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A Human-centered Approach Towards Sustainable Teaching and Learning in the Arab Region

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Abstract

Ensuring sustainable teaching and learning is a global priority, as it equips individuals and societies with the skills needed to address current challenges while preparing for the future. This conceptual paper presents perspectives, interpretations, and recommendations that foster sustainability within the higher education systems of the Arab region. It thoughtfully demystifies the concept of sustainability in education and identifies educational approaches that promote it. Through a comprehensive literature review, the study examines the implementation of these approaches in Arab universities, highlighting key challenges and limitations. The study's findings underscore adopting a human-centered approach in education as a pathway to achieving sustainable teaching and learning (STL) and advancing the limitations. The study identified the significance of three interconnected pillars essential for achieving sustainable teaching and learning: establishing human-centered professional development programs, adopting human-centered learning design approaches, and fostering a human-centered approach for open educational practices, within Arab universities. Together, these pillars serve as a foundation for sustainable teaching and learning, ensuring that universities remain adaptable and aligned with both regional needs and global development.

Keywords: Sustainability; Learning design; Professional development; Open educational practices, Human-centered design

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نهج متمحور حول الإنسان لتحقيق الاستدامة في التعليم والتعلم في المنطقة العربية

هيفاء بلحاج ID

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ملخص

يعدّ ضمان تعليم وتعلّم مستدامين من القضايا ذات الأولوية للبشرية، بما أنه يمكّن الافراد والمجتمعات من امتلاك المهارات اللازمة للتأقلم مع التحديات الحالية والاعداد للمستقبل على حد سواء. يركز هذا البحث المفاهيمي على تحليل الادبيات ووجهات النظر حول موضوع الاستدامة في مجال التربية والتعليم ويقدم تفسيرات وتوصيات تعزز الاستدامة في المشهد التعليمي الحالي في المنطقة العربية. يُحلل هذا البحث مفهوم الاستدامة في التعليم ويحدد المناهج التعليمية التي تعززها كما يستعرض تطبيق هذه المناهج في الجامعات العربية، من خلال مراجعة شاملة للأدبيات، موضحا التحديات والقيود الرئيسية. تؤكد نتائج الدراسة على أهمية تبني نهج تصميمي يتمحور حول الإنسان لضمان التعليم والتعلم المستدام والمساهمة في التغلب على التحديات المذكورة. حددت الدراسة أهمية ثلاثة أعمدة مترابطة ضرورية لتحقيق التعليم والتعلم المستدام: إنشاء برامج تنمية مهنية متمحور حول الإنسان واعتماد تصميم تعليمي يتركز حول الإنسان وتبني نهج يتمحور حول الإنسان لتشجيع الممارسات التعليمية المفتوحة، داخل الجامعات العربية. تشكل هذه الركائز أساساً للتدريس والتعلّم المستدام، مما يضمن تكيف الجامعات مع الاحتياجات الإقليمية والتطورات العالمية.

الكلمات المفتاحية: الاستدامة؛ التصميم التعليمي؛ التنمية المهنية؛ الممارسات التعليمية المفتوحة؛ التصميم المتمحور حول الإنسان

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1. Introduction

Covid-19 has profoundly impacted every facet of our lives, including education. While some institutions swiftly adapted to online learning, others struggled due to limited technological infrastructure, socioeconomic disparities, and varying levels of preparedness (UNESCO, 2020). Arab educational institutions, including schools and universities, were not immune to this phenomenon. The region encountered significant challenges in effectively addressing the pandemic, with a noticeable disparity between the countries (ALECSO, 2021). According to a UNESCO education official, the negative impact of Covid-19 on education has been stronger in the Arab region than in other parts of the world, highlighting the need to redefine education and the role of educators for policymakers (Kadi, 2021). It laid bare existing vulnerabilities and underscored the need for sustainable educational practices. It has brought to the forefront the importance of equitable access to education and the need for sustainable technology-based solutions and strategies to support learners (Leal Filho et al., 2021; Schleider, 2020; ALECSO, 2021).

On the other hand, the integration of human-centered design has been widely argued to be efficient and contributes to sustainability (Demirel, 2013), and recent research has been done to evaluate its implementation in education (Karakay, 2021; Luka, 2014; Baran & Alzoubi, 2020). This study explores educational practices that foster sustainability, with a particular focus on higher education in the Arab region. Through this exploration, we aim to identify educational approaches and strategies that support sustainable teaching and learning, while investigate how human-centered design principles can enhance the effectiveness of these strategies, ultimately leading to more sustainable educational practices.

