



تعزيز الوصول والمشاركة: الاستفادة من التعلم الانتهازي المدعوم بالذكاء الاصطناعي للمتعلمين العرب

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AI-Driven Opportunistic Learning : Enhancing Personalized Educational Experiences for Arab Learners in the MENA Region

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المخلص:

يدخل نظام التعليم في العالم العربي فترة ثورية نتيجة للتطور السريع للتكنولوجيات الرقمية، وخاصة ظهور الذكاء الاصطناعي. تتناول هذه الدراسة تأثير الذكاء الاصطناعي على النموذج الناشئ للتعليم الانتهازي - والذي يمكن المتعلمين العرب من الاستفادة من الفرص التعليمية المخصصة عبر الزمان والمكان. قد يستفيد الطلاب العرب من الاقتراحات المخصصة، وبيئات التعلم المرنة، والاستخدام الأفضل للموارد المتاحة من خلال دمج الذكاء الاصطناعي في أنظمة التعلم الرقمية.

توضح هذه الورقة كيف يمكن للتعليم الانتهازي القائم على الذكاء الاصطناعي أن يحول تمامًا الطريقة التي نتعامل بها مع التعليم في العالم العربي من خلال دراسات الحالة والبحوث التجريبية التي أجريت في مصر ولبنان. بشكل عام، أعرب الطلاب العرب الذين شملهم الاستطلاع عن تفاؤلهم بقدرته أنظمة التعلم الانتهازية القائمة على الذكاء الاصطناعي على تلبية أهدافهم التعليمية وتفضيلاتهم. على الرغم من أن أكثر من 40-55 في المائة من المستجيبين ما زالوا يواجهون صعوبة في فهم لغة التدريس، إلا أن غالبية المستجيبين (70-90٪) يعتقدون أن لديهم وصولًا جيدًا أو متميزًا إلى مواد تعليمية عالية الجودة تتناسب مع أصولهم الثقافية واللغوية. في حين وجد 75-85% من المستجيبين قيمة هائلة في الإمكانيات التي توفرها هذه المنصات للمشاركة والتعاون المجتمعي القائم على الثقافة والاهتمامات، رأى أكثر من 70% من المستجيبين قيمة كبيرة في التخصيص المدعوم بالذكاء الاصطناعي والتعلم التكيفي.

على الرغم من إثارة قضايا الخصوصية وأمن البيانات، أشار 80% من المستجيبين إلى أنهم من المرجح أن يستخدموا منصة تعليمية انتهازية مدعومة بالذكاء الاصطناعي ومصممة خصيصًا لتلبية احتياجاتهم.

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توضح هذه النتائج كيف يمكن للتعليم الانتهازي المدعوم بالذكاء الاصطناعي أن يعمل على تمكين الطلاب العرب بشكل كبير وتوفير بيئة تعليمية أكثر ديناميكية واستجابة وإنتاجية يمكن أن تتغير لتلبية الاحتياجات المتغيرة باستمرار في العصر الرقمي. يحمل هذا التآزر بين الذكاء الاصطناعي والتعليم الانتهازي وعدًا بتمكين الناس من النجاح في مشهد عالمي متزايد التعقيد وسريع التغير من خلال تعزيز استراتيجيات التعلم المرنة، وتمكين المسارات الشخصية، وزراعة نظام بيئي من فرص التعلم مدى الحياة. كلمات مفتاحية: الذكاء الاصطناعي، التعليم الانتهازي، التعليم الرقمي، التعلم الشخصي، استراتيجيات التعلم المرنة، التعلم الشخصي، استراتيجيات التعلم المرنة.

Abstract:

Artificial Intelligence (AI) is rapidly transforming the education sector across the the Arab world promising innovative solutions to meet the diverse needs of learners. This study introduces the concept of opportunistic education, which leverages AI to provide personalized learning experiences accessible anytime and anywhere. By tailoring digital learning systems to individual preferences, AI enhances the educational environment and optimizes resource utilization.

