Utilizing open educational practices to support sustainable higher education in the United Arab Emirates

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Abstract

Purpose – The COVID-19 pandemic has compelled higher education institutions (HEI) in the United Arab Emirates (UAE) and globally to shift to a new pedagogy that is sustainable and resilient to crises and disruptions. It necessitated the integration of technologies as part of pedagogical innovation and modification of higher education practices – advancing toward a more holistic integration of physical and digital tools and methods to enable more flexible, creative, collaborative and participatory learning. In terms of pedagogy, an open approach to learning is essential, combining in-person teaching with technological tools and online learning.

Design/methodology/approach – This paper examines theoretical and empirical literature to define the potential benefits of utilizing open educational practices (OEP) in higher education, including better access, furthering equity and enhancing teaching, learning and assessment.

Findings – It proposes a comprehensive framework built on a continuum of open pedagogy (OP) that comprises "Emphasis", "Essentials" and "Evolution". Based on this framework, a set of recommendations for using OEP for successful knowledge building is provided.

Originality/value – The research determined the significance of increased OEP involvement for sustainable learning possibilities and the UAE's initiatives in developing educators to support innovative pedagogies and technology-enabled teaching-learning standards. The study suggests placing more emphasis on faculty and student scaffolding while using OP for better learning experiences and outcomes, as well as more institutional support and the need for policy development to transform the UAE into a global hub for sustainable education.

Keywords Distance and online learning, Open pedagogy, Open educational practices, Sustainable education

Paper type Literature review

Introduction

The obstacles that ensued from the COVID-19 pandemic forced higher education to re-evaluate its current methods of instruction. Face-to-face (F2F) instruction had to be replaced by online or blended learning, which blends traditional F2F classrooms with online environments, as a result of the pandemic's effects. Higher education institutions (HEI), students, academic staff and teachers made major efforts to be resilient and swiftly adapt to online teaching, learning and assessment procedures to ensure educational continuity while

enhancing and expanding online learning provisions. In the United Arab Emirates' (UAE's) case, the shift to online learning not only prevented learning losses but also allowed for the acceleration and evaluation of the UAE's present distance learning efforts (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2022; Chan *et al.*, 2021).

Distance and online learning enable communication, collaboration and learning across distance without disruptions and have emerged as a source of innovation and a sustainable response to shape future pedagogies to support post-pandemic education (Bozkurt and Sharma, 2020; Bonk *et al.*, 2020; UNESCO, 2020). It enables the advancement of education through an open pedagogy (OP) that emphasizes creativity and innovation within a collaborative learning setting, promoting sustainability and resilience (Ossiannilsson *et al.*, 2020; Wiley *et al.*, 2017). OP relates to the open sharing of instructional strategies and the utilization of open educational resources (OER) to encourage learning. The pandemic disrupted F2F instruction, affecting teaching and learning worldwide; however, it also accentuated the importance of open practices. It facilitated unfettered access to educational resources and free information sharing between and within educational networks to assure educational continuity (Bozkurt and Sharma, 2020; Wetzler, 2020). Within the framework of open educational practices (OEP), OER are utilized by OP, encompassing the open sharing of resources and information, collaboration with professional communities, the creation and co-creation of knowledge and the open sharing of instructional strategies (Hegarty, 2015).

During the pandemic, distance learning emerged as a practical alternative to F2F instruction and learning (Adedoyin and Soykan, 2020). OEP facilitated realistic and objective approaches to teaching, learning and assessment. These practices allowed for adaptability, enhancing the utility and sustainability of learning strategies and instructional content. This adaptability made OEP suitable for various audiences and learning modes, whether F2F, blended or online, as well as for diverse purposes, practices and contexts. The advantages of OEP are expected to be further explored and enriched within physical classrooms in the post-pandemic era (Doi *et al.*, 2022; Ossiannilsson *et al.*, 2020). Engagement with OEP during COVID-19 was a key factor in promoting a sustainable blended education approach as the pandemic receded (Lederman, 2021).