This study focuses on exploring practices and strategies that contribute to the continuity, durability, and sustainability of the Arab education system. It does not delve into incorporating sustainable development concepts into the curriculum or teaching sustainable development goals. Specifically, it seeks to address the research question: Which educational approaches and strategies facilitate sustainable teaching and learning in the Arab region, in the digital era?

The study begins with a general comprehensive literature review to clarify the concept of sustainability in education and establish a unified definition. Initially, Google Scholar was utilized to select papers based on criteria such as the number of citations, date, and relevance indicated by abstracts. Subsequently, the search extended to include reports and policy papers from resources like the UNESCO digital library, ALECSO, and Arab development portal, to further enrich the research findings. Then, it subsequently introduces approaches and strategies that systematically organize methods to achieve sustainability. Finally, it offers recommendations, from sound literature research findings and practical experiences.

2. The Concept of Sustainability in Education

To be able to identify best practices that promote sustainability in the field of education, we start by defining the concept of “sustainable education”. The literature review shows that many terms related to sustainability in education have been used interchangeably; “sustainable education,” “education for sustainability” or “education for sustainable development,” and “sustainable learning.” Ultimately, it is important to distinguish first between these terms and any related term.

2.1 Terminology

Sustainable education: In literature, many definitions are provided for sustainable education (Sterling, 2010; Boeren, 2019; Jeronen, 2022). Jeronen (2020) approached the concept by defining both terms separately and concluded that sustainable education refers to teaching practices that emphasize, include, and develop the theory and practice of sustainability. Gilbert (2014) provided five definitions for sustainable education. It considers the definition provided above and the fact that active academic participation is involved in finding long-lasting solutions through education.

Education for sustainability or sustainable development: UNESCO defines Education for Sustainable Development as the educational process that allows every human being to acquire the knowledge, skills, attitudes, and values necessary to shape a sustainable future, and they highlight that the “*ESD is an educational process of achieving human development in an inclusive, equitable and secure manner*” (UNESCO, 2021).

Based on these definitions, we conclude that sustainable education is often referred to as education for sustainable development and is a holistic approach that encompasses all areas of learning, goes beyond traditional subjects, and incorporates the principles of sustainability (environmental, social, economic) into all aspects of the curriculum.

Based on the report of the Arab Forum for Environment and Development (2019), most Arab countries have been involved in the UN Decade of Education for Sustainable Development DESD, but not all have managed to implement national projects or initiatives. The challenges are mainly related to the limited availability of resources in Arabic (policy, teacher training, curricula development), the lack of a clear understanding of the wide concept of ESD, and the lack of national and international institutions’ cooperation (Hassan et al., 2019).

Sustainable learning: In literature, this term is sometimes used interchangeably with sustainable education (Cullingford & Blewitt, 2013; Ng, 2019) and means education for or about sustainability, in another research (Tractenberg et al., 2016), it was defined as learning that is retained, durable, and may be shared, they call it “learning to learn.” It includes educational practices contributing to a healthy learning ecosystem in which knowledge is co-created and shared.

According to Graham, Berma., & Bellert (2015), sustainable learning is “*an approach to inclusive education that aims to secure a fair society into the future by equipping teachers with ways to respond to the increasing complexity and diversity evident in the contemporary classroom and with the skills and resources to be able to teach every student in a way that is sustaining, tenable, healthy and durable.*” Based on this definition, sustainable learning relates more to sustainable curriculum and practices that include sharing, openness, and durability. Graham, Berma., & Bellert (2015) highlighted that it is related to education for sustainability. Still, Sustainable learning differs from education for sustainability because rather than focusing on ways to support sustainable development, it reorients the focus of sustainability to the classroom learning processes and teaching practices.

Sustainable learning and education: Martin and Reinders (2020) defined the term sustainable learning and education (SLE) and highlighted that it is different from education for sustainability as it focuses on creating sustainable curricula and learning and teaching methods. It also incorporates sustainability principles in design and delivery and educates in ways that promote sustainability. This includes teaching critical thinking, problem-solving, communication, and collaboration skills and promoting environmentally responsible behavior and ethical decision-making.

Sustainable teaching: According to Krause (2023), sustainable teaching takes place when creative methodologies are used to conduct lessons in a way that makes students active, and part of the teaching and learning process.