This paper examines the potential of AI to revolutionize educational practices in the MENA region, drawing on case studies and fieldwork conducted in Egypt and Lebanon. The findings reveal that a majority of Arab students view AI-based learning systems positively, believing they will enhance their academic pursuits. However, it is noted that 40–55% of students continue to engage with materials in languages that are not their first language (L1). Despite this challenge, 70–90% of respondents feel they have access to high-quality educational resources that resonate with their cultural and linguistic contexts. Furthermore, 75–85% of students value community collaboration based on shared cultural interests, and over 70% appreciate the benefits of AI-driven personalized learning experiences.

Despite concerns regarding privacy and security, 80% of participants expressed a willingness to use AI-driven opportunistic learning platforms tailored to their specific needs. The evidence suggests that implementing AI-driven opportunistic education can significantly engage Arab students, creating a flexible, responsive, and productive learning environment. This alignment of AI and opportunistic education supports adaptive learning strategies, fosters personalized pathways, and nurtures lifelong learning in an increasingly complex global landscape.

Keywords: Artificial Intelligence; Opportunistic Education; Digital Education; Personalized Learning; Flexible Learning Strategies; Adaptive Learning; Lifelong Learning.



INTRODUCTION

The rapid evolution of technology and innovation is transforming the educational landscape in developing countries, particularly in the Arab world. As these nations increasingly embrace digital education, there is a pressing need to address the limitations of traditional educational paradigms that often fail to meet the diverse needs of their students.

This paper introduces the concept of Opportunistic Education, which leverages digital resources to provide flexible, personalized learning pathways tailored to individual learners. Central to this paradigm shift is the integration of Artificial Intelligence (AI), which has the potential to revolutionize educational practices by offering adaptive and personalized learning experiences. In countries where educational systems have historically struggled, AI-powered opportunistic models represent a promising solution to enhance access and engagement.

AI can help transcend the constraints of rigid classroom settings and one-size-fits-all curricula by customizing learning experiences based on students' unique needs, interests, and abilities. Moreover, the increasing availability of mobile devices and internet connectivity in the region opens new avenues for learning, bridging geographical and socioeconomic divides.

This research explores how AI-driven opportunistic education can address several critical challenges faced by Arab students, including:

Equitable Access: AI-powered digital learning platforms can provide fair access to high-quality educational resources, particularly in remote and underserved areas. Through adaptive learning algorithms, these platforms can tailor educational experiences to meet each learner's needs, promoting inclusivity.

Cultural and Linguistic Adaptation: The Arab world's diverse linguistic and cultural backgrounds often pose challenges for traditional educational systems. AI-driven opportunistic education can incorporate multilingual support and culturally relevant content, enhancing learning outcomes by allowing students to engage with materials in their preferred contexts.

Flexible Learning Integration: By facilitating access to educational materials at their convenience, AI-powered education enables learners to seamlessly integrate study into their daily lives. Features like micro-learning modules and flexible scheduling support personalized skill development, which is crucial in the rapidly evolving job market.



Customized Skill Development: Utilizing learner data analysis, AI-driven opportunistic education can help students acquire the skills necessary to succeed in modern work environments. This tailored approach fosters lifelong learning and better prepares students to meet the demands of a dynamic labor market.

AI-powered opportunistic education holds the potential to create more inclusive, effective, and engaging learning experiences for Arab communities, ultimately transforming the educational landscape and supporting the development of lifelong learners.

Methodology:

This study employs a mixed-methods approach to investigate the impact of AI on opportunistic education among university students in Egypt and Lebanon.

Sample:

The sample consists of 40 university students, selected from various academic disciplines. Participants were chosen through convenience sampling to ensure diversity in perspectives. Demographic information, including age, gender, and field of study, will be collected to contextualize the findings.

Data Collection:

Data will be collected using two primary methods:

Online Structured Questionnaire: Participants' opinions on community engagement, privacy concerns, access to resources, and personalization features will be assessed using a Likert scale (1–5). The questionnaire was developed based on existing literature to ensure validity and reliability.

In-Depth Interviews: A subset of participants will be selected for in-depth interviews to explore their personal experiences with AI in education. The interview guide will focus on challenges, benefits, and recommendations for improving AI-powered learning systems.

Data Analysis:

Quantitative data from the questionnaires will be analyzed using descriptive and inferential statistics to identify trends and comparisons between the two countries. Thematic analysis will be employed for qualitative data, involving a systematic coding process that will be refined through iterative readings of the transcripts.