In the UAE, higher education has been an inspiring model in the academic field throughout the COVID-19 pandemic, responding with efficiency and forward planning to support the continuity of the education process. The UAE started preparing well in advance to be competitive internationally through the expansion of its educational system and the well-developed infrastructure of its institutions. In 2012, the Prime Minister of the UAE and Ruler of Dubai the launched *Mohammed Bin Rashid Smart Learning Program* as a part of the UAE Vision (2021) and national agenda for educational transformation. The program aimed to deliver world-leading education technology solutions for the UAE education community and to drive up the educational achievements, excellence and creativity of the students. The smart education model enables communities, regions and academic institutions to pursue sustainable and equitable prosperity (International Telecommunication Union, n.d; Alghamdi *et al.*, 2021). Dr Eesa Bastaki, the chair of Global Education Forum (GEF) 2012, stated in an interview with the *Khaleej Times* newspaper as follows.

"Smart learning will make education enjoyable. We want to allow students to learn more using technology. For this, we need to create smart teachers, smart students, and smart parents who believe in a smart curriculum" (Shabandri, 2013; Ministry of Education [MOE], 2018).

The UAE's well-equipped technical infrastructure actively facilitated the online/distance learning process seamlessly (Emirates Center for Strategic Studies and Research [ECSSR], 2020; Almuraqab, 2020). While the pandemic has acted as an external driver for innovative change, an increased engagement with OEP coupled with advanced infrastructure has provided HEI the chance to identify issues and consider inventive ways to construct a

"first-rate education system" to transform the UAE into a global hub for sustainable education (UAE Vision, 2021, 2018).

This paper aimed to address three key aspects: the importance of integration of OEP as part of pedagogical innovation, increased OEP engagement for sustainable learning opportunities and UAE's initiatives in developing educators to support innovative pedagogies and technology-enabled teaching-learning standards.

Conceptualizing open pedagogy, OER and OEP

Distance and online learning emerged as an essential component of higher education worldwide during the pandemic and continue to have a substantial effect on post-pandemic educational practices (Selwyn, 2020; Macgilchrist, 2020). It has steered post-pandemic higher education to reassess educational practices, emphasizing flexible and innovative technology-enabled teaching/learning strategies, along with pedagogy of collaborative and participatory learning (Carloni, 2020).

OP has come to the fore as one of the key aspects of post-pandemic higher education practices. It directs to procedures encouraging the use of openly licensed educational content (Väänänen and Peltonen, 2016; Clinton-Lisell, 2021), supporting the control and supervision of teaching and learning resources and digital means for content knowledge by teachers and learners and involving them actively in the design of open resources (Kahle, 2008). It is not just a way to deliver content but also gives students and teachers an opportunity to take control of their learning environment and foster collaborative knowledge construction. Through OP, students can offer insightful feedback on the learning materials, understanding that knowledge construction is an ongoing process to which new information is constantly added (Werth and Williams, 2022). Practices in OP encourage learners to explore a variety of flexible ideas and perspectives, and when this diversity expands among a larger network of learners and educators, it enhances change and innovation (Tietjen and Asino, 2021).

A review of past research on OP reveals that it is a developing subset of the OEP (Cronin and MacLaren, 2018). OP is focused on student-centered technological strategies that prioritize collaboration (Mackintosh *et al*., 2011; Hegarty, 2015). The inclusion of OER in these interactions is a crucial component. OER refers to teaching-learning and research contents, in different formats or media that are either in the public domain or that are protected by copyright and released under an open license that allows for unrestricted use, reuse, repurposing, adaptation, retention and redistribution by third parties (UNESCO, 2019; Stracke *et al*., 2019). DeRosa and Robison (2017) defined OP as the practice of revamping courses using OER to serve as platforms for learning, engagement and collaboration with the outside world rather than merely serving as an information repository. A change toward OEP has been made with COVID-19, which has turned into a growth potential for the production and usage of OER. OER can be created, used and reused. OEP also refers to pedagogical methods that use social networks and participatory technologies to empower students through peer learning and interaction (Cronin, 2017). These changes pave the way for a review of current policies and their potential for advancement to better utilize OEP to prevent learning loss during the COVID-19 pandemic and in the post-pandemic period (Isaacs, 2020). OEP is based on a set of interconnected concepts, which are occasionally referred to as openness's qualities or characteristics. They include information sharing and collaboration, online discussion, sharing of knowledge and resources, scholarly criticism and spontaneous invention (Conole, 2013).

