institution can be conducted to determine the specific digital pedagogies that lead to the highest levels of student engagement and autonomy. Future work could also consider frameworks that address the workload challenges of instructors to enable them to use technological tools to develop effective digital pedagogies for effective student engagement in ODeL.

Recommendations

Following the literature review and conceptual framework we have developed, we can offer ODeL institutions and practitioners the following recommendations.

ODeL institutions should emphasize capacitating instructors in digital technology use. In the ever-evolving technological landscape, instructors require training, support, and continuous professional development in digital technology use for student engagement. Several studies have pointed out the effectiveness of online instructor presence in student engagement (Bond et al., 2020; Dwivedi et al., 2019; Lockman and Schirmer, 2020). Therefore, instructor presence on online platforms should be emphasized to encourage student engagement. These said, we recommend that ODeL institutions consider their workload models to address instructors' hidden additional work responsibilities when implementing various technological interventions to address student engagement in ODeL.

Technology is often seen as the panacea to bridge the distance between ODeL institutions and ODeL students. However, inclusive digital pedagogies in ODeL should consider the socio-economic dynamics of the student's context. Therefore, we recommend instructional designs accessible to all types of digital devices to allow access to economically disadvantaged students. ODeL institutions may need to prioritize students' digital competencies by offering digital skills training to empower and enhance student autonomy to take advantage of learning technologies for enhanced student engagement and performance.

We can also recommend the development of communities of practice to enable instructors to share experiences and best practices for student engagement in ODeL contexts. These interactions may generate new knowledge and assist in developing enhanced skills. Our literature search also highlighted that the sub-Saharan African and postgraduate student contexts are under-represented in the literature on student engagement in ODeL environments. It is essential to increase empirical academic literature on student engagement in the sub-Sahara context, as implementing technological interventions in a context where infrastructural challenges and the digital divide are more pronounced would pose unique and contextual challenges. Additionally, postgraduate students face unique challenges in balancing work and family responsibilities. They, therefore, also require context-specific interventions to address the issues they face regarding engagement with the learning journey. We recommend additional research focusing on student engagement in ODeL in the sub-Saharan African context and post-graduate students.

Scientific Ethics Declaration

The authors declare the scientific, ethical, and legal responsibility of this article published in EPESS journal belongs to the authors.

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