2.2 Sustainable Teaching and Learning

In this research, the term Sustainable Teaching and Learning STL will be used, as our focus will be on teachers and learners. Summarizing the literature review presented above and taking into consideration the 4th sustainable development goal, “*ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all,*” we consider that sustainable teaching and learning STL is an emerging concept, different than education for sustainable development, and we look at the subject from a learner’s and educator’s perspectives.

Hence, in this study, the STL is defined as a teaching and learning process that satisfies the needs of all learners with different learning styles and needs, and replies to the challenges faced by educators, by equipping them with the needed resources and skills. STL should be inclusive, accessible, and durable.

Figure 1 represents the concept of sustainable teaching and learning, defined above.

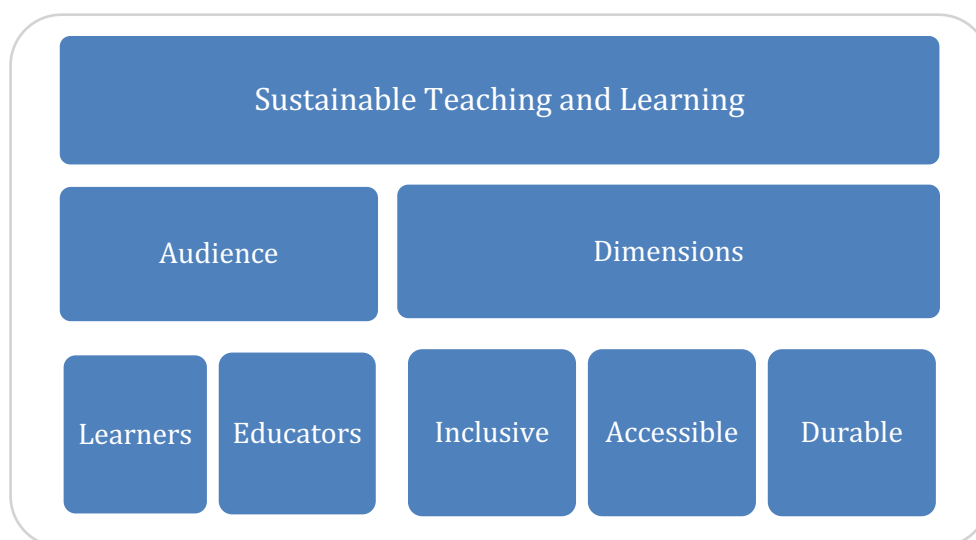


Fig. 1: The concept of Sustainable Teaching and Learning

STL should ensure that the needs of all learners and educators are satisfied while preparing for the future. STL has the following characteristics and dimensions:

- Inclusive: offer the same learning opportunities for all by addressing different needs.
- Accessible: ensure that resources and technologies are accessible and usable for all learners.
- Durable: ensure that learning is maintained and in continuous evolution.

3. Educational practices and approaches for sustainable teaching and learning (STL)

Table 1: Pedagogical practices and educational approaches for sustainable teaching and learning

STL's Audience	Practices	Approaches
Learners with diverse learning styles	Diversify teaching practices and strategies	Instructional/Learning Design
Learners with special needs	Develop inclusive and accessible learning experiences	Instructional/Learning Design
Educators requiring skill development	Implement targeted professional development initiatives	Faculty Professional Development
Educators requiring resources	Adopt, create, and share open educational resources and innovative pedagogical practices	Open Educational Practices

Sustainable teaching and learning involve meeting the needs of both learners and educators while aligning with the enduring and sustainable qualities outlined earlier.

3.1 Analysis of STL's audience and dimensions

When considering the audience's perspective, certain pedagogical and educational practices can be identified to fulfill their requirements. In Table 1, we revisit the target audience's characteristics defined in Figure 1, outline the corresponding pedagogical practices that help meet their needs, and then, from the identified practices, determine the corresponding educational approaches and methods.

Table 1 shows that to satisfy the needs of learners and educators, Instructional Design (Mrayhi et al., 2024), Faculty Professional Development, and Open Educational Practices (Andrade et al., 2011), should be used jointly.