The 21st century is witnessing the growing importance of educational advancement, and the COVID-19 pandemic has emphasized the need for pedagogical innovation in classrooms (Shaikh, 2022; Istance, 2019). Educational organizations, educators, and students have adapted to digital learning management systems, with some countries implementing

national-level changes while others have adopted institutional or individual solutions. To achieve quality education, there needs to be a reorientation toward sustainable development, as emphasized by UNESCO (2011, 2012, 2016, 2019). Ehlers (2011) also stated that "an educational professional or learner embraces their role as open educational practitioners" to have sustainable open practices. Overall, teachers' involvement in a group setting as well as in a network of experts and peers was essential for fostering interest in collaborative work. Building community capacity is essential for OEP acceptance and a long-lasting open practice pathway (Bossu and Stagg, 2018). OEP's goal is to develop the academic staff's capacity for creating and implementing effective connectivist pedagogy, as well as to encourage student participation and digital competency through its course offerings, to generate chances for knowledge creation that will benefit society. OER and OEP both assist students and teachers in acquiring essential digital skills. It is required to be successful in a technology-enabled learning environment to create inclusive, resilient and sustainable knowledge societies (Halder, 2022). Technology-enabled OEP can provide numerous innovative pedagogical solutions, engaging both teachers and students and promoting inclusive and diverse knowledge societies by encouraging them to become active contributors to the educational process and creators of new educational repositories.

Methodology

A systematic review of the literature was conducted based on the main steps (purpose, selection, extraction and execution) suggested by Okoli (2015). The objective was to understand the past research on OEP, related improvements and expansions of OEP in the higher education context, besides identifying the research gaps to explore future trends (Marangunić and Granić, 2015).

Purpose of the study

In the last few years, especially after the onset of the COVID-19 pandemic, there has been a significant advancement in research on the theoretical development of OEP. In 2020, UNESCO released "*Guidance on Open Educational Practices*", which focused on the importance of OEP to achieve accessible learning and lifelong learning and offered new approaches to pedagogy, thereby contributing to a knowledge society (Huang *et al.*, 2020). While interest in OEP is growing, when compared with research on OER, it was observed that most recent studies in Saudi Arabia, the UAE and other Middle East countries focused primarily on the integration of OER and embracing technology in higher education (Ashour, 2024; Alyami, 2020; Tlili *et al.*, 2020; Alkhasawneh, 2020). Therefore, there is a need for more specific research on OEP initiatives to facilitate OEP implementation and build a sustainable educational response to future disruptions. Past review studies on OEP focused mainly on bibliometric mapping analysis, the development of concepts of OEP and its effect on improving learning outcomes (Tlili *et al.*, 2021, 2023; Shareefa *et al.*, 2023; Tlili *et al.*, 2021a, b). To date, no systematic literature review has been conducted to highlight the utilization of OEP in higher education in the UAE or other Middle East countries. This study was conducted to address this gap by selecting the following holistic research objectives.

(1) To explore the role of OEP in innovating pedagogies in higher education.

(2) To find out how OEP facilitates better access, furthering equity and enhancing teaching, learning and assessment.

(3) Based on 1 and 2 above, we propose a comprehensive framework to increase OEP engagement for sustainable learning opportunities in higher education in the UAE.

Selection of the literature
The study conducted a comprehensive examination of peer-reviewed publications that focuses on OEP. The literature search was conducted on the Scopus database, and the search was restricted to the titles and abstracts of the studies in the database. The researchers selected studies conducted during the years 2010–2023.

Data extraction and review
To review the selected literature, the following relevant information was extracted from the papers. Title, purpose, context, research questions, definition and theories of OEP, concepts related to its implementation in higher education, key finding and future research recommendations. Around 63 documents were found. The documents included published research articles, books, book chapters and conference proceedings, editorials; language-wise, English only. OEP, open education practices and higher education were selected as keywords. After applying the filters of subject type, document type, keywords and language, 42 research papers were finally selected.