Ethical Considerations:

Ethical measures include obtaining informed consent, ensuring confidentiality, and allowing participants to withdraw at any time without penalty. Limitations such as potential social desirability bias will be acknowledged and addressed during data collection.

Expected Outcomes:

This research aims to provide insights into how university students respond to AI-driven just-in-time education and identify the challenges and opportunities associated with integrating technology into their learning experiences.

Table 1: Questions and Hypotheses:

Research Question	Hypothesis
1. To what extent can AI-driven opportunistic education improve access to quality education for learners in remote and underserved areas of the Arab region?	Implementing AI-powered digital learning platforms can significantly increase educational accessibility and equity by overcoming geographical barriers and providing equal learning opportunities, regardless of a learner's location.
2. How effectively can personalized learning recommendations and adaptive algorithms offered by AI-driven opportunistic education address the diverse linguistic and cultural needs of Arab learners?	AI-driven opportunistic education can enhance the learning experience and outcomes of Arab learners by incorporating multilingual support, culturally relevant content, and adaptive interfaces that cater to their diverse backgrounds.
3. What is the impact of AI-enabled flexible learning pathways on the educational persistence and success of Arab learners with competing priorities and limited mobility?	Opportunistic education, powered by AI, can enable Arab learners to access educational resources at their convenience, leading to improved learning outcomes and higher completion rates.
4. To what extent can AI-driven opportunistic education help Arab learners develop the personalized skill sets required for success in the rapidly evolving job market?	AI-driven opportunistic education can analyze learner data, identify skill gaps, and provide personalized learning pathways and just-in-time training to better prepare Arab learners for the dynamic demands of the



	modern economy.
5. How can the integration of collaborative learning and community-building features within AI-driven opportunistic education platforms foster a sense of belonging and cultural engagement among Arab learners?	Opportunistic education platforms that leverage AI to facilitate collaborative learning and the formation of virtual communities can enhance the cultural relevance and overall learning experience for Arab learners.

Questionnaire Approach:

To explore these questions and hypotheses, a comprehensive questionnaire consisting of 20 questions with 5 multiple-choice answers could be developed. The questionnaire should be designed to gather data on the following key aspects:

- Access to and utilization of digital learning resources.
- Perceptions of linguistic and cultural adaptability in existing educational offerings.
- Experiences with flexible and personalized learning pathways.
- Perspectives on skill development and job market preparedness.
- Attitudes towards collaborative learning and community engagement.
- Overall satisfaction and perceived impact of AI-driven opportunistic education.

The multiple-choice answers for each question should be carefully crafted to capture the nuances of the learners' experiences and opinions, ranging from strongly disagree to strongly agree. This approach will allow for quantitative analysis of the data, as well as the identification of trends and patterns that can inform the development and implementation of AI-driven opportunistic education initiatives in the Arab region.

Literature Review:

Finally, with the advent of machine learning and artificial intelligence (AI) technology, this level of customization is possible. They use ML algorithms to examine large volumes of data about student activity, including learning preferences performance trends, and interests to produce unique suggestions for instructional content; They have seen proven, quantitative improvements in students' academic achievement, motivation and engagement from individualized learning. Recruiters always look for these qualities. Artificial intelligence (AI) -powered personalized learning applications have tirelessly infiltrated educational institutions in recent years. E-learning, interfaces engaging individualized learning systems more specifically



were forced to meet the drastic changes undergone in terms of paradigm taking root as a result of semantic technologies and (learning) analytics derived from accelerated elitist use cases for artificial neural networks[1].

Customized learning catering to unique needs:

The literature discusses adaptive and individualized learning strategies of intelligent technologies. Researchers have investigated the potential for using machine learning (ML), and natural language processing, and recommend systems to generate personalized learning paths, curriculum planning, content recommendations etc. per student [1-6]. These adaptive learning systems use student data, models and preferences to provide dynamic and engaging learning experiences [7–10].

Machine learning algorithms and individualized instruction: research has investigated the relationship between student test performance, motivation, and engagement in students being taught by machine-learning-based individualised programs. Another study examined the impact of individualized learning on students' STEM success in a higher education academic curriculum (4). The study found that using ML algorithms can lead to improvements in student engagement and test scores when teaching at scale.