In this paper, we assume that learning/instructional design is inherently related to the design of digitally enriched, online, and blended courses. Instructional and learning designers carefully assess the diversity among learners and analyze their individual needs to propose tailored digitally enriched learning solutions. They discern the optimal delivery method for a curriculum and implement effective online and blended learning modalities (Conole & Wills, 2013). Ensuring inclusive learning involves not only designing activities that accommodate diverse learner needs but also embedding principles of Universal Design for Learning (UDL) into the course design, which will emphasize the creation of flexible learning environments and materials that cater to varied learning styles, preferences, and abilities (Al-Azawei et al., 2017). By adopting UDL principles, educators can proactively address barriers to learning and provide multiple means of representation, engagement, and expression to meet the needs of all learners. By having a clear instructional design policy and strategies in the curriculum, the educational materials will be of better quality and sustainability can be achieved, as it carefully considers learners' diversity, offers flexibility, and helps create sound pedagogical resources to enhance learning experiences.

Moreover, accessibility in learning extends beyond content creation to the dissemination of resources. Open Educational Resources (OER) play a pivotal role in promoting accessible learning by providing freely available educational materials that can be accessed, used, and shared by anyone. By licensing materials under open licenses, such as Creative Commons licenses, educators ensure that learning resources remain open, adaptable, and accessible to diverse learners across different contexts (UNESCO, 2023). Promoting Open Educational Practices (OEP) involves encouraging educators to create, use, and share OER in their teaching practices, thereby increasing access to high-quality educational resources, reducing student costs, and promoting collaboration and innovation among educators (MCGreal, 2017). OEP also fosters a culture of openness, sharing, and cooperation among faculty and students, which can create a vibrant educational community and promote sustainable teaching and learning practices.

Durability in learning requires promoting a culture of lifelong learning among educators and learners.

Through well-designed professional development programs, faculty will not only enhance their teaching and learning design skills but also transmit this culture of being lifelong learners to their students.

Therefore, this analysis highlights three core approaches essential for fostering Sustainable Teaching and Learning (STL): Faculty Professional Development, Learning Design, and Open Educational Practices (OEP). What is the current state of adoption of these strategies and what are the challenges faced in universities across the Arab region?

3.2 The Case of Arab Universities

The state of faculty professional development in Arab universities varies across institutions and countries, but several common trends and challenges can be identified. Much research highlighted that relying on traditional methods of professional development, such as occasional workshops or seminars, appears to be ineffective in addressing the diverse needs of faculty members. In the Arab context, the training is mainly based on passive knowledge transfer approaches (Karami-Akkary, 2019), additionally, it does not support teachers to implement improvement initiatives because of its top-down, prescriptive, and politicized nature (Karami-Akkary, 2014). Many universities lack clear frameworks for systematically identifying the specific training needs of their staff, leading to ineffective or misaligned training programs. Additionally, the lack of consistent policies regarding faculty development leads to disparities in the opportunities and support available to educators (Bin Othayman et al., 2022). Implementing objective, personalized assessment methods, along with a well-defined career progression plan and aligned promotions, can significantly enhance faculty motivation and foster their professional growth, which will directly contribute to improved student outcomes (Al-Thani et al., 2021).

Additionally, many Arab universities face resource constraints, including funding shortages and limited access to professional development opportunities, mainly in countries with limited resources (Albashiry et al. 2015; Daou et al, 2023). Finally, the dominance of the Arabic language in many Arab universities can present challenges for accessing professional development resources, particularly if relevant materials or training programs are not available in Arabic.

When exploring the implementation of instructional design approaches in Arab universities, there is currently a lack of statistical data from ALECSO or other researchers regarding the prevailing status of instructional design within the Arab region. However, several articles discuss the adoption of instructional design strategies specifically in the development of online courses selecting mainly Gulf Arab universities (Amaiah & Alyoussef, 2019; Menhas et al., 2021; Sebaaly, 2018). In Arab universities, particularly in Gulf countries (e.g. Qatar, Saudi Arabia, UAE), the role of instructional designers has become increasingly prominent, especially in the wake of the Covid-19 pandemic.

These countries have been more proactive in creating dedicated positions for instructional designers to support teaching and learning initiatives. Qatar University has been at the forefront of integrating instructional design into its educational framework. The University has adopted international quality standards to ensure high-quality online course design. Saudi universities have also made significant strides in this area, several initiatives have been launched to enhance digital learning and instructional design including the creation of the National e-Learning Center. The UAE has invested heavily in educational technology and instructional design, and many universities have engaged instructional design teams to develop online programs. Conversely, in Maghreb countries (e.g. Tunisia and Morocco), the title of instructional designers may not be as prevalent, but there is a growing emphasis on professional development programs aimed at training faculty members in instructional design methodologies and technologies (Ben Taziri & Akkari, 2022; Yousfi, 2024). This includes workshops, seminars, and online courses designed to equip educators with the skills and knowledge necessary to enhance the quality of learning experiences. Yet, the lack of resources and studies examining the implementation of instructional design approaches in the Arab region makes it challenging to identify shared challenges and limitations.