Execution and synthesis
Following the extraction of data, each study was then examined based on its relevance to OEP to enhance teaching, learning and assessment procedures, and its implementation in higher education during and after the pandemic period. Finally, a qualitative synthesis was conducted to address the research objectives, as suggested by Major and Savin-Baden (2010) in the case of social science research. During this process, the role of OEP in innovating pedagogies and its potential to support a sustainable educational response were examined and discussed. Furthermore, a comprehensive framework built on a continuum of OP that comprises "Emphasis", "Essentials" and "Evolution" was proposed to derive a set of recommendations for using OEP for successful knowledge building.

Results and discussion
Role of OEP to innovate pedagogies
Innovation in higher education refers to the development, adoption and transformation of pedagogy, curriculum, policies, technology, practices and ideas to improve performance, address disruptions and create sustainable opportunities. Innovation that enhances access and equity, fosters creativity, engages stakeholders and strengthens collaboration is generally accepted and sustained. In higher education, OEP is regarded as a process-oriented strategy that promotes accessibility to both education and research (Koseoglu and Bozkurt, 2018). It includes the active participation of students in discussions and activities as well as a more critical investigation of how technology and education are interrelated (Knox, 2013; Bellinger and Mayrberger, 2019).

A model outlining how OP supports OEP with several dynamic characteristics (see Figure 1) to create innovative pedagogies that can sustainably address the challenges posed by COVID-19 is proposed. It is essential to integrate OER, as these resources are vital for implementing the core principles of OP and making significant contributions to OEP (Hegarty, 2015). Focusing on OER enabled OEP ensures that a holistic approach is implemented, taking into account all the stakeholders (such as students and teachers) (Ehlers and Conole, 2010). The rapid advancement of technology is transforming OEP, as noted by Tlili *et al.* (2021a, b), who called for more creative methods to boost user involvement. OEP provides a thorough landscape of innovative pedagogies that are based on theoretical concepts but emphasize involvement, creativity and teamwork in the teaching-learning process. Instead of contrasting teaching practices and learning theories, pedagogies that
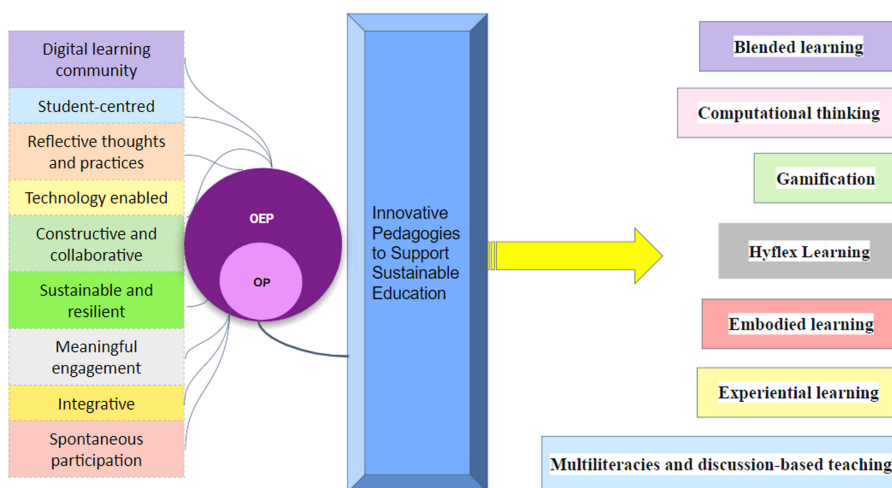
Source(s): Figure by author (Debolina Halder Adhya)

bring these two levels together are considered to be more advanced in the aspect of progressive pedagogy. For instance, the "Catch the Open!" application offers a gamified course rooted in the theoretical foundations and principles of open education, along with a collection of actual practices, which encourages and motivates the users to initiate or innovate in the usage of OEP (Padilla-Zea et al., 2022). Gamification is considered to be more than just the utilization of games within classrooms, but rather an approach that captures the educational benefits of games and applies them to formal teaching (Paniagua and Istance, 2018). OEP comprises learning outcomes, instructional methods, learning activities, evaluation and assessment techniques and teaching-learning resources. The capacity to improve the accessibility of learning outcomes, resources, activities and assessment designs, as well as to facilitate their exchange, presents a substantial opportunity for advancing pedagogical practices within and across disciplines (Paskevicius, 2017).