AI and Learning Analytics — Unleashing Insights & Personalization:

Learning analytics and AI in the field of education is one of the most discussed study topics nowadays. Recent studies have explored the applications [11], challenges, and key research questions [12–15] relating to AI that can revolutionize online learning environments for education. For better learning performance, the use of Learning analytics is an analytical approach to analyze student data and get feedback tells us how we can improve [16–18].

Despite the positive results; however, the use of AI in adaptive learning does have some limitations. Such as research concluding potential challenges responding to evident privacy and ethical issues, opacity of ML algorithms decision-process. (4)

Existing studies already addressed these issues, though. For example, the research by Chen et al., (2020) outlined a framework to deal with privacy issues within AI-enhanced personalized learning. (5)

Striking the Right Balance: Ethics in Innovation:

Despite the various advantages that AI-driven personalised learning provides, the literature around it is indeed cognizant and aware of its ethical implications. To conclude, scholars have previously argued for responsible recommender systems that do not perpetuate biases and violate individual privacy [19–21].



Educators and teachers are needed to use AI technologies for individualized learning. Researchers have studied those reactions to the utilization of AI for personalized learning and its implications on educational policy and practices. For example, a study by St-Hilaire et al. in 2022 explored teacher perceptions of AI-powered adaptive learning and found them to be quite positive. The study also noted that it raised concerns about the lack of control over content delivered through personalized learning (4).

Mapping the Evidence: Systematic Reviews and Bibliometric Analysis:

It offers an exhaustive review of the personalized learning research landscape, in-store findings from several systematic literature reviews and bibliometric analysis [22–26]. They provide a rich source of new and generative insights into the current state-of-the-art in this area, as well as providing a guide for future research.

The effective use of AI in personal progression is sure to shape the future form that education will take. Here, we have discussed the potential research areas which might be useful to explore in this field. Chen et al. In 2020 a Research of It founded that Machine learning by reinforcement offer customization for classification and data pre-processing dental image. This way of doing things, the researchers say leads to increased motivation and engagement on behalf of students who are more likely to also perform better academically. Instructional material for students can be created using ML algorithms in different ways.

The effectiveness of the different approaches and strategies used to apply machine learning algorithms for personalized learning has been investigated in research. Li et al.'s work from 2021, for instance, looked into how collaborative filtering algorithms might be used to customize instructional materials. (6) According to the study, this strategy may enhance students' motivation, engagement, and academic performance.

A Glimpse into the Future: Emerging Applications and Trends:

The increase in digital technology (specifically AI) has kicked off an era of revolutionary change for education with personalized learning becoming a top priority. Future trends of personalized learning such as augmented reality, gamification and Intelligent tutoring systems are under study [27–32]. Finally, the study covers research in agent-based methods or federated learning and the broad impacts of AI on education beyond personalization [33–40].

Personalized Learning with Machine Learning (ML) algorithms, promises reasonably good outputs as well in solving the problem of student motivation, engagement and academic performance. Although AI is helping on an individual basis a lot needs to be fixed and many restrictions need clarity.



The way teachers and educators respond to AI-driven, personalized learning will have a significant impact on education policy and practices. Lastly, future research should investigate how these ML algorithms can be applied in the real world to personalize learning with practice.

It showcases the significant progress and tremendous potential of learning analytics, artificial neural networks and semantic technologies for developing adaptive bespoke e-learning systems. Finally, it stresses the need to regulate and overcome ethical issues as well as challenges around democratizing individualized learning opportunities for all.

A new era of digital transformation in higher education helmed by artificial intelligence (AI) is upon the shores of change within Arab world. This study investigates the effect of AI on this new paradigm in education (COE — Customized, Opportunistic Education) that permits Arab students to make use of educational alternatives matching their special needs and abilities. Utilising artificial intelligence (AI) in digital learning systems could support individualised feedback, flexible study options and resource efficiency that can also benefit Arab students.

This article therefore investigates the potential of AI-driven opportunistic education to revolutionize Arab and indeed emerging-market higher education, using a combination of case studies from Egypt and Lebanon with empirical grounding.