About the current state of Open Educational Resources (OER) in the Arab region, Tlili (Tlili et al., 2020) highlighted the nascent stage of Open Educational Resources (OER) adoption in the Arab region, with an evident imbalance among countries. To promote social justice and enhance learning outcomes, several recommendations are proposed, these include expanding stakeholder involvement beyond governmental entities to encompass university directors, educators, and technology providers, and tailoring policies to the regional context. Increasing awareness of open licenses, particularly through workshops and summits, and implementing governmental and institutional incentives for OER development are suggested. Additionally, incorporating accessibility guidelines and fostering Open Educational Practices (OEP) are advocated. Despite the efforts of ALECSO in promoting the culture of Open Education, a few digital educational content repositories, most not open, are available through selecting Arab virtual or traditional universities or initiatives (such as Shams, Rwaq, edraak, Maharah). There exists a significant deficiency in the development and utilization of Open Educational Resources (OER) in Arab nations, especially concerning content in the Arabic language (Jemni & Khribi, 2017). The lack of policies related to the use and creation of OER in many Arab countries contributes to the relatively low activity of Arabic countries in producing Open Educational Resources (OER). Additionally, issues related to copyright and licensing slow the development and sharing of OER and many educational institutions in Arab countries face resource constraints, both in terms of funding and technology infrastructure. These limitations may impede efforts to create and disseminate OER effectively. Cultural attitudes towards sharing educational materials are also influencing the adoption of OER, in fact, without clear incentives or recognition for creating and sharing OER, educators may be less motivated to invest time and effort into OER development. In

many cases, a top-down approach is employed without conducting a thorough needs analysis, which often results in solutions that do not effectively address the diverse needs of faculty members and students. The recent UNESCO Arab Regional Consultation on the 2019 OER Recommendation brought together experts and policymakers to discuss how OER principles can address regional educational challenges and enhance digital cooperation. The discussions emphasized the vital role of collaboration and knowledge-sharing in making educational resources widely accessible and promoting inclusive learning across the Arab region (UNESCO, 2024).

Analyzing the current state of these approaches in the Arab region reveals a clear reliance on top-down methods and the absence of a systematic needs analysis and assessment process, often leading to inefficiencies in implementation. To address these issues, it is crucial to adopt a human-centered approach that focuses on the specific needs, abilities, and limitations of the individuals involved.

4. Recommendations: A Human-centered Design Approach

Human-centered design (HCD) (Cooley, 1987) is a creative approach to problem-solving that starts with the user's needs, emphasizes the importance of diverse perspectives, and encourages solution-seeking among multiple actors. Designers must work directly with users to develop new ideas and solutions for a specific context. This method is participatory and inclusive and needs critical thinking skills. In the context of education, being human-centered means putting learners and educators at the center of any process or activity related to teaching and learning. Therefore, being human-centered means adopting a bottom-up approach.

To ensure effective implementation and address the challenges mentioned above, the three approaches highlighted above should be human-centered when adopted:

- Implement human-centered faculty professional development.
- Develop human-centered learning design strategies.
- Adopt a human-centered approach to Open Educational Practices.

4.1 A human-centered faculty professional development

Faculty Professional Development (PD) should be human-centered for better benefits. PD designers and specialists should use approaches that prioritize faculty members' needs, experiences, and perspectives in the design and delivery of professional development programs, they should involve faculty in identifying their learning needs and priorities. Characteristics of human-centered faculty professional development include:

- Empathy: Understanding faculty members' experiences, motivations, and challenges to design

interventions that truly meet their needs. The initial phase of Human-centered Professional Development (HCPD) involves analyzing their needs and evaluating their skill sets.