Role of OEP to improve teaching-learning

The current generation of learners needs autonomy and democracy to learn meaningfully and adequately. The viewpoints and stances on OEP reveal a comprehensive recognition of their capacity to democratize the educational landscape (Harrison and DeVries, 2019); as a social constructivist teaching-learning process (Cronin and MacLaren, 2018). As a digital open practice, OEP includes OP, open scholarship, open learning, open systems and architectures and open-source software, forming a multifaceted and cohesive concept (Koseoglu and Bozkurt, 2018). Most importantly, OEP enables learners as open thinkers, which is one of the significant learning outcomes. Engaging students is a critical issue. Many factors are responsible for such as readiness, academic achievement and well-being (Upadyaya and Salmela-Aro, 2013; Boulton et al., 2019). Researchers also added the significant incorporation of educational technologies as a part of OEP to make learning active and participatory (Veletsianos, 2015; Veletsianos and Navarrete, 2012; Waycott et al., 2013). Open textbook adoption has been highlighted as a solution that has the potential to support a wide range of OEPs, including pedagogical innovation and student access (Pitt et al., 2020).

Several studies have suggested dynamic options to incorporate OEP in a teaching-learning context to make education accessible and sustainable. Educators were urged to approach Edtech critically, educating students on surveillance, privacy and data extraction issues and engaging them in ethical digital and nondigital education models (Vetter and McDowell, 2023). The utilization of social media, listservs and public annotation enables crowdsourced curation of articles and learning materials, promoting collaboration across institutions and countries (Santos-Hermosa, 2023). Virtual laboratories can be developed and implemented through the MOODLE (a free and open-source learning management system) platform for ultimate access and virtual activity (El Kharki *et al.*, 2021). Zhang *et al.* (2020) suggested that the sustained development of OEP-based courses as a part of virtual activity requires a greater focus on intellectual property and privacy protection. A continuous effort should be made towards the use of open approaches and technologies to promote active learning experiences, real-time sharing of learners' work, formative feedback, peer review and community-engaged coursework (Paskevicius and Irvine, 2019). Assessment strategies can be diversified through OEP such as student blogs as part of dispersed and online evaluation procedures (DeWaard and Roberts, 2021). To overcome institutional boundaries hindering OEP implementation, it was recommended to establish interconnectivity between OER and OEP, coupled with active community engagement (Arispe and Hoye, 2023; Ouahib *et al.*, 2022). OEP helps improve the curriculum in higher education (Armellini and Nie, 2013). In terms of community practice, such as discussion forums and other collaborative activities, OEP enhances the productivity of relationships among students by evaluating successful online communities both within and outside the voluntary sector (Coughlan and Perryman, 2013).

Sustainable educational response
The COVID-19 pandemic provided possibilities for rethinking and redesigning more sustainable education systems in the future (Crawford and Cifuentes-Faura, 2022). Since OP promotes and supports sustainable learning in a rapidly changing educational setting, its implementation calls for an agile and resilient strategy (Ossiannilsson, 2018). To support learning, teaching and evaluation, this study suggested a general framework based on an OP continuum that consists of "Emphasis," "Essentials" and "Evolution" (derived from the 3E Framework created by Smyth *et al.*, 2011). The adoption, engagement and empowerment of OEP and creative pedagogies across the HEI provide further illustrations of the three broad stages within the continuum (see Figure 2).
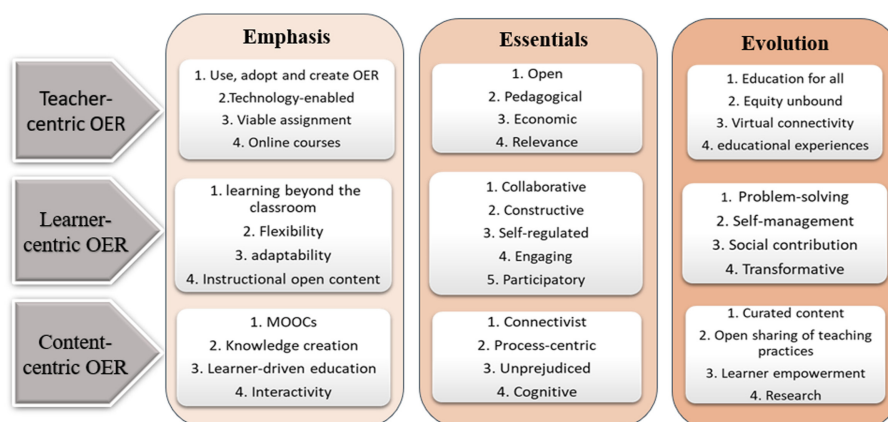
Figure 2.
Emphasis-essentials-evolution framework

Source(s): Figure by author (Debolina Halder Adhya)

Emphasis: The approach of teacher-centric OEP supports faculty and researchers to utilize, create, edit and share content, policies and technology, among other benefits, including extensive access to knowledge. It generates creative methods for teaching and learning that result in new interpretations of the obligations and practices of both teachers and students. The UAE Ministry of Education has launched a platform for OER (Manara Platform) to support education and learning, nurture a culture of participation in open education and provide opportunities for systematic change in the content of learning and teaching by involving teachers in new educational experiments and effective techniques for learning. The platform engages the community with rich educational resources that can support and develop high-quality curricula and meaningful learning and enable students to access educational resources and educational courses that lead them to learn. Furthermore, the platform offers essential tools that enable users to effectively utilize, create, share, modify and review OER. It also facilitates collaboration among users for the creation and discussion of OER (Ministry of Education UAE, 2020a, b).

Essentials: Focusing on learner-centric OEP emphasizes a process-oriented approach, enabling students to develop valuable skills and competencies that foster personal growth (Stracke *et al.*, 2019). When learners participate in creating OER, it promotes a more balanced relationship between students and educators, empowering learners to collaborate with faculty in co-creating knowledge and taking charge of their learning experiences (Masterman, 2016). This approach leads to a curriculum that is more adaptable, transparent, personalized, blended and connected to real-world experiences. Hamdan Bin Mohammed Smart University (HBMSU), a research-oriented institution in the UAE, exemplifies this by incorporating learner-centric strategies into its educational design. HBMSU offers students a distinctive and varied learning experience within a technologically advanced environment. The university's "smart campus" features mobile learning, discussion forums, virtual classrooms, educational gamification and social networking platforms, all tailored to the diverse needs of adult learners. This innovative approach has redefined the paradigm for smart education in the region. The university's learner-centric culture is demonstrated by the extensive support offered to students, which includes automated pre-enrollment and admission assistance, a learners' club and additional learning resources like the library and career and placement services. The university also makes use of the latest technological innovations to engage with students worldwide (HBMSU, 2023).

Evolution: Content-oriented OEP has the potential to increase learners' access to high-quality educational content, hence promoting accessible learning and lifelong learning (Nascimbeni and Burgos, 2019). Beetham *et al.* (2012) formulated OEP encompassing practices: OER production, management, use and reuse, open/public pedagogies and open learning (including peer-to-peer learning and open accreditation). The use of OER exposes students to a larger variety of concepts, media and representations than a closed course can, whether supervised by teaching personnel or self-directed. In 2020, the Abu Dhabi School of Government (ADSG), which is integral to Abu Dhabi's ongoing transition to a sustainable, knowledge-based economy, started a program called "Digital Learning for All" for UAE residents in 2020. The e-learning portal of ADSG offers free access to more than 4,000 courses from over 190 of the best universities and educational institutions around the globe. International degrees and certificates in a range of subject areas, including health, technology, artificial intelligence, data science, arts, humanities and business, are available to the learners. The initiative, which was built on the three pillars of virtual experiences, community solidarity and ongoing innovation, encourages agile thinking in the community and government, supporting the creation and development of ideas that will have a favorable result in the present and the future (ADSG, 2020).

UAE higher education post-pandemic

In recent years, the higher education landscape in the UAE has evolved as a preferred choice for local and international students due to its excellent and dynamic facilities. The UAE offers more than 1,200 accredited academic programs in various disciplines and has the largest number of foreign university branches in a single country in the world, paving a solid foundation to attain sustainable development plans for 2030 (UNESCO, 2021). It has 11 institutions listed in the top 1,000 rankings, an amazing accomplishment for a nation that established its first university, the United Arab Emirates University, in 1976 (Times Higher Education, 2023).