- Flexibility: Recognizing the diversity among faculty members and providing flexible options that accommodate different learning styles, schedules, and levels of expertise.
- Learner-centered Pedagogy: Applying learner-centered design principles (Laurillard & Derntl, 2014; Bennett et al., 2017) to professional development by considering the needs of faculty as learners. As we encourage faculty to integrate learner-centered strategies, it is important to use the same approach for faculty PD. Project and problem-based PD programs may be designed and developed for better learning and more sustainability (Ebert-May et al., 2011).
- Areas for faculty development: Identifying and addressing faculty needs in instructional design, technology integration, and the utilization of Artificial Intelligence in teaching are paramount in this digital era. Aligning faculty professional development with a well-defined digital competency framework will effectively foster their growth and development (Albashiry et al., 2024).
- Evaluation: It is crucial to evaluate the extent to which the newly acquired skills are being integrated into practice. Surveying the level of satisfaction alone is insufficient for assessing the effectiveness of a training program. The evaluation should encompass how well the new skills are being applied (Smidt et al., 2009) to ensure true effectiveness.

4.2 A Human-centered Learning Design Approach

Much research was done to evaluate the impact of teaching students human-centered design (Zoltowski et al., 2012), or to analyze the human-centered learning design approach (Karakaya, 2021). Student/learner-centered design has foregrounded student needs (Baran & Alzoubi, 2020). Laurillard and Derntl (2014) highlighted the complexity of designing effective teaching methods with technology and emphasized the need to put the learner at the center of every decision during the design and delivery of the course. Luka (2014) has shown that to achieve the student/learning-centered design, faculty needs to adopt human-centered pedagogy. According to Karakaya (Karakaya, 2021), human-centered design is achieved through humanizing pedagogy and using the pedagogy of care. Furthermore, humanizing pedagogy involves establishing dialogue, considering the human aspect of learning, and addressing power, access, and representation issues. Pedagogy of care emphasizes nurturing and supporting students through clear communication, promptness, and responsiveness to their needs. The research suggests that combining these approaches can inform the design of effective learning experiences.

While much of the existing research has focused on students, a human-centered design also includes

educators. While a human-centered learning design places learners and educators at the core of the learning design process. Learning designers will prioritize learners' and educators' needs, perspectives, and overall well-being. This approach emphasizes empathy and a deep understanding of learners to create educational environments that are engaging, effective, and responsive. A human-centered learning design includes:

- Empathy: When understanding learners' diverse backgrounds, experiences, and challenges and analyzing their needs, teachers and instructional designers can design the appropriate teaching and learning activities, select the appropriate mode of delivery and create an adequate learning environment, consequently learners will enjoy learning and learning will take place and be more sustainable.
- Personalization: Offering flexibility and adaptability in content delivery and assessment methods, will give more choices to learners, and empower them to engage with the material at their own pace and according to their individual learning preferences. Designing a hyflex learning (Kohnke & Moorhouse, 2021) environment, is one of the solutions that may be implemented to satisfy the needs of learners; each will select the appropriate mode for his needs (online or face-to-face).
- Iterative Design Process: It is important to regularly assess and refine learning experiences to enhance their effectiveness. Assessing learning experiences and evaluating the quality of course design is essential for a sustainable course design process.
- Inclusivity and Accessibility: This can be achieved through creating inclusive learning environments using the Universal Design for Learning framework (Rose, 2000).
- Active Learning Strategies: This may be achieved by integrating active pedagogy and collaborative learning methodologies that encourage learner engagement.
- Developing faculty as learning designers: Building design capacity by better-equipping faculty with design skills and knowledge is critical to making the learning design sustainable (Goodyear 2015; Bennett et al., 2017).
- Well-Being Considerations: Prioritizing the well-being of learners e.g. by designing engaging learning activities, prioritizing human interactions, and considering factors such as workload when designing digital learning environments.

4.3 A Human-centered Approach to Open Educational Practices

Being more human-centered about OEP means understanding the needs of Arab educators concerning the use, creation, and sharing of OER (Garcia et al., 2020). Arab universities should first assess the

readiness of their faculty and resources, and analyze the benefits of participating in this initiative. The strategy towards OEP should be human-centered for more effectiveness:

- Empathy: Understanding the diverse backgrounds, abilities, and motivations of educators is essential. Empathy allows OEP practitioners to design efficient training for faculty and support them in creating OER. Additionally, empathy will help faculty, create learning experiences that are inclusive, accessible, and responsive to individual needs. The resources created will be more useful in this case and durable for future generations.
- Co-design: Involving stakeholders, including learners and educators, in the design process of the OER promotes collaboration and ensures that OEP initiatives are aligned with their interests and priorities. Co-design encourages ownership and engagement, leading to more meaningful and effective learning experiences.
- Collaboration between Arab universities: Enhancing collaboration among Arab universities in OER production can yield numerous benefits. By pooling expertise and resources, universities can create high-quality educational materials that draw from diverse perspectives and experiences. This collaborative effort fosters a culture of shared learning among educators, promoting professional growth and development. Moreover, the resulting resources, being open and accessible, can be widely utilized by participating universities. In addition to academic content, authors can extend to the creation of resources, mainly in Arabic language, used for professional development, enriching the educational landscape, and advancing the collective expertise of educators in the Arab region.

4.4 STL's Interconnected Approaches

In addition to applying each strategy separately, the three strategies presented above are interconnected and may be implemented sequentially (Figure 2).

Training faculty in Learning Design (LD) is essential for equipping them with the knowledge and skills needed to create engaging and inclusive learning experiences for diverse learners. This process ensures that educators can sustainably contribute to curriculum development, continuously improving their courses and building their skills while minimizing time and resources. Once faculty use LD principles to develop high-quality materials and learning activities, the resources created can be shared as Open Educational Resources, which will foster a culture of Open Educational Practices, where educators create, adapt, and share resources and practices freely, promoting collaboration and innovation across Arab institutions. This approach will foster sustainable teaching and learning by meeting the evolving needs of both learners and educators as it ensures that educators have the resources and tools to continuously innovate and improve, while students benefit from high-quality, accessible, and adaptable educational experiences.

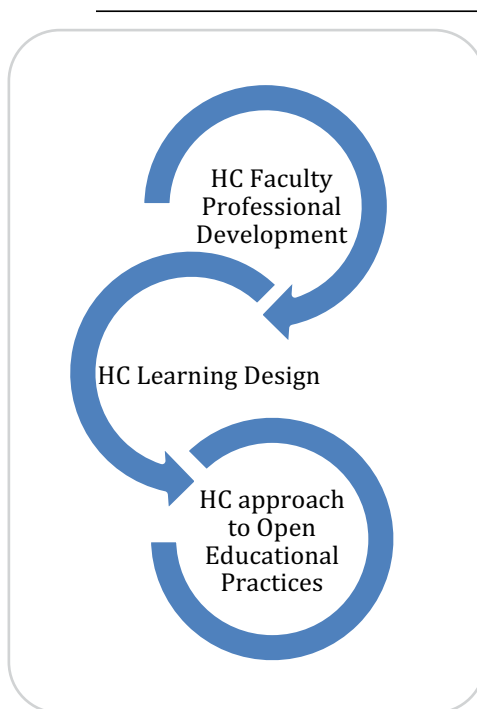


Fig. 2: Interconnected Approaches to Sustainable Teaching and Learning

5. Conclusion

This paper has explored the concept of sustainability in education and proposed recommendations for promoting sustainable educational practices within the Arab region. The study began with a comprehensive examination of the concept of sustainability in education through the demystification of sustainability and audience identification. It identified educational approaches for sustainable teaching and learning, including continuous Faculty Professional Development, Learning/Instructional Design strategies, and Open Educational Practices.

Moreover, the literature review examining the current state of Arab universities revealed both progress and challenges as well as disparities in integrating these approaches across Arab universities. While some institutions have made progress, others face significant obstacles due to limited resources and/or institutional cultures, lack of policy and the dominant top-down approaches. Considering these findings, the study advocates for a human-centered approach to address the gap between aspirations for sustainable teaching and learning, and current realities. By prioritizing empathy, flexibility, and inclusivity in faculty professional development, learning design strategies, and open educational practices, Arab universities can foster environments that support the holistic development and fulfillment of learners and educators. Therefore, the study recommends the implementation of human-centered faculty professional development, the development of human-centered learning design strategies, and the adoption of a human-centered approach to open educational practices. Additionally, these

approaches can be implemented sequentially for better efficiency. Through these recommendations, Arab universities can advance toward sustainable teaching and learning practices that meet the diverse needs of learners and educators while promoting innovation, collaboration, and lifelong learning. This study remains theoretical, based on literature findings and analysis, to strengthen and validate the conclusions, future research will incorporate empirical methods, including surveys and case studies, to gather data from select Arab universities. This will support the development of a validated framework for sustainable teaching and learning in the Arab region.

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