The emergence of COVID-19 almost immediately demonstrated the importance of continuous learning. After the pandemic, there are many plans for a digital transformation in higher education, new learning methods and the integration of advanced innovative pedagogies (McKenzie, 2023). Before the emergence of the COVID-19 pandemic, the UAE already had the necessary infrastructure in place for online education. The UAE, among other countries, has been considering changes in education for some years, and the pandemic has hastened the adoption of a technology-enabled learning ecosystem in higher education. In the case of the UAE, post-pandemic blended/hybrid learning is very much possible, especially given the nation's remarkable global standing for its digital education system. Organization for Economic Co-operation and Development (OECD) data show that the UAE has 70% of online learning support platforms and 88% of digital teaching resources, which are 15% and 24% more than the global averages, respectively (see Figure 3). To provide long-term educational value, the move from remote to creatively blended pedagogies must be effective (Lasku *et al.*, 2021). Newer ways of teaching and learning have resulted from the conversion of physical classrooms to digital environments, followed by hybrid and blended learning environments (Dubai Future Foundation [DFF], 2020; Fernandez, 2022). The Ministry of Education formed The Pioneers of Digital Smart Electronic Transformation Committee Services under the guidance of the Undersecretary for Performance Improvement. The Ministry of Education collaborated with the Telecommunication and Digital Government Regulatory Authority to improve the learners' experience with their smart services and applications through the UX Lab. This lab aims to enhance the sustainability of governance and scientific methodologies to measure the user experience while engaging with virtual reality services and products (Ministry of Education UAE, 2022a). The Ministry of Education and HEI had established advanced platforms and educational resources that included adaptive learning and assessment platforms suitable for both distance learning and
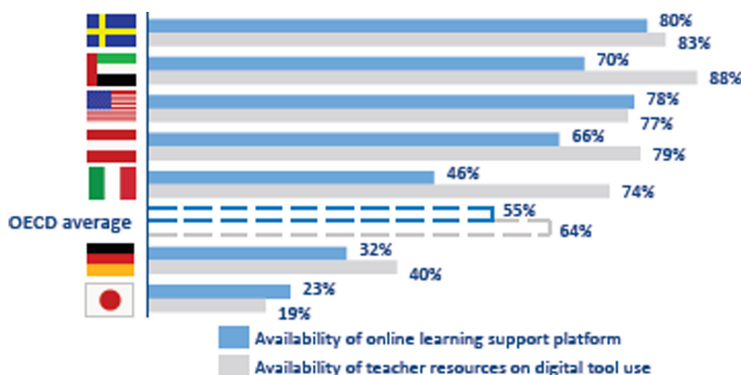
Source(s): Arthur D. Little Analysis, cited in Lasku *et al.* (2021, p.1)

Figure 3.
Stages of Digital
Learning Worldwide

traditional classroom learning (United Arab Emirates University [United Arab Emirates University UAEU, 2020b). Public universities such as Zayed University adopted Adobe Connect, UAEU, and the University of Sharjah adopted Blackboard systems and Heriot-Watt University, Dubai, campus adopted a virtual learning tool called Vision (UAEU, 2020b). HBMSU, the first smart university in the UAE, aided other colleges and universities in adopting online courses. Professors and educators at both public and private universities in the UAE participated in training sessions focused on delivering effective online or blended education (HBMSU, 2020). The 5th edition of the National Science, Technology and Innovation Festival in 2022 built more focus on advancing science and technology for holistic development and revolutionary, innovative education (MOE, 2022aa).

The HEI in the UAE offer the best educational opportunities and infrastructural facilities. It does this by implementing advanced innovative pedagogies and current technology to improve people's lives and expand chances for future generations. In this regard, Dr Eesa Bastaki, CEO of the Information and Communication Technology Fund in the UAE, stated as follows.

"We need to alter the culture and make technology easily accessible for educational purposes" (Knowledge and Human Development Authority [KHDA], 2012).

To enhance collaboration between Arizona State University and The Digital School (a project by Mohammed bin Rashid Al Maktoum Global Initiatives to offer a certified online education to students who face challenges in accessing formal education in both the Arab region and globally), a new phase of a strategic partnership was announced with Arizona State University (Al-Olama, 2022). Three pillars have been identified as the foundation of this new phase. A Global Digital Training Institute will be established as part of the first pillar, and there will be work done there to launch and create recognized professional development programs for teachers and to spread them globally. Both sides will work together to make these programs more accessible and reach 10,000 teachers worldwide. The second pillar will concentrate on offering internationally acknowledged credentials and benchmarks for teacher preparation programs that use technology. The two parties will work together to produce digital education standards and digital teachers by utilizing their individual expertise and wide networks. As the two parties collaborate on a series of open virtual webinars that will cover the most important issues in digital education and its advances, the third pillar will be centered on thought leadership in the field of digital education. In the areas of technology-enabled teaching and learning and advanced open pedagogies and their effects, they will collaborate in the writing and publication of joint research publications. These will help to strengthen the role of this partnership in advancing the future of learning, empowering the next generation to shape the future and actively advancing the process of global development (Al-Olama, 2022).

Conclusion and recommendation

This study used a systematic literature review to determine the effect of OEP on pedagogical innovation and enhancement of the teaching and learning process. The findings highlighted that OEP promotes collaboration, interaction and learner empowerment while also addressing issues of equity and access in education (Shareefa *et al.*, 2023). OEP facilitates realistic and equitable teaching, learning, alternative assessment and evaluation procedures (Bozkurt and Sharma, 2020; Huang *et al.*, 2020; Ossiannilsson *et al.*, 2020). It assists educators and learners in acquiring the essential digital skills required to be successful in post-pandemic learning environments. OEP supports open access to knowledge and information to shape inclusive, sustainable knowledge societies (Halder, 2022). The role of OEP also extends beyond pedagogical innovation and learner empowerment to institutional and societal transformation (Harrison and DeVries, 2019). The study proposed a comprehensive

framework built on a continuum of OP to support teachers, learners and learning content (the main components of a learning process) to advance teaching, learning, assessment and collaboration. The findings could guide HEI in developing their OEP-based courses to maintain sustainable learning even in times of disruption (Zhang *et al.*, 2020).

Higher education needs to update, reassess and realign itself in the educational landscape. Several initiatives and policies from the HEI, government and organizations have been implemented to aid in the adaptation of technology-enabled OP in the UAE. OEP, including tools, instructional strategies and open courseware, have been implemented. Students started liking open learning and showed a positive attitude toward the blended learning system (Almuraqab, 2020). Further, a novel approach, named agile blended learning, has emerged to develop new pedagogical practices that cater to diverse learner needs (Halder *et al.*, 2024). It is evident that there is room for development in the near future after establishing the numerous advantages and drawbacks of having online learning in the higher education system. Therefore, training is crucial for academic staff to enhance their qualifications and technical skills to keep up with the fast-paced advancements in teaching tools and educational technology (Shishakly and Sabah, 2021). The UAE stressed the need to recover collectively and grow stronger after the pandemic, as well as to reimagine and rebuild a more inclusive and equitable education system (MOE, 2022b). The Ministry of Education in the UAE announced the launch of its innovation strategy in 2023 with the aim to enhance the position of the UAE as a global center in innovation, promoting the development of creative ideas and capabilities, spreading a culture of innovation on a large scale and creating a national environment that nurtures innovative and creative minds (Nashar and Saleh, 2023). OEP must be promoted, and campaigns to increase awareness and incentive programs should be developed to incentivize educators to create and use OER as a means of maintaining OEP. OEPs are best aligned with the UAE's quest for a nation of knowledge producers and active contributors to innovation and creativity (Warner, 2016). Finally, policy development for OEP in UAE would be a significant step to increase its adoption across the HEI, as it would accelerate change at the institutional and practitioner levels and possibly alter the way HEI look at knowledge resources and teaching-learning (Bossu and Stagg, 2018). The higher education ecosystem can be sustained by using open-licensed inputs and outputs, and openness will help make it more resilient to upcoming crises (Bozkurt and Sharma, 2020).

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