Arab students who participated in the poll were generally optimistic about AI intelligent learning platforms, considering they are over time to accommodate their needs and educational goals. While there were still 40%–55% of respondents who found it difficult to understand the language in which they received instruction, most (70%-90%) considered themselves as having good or excellent access to healthcare resources suitable for their cultural and linguistic background. Over 70% believed AI-driven personalization and adaptive learning were quite valuable, while in the range of 75–85%, these platforms are proven to be very useful for group collaboration & cultural as well as interest-based community participation. Meanwhile, 80% of respondents are more than likely/very likely to use a personalized AI-driven opportunistic learning platform despite privacy and data security concerns.

These findings show the incredible possibilities and opportunities that are latent in AI-enabled opportunistic education which has great potential for a more mobile, flexible and effective learning environment able to be adapted as necessary for new requirements emerging from the digital era. Artificial intelligence coupled with opportunistic education is poised to give people the agency they need in an



increasingly rapidly changing and complex world, by pushing for adaptive learning strategies, critical paths of personalization options and a new-age ecosystem of lifelong opportunities.

Results and Discussion

Table 2: Results

No.	Question	Lib/Egy	Excellent %	Good % Lib/Egy	Average % Lib/Egy	Poor % Lib/Egy	Very Poor % Lib/Egy
1	How would you rate your current access to high-quality educational resources at your local university?	10/0	60/39.1	30/43.5	0/13	0/4.4	
2	To what extent do you feel that the content and learning materials available to you reflect your cultural and linguistic background?	15/8.75	55/17.4	30/52.2	0/17.4	0/4.3	
3	How often do you face challenges in understanding the language of instruction in your current educational programs?	10/0	/21.7	55/39.1	10/34.8	5/4.4	
4	How important is it to have the option to access educational resources in your native language or preferred dialect?	65/21.7	25/21.7	10/1	0/26.1	0/17.4	
5	To what extent do you think AI-assisted Personalization could improve the relevance and effectiveness of your learning experience?	30/39.1	40/43.5	20/17.4	5/0	5/0	
6	How flexible are your current learning paths and schedules?	15/1.3	30/0	55/60.9	0/26.1	0/13	



7	How confident are you in your ability to balance your learning commitments with other priorities, such as work or family responsibilities?	45/0	15/0	25/39.1	15/43.5	0/17.4
8	To what extent do you think AI-assisted opportunistic learning can help you access learning resources at the right time?	20/34.8	45/43.5	30/21.7	5/0	0/0
9	To what extent do you feel your current learning programmes are preparing you for the skills and competencies required in the job market?	20/0	40/13	40/47.8	0/30.4	0/8.7
10	How important is it to you that you can personalize your learning experience to your individual needs and goals?	40/39.1	40/34.8	20/26.1	0/0	0/0
11	To what extent do you think AI-powered recommendations can help you identify and develop the skills needed for a desired career path?	25/13	50/65.2	20/17.4	5/4.4	0/0
12	How satisfied are you with the level of collaboration and community engagement within your current educational programs?	20/4.83	55/0	15/5.2	10/8.7	0/4.3
15	How important is it to you to have the opportunity to connect and learn	35/47.8	50/39.1	10/8.7	5/4.4	0/0



	with other students who share your cultural background or interests?					
16	To what extent do you think AI-powered opportunistic learning platforms can facilitate meaningful collaboration and community building among Arab learners?	20/39.1	45/39.1	30/17.4	5/4.4	0/0
17	How likely would you be to use an AI-powered opportunistic learning platform if it was designed to meet your linguistic and cultural needs?	40/73.9	40/26.1	20/0	0/0	0/0
18	To what extent do you think AI-powered adaptive learning can improve your overall learning outcomes?	25/39.1	50/52.2	20/8.7	5/0	0/0
	How concerned are you about the privacy and data security implications of using AI-powered learning platforms?	15/4.35	10/21.7	60/52.2	10/17.4	5/4.35
	How important is it to have access to educational resources that are constantly updated and reflect the latest developments in your field of study?	40/82.6	55/13	5/4.3	0/0	0/0
	To what extent do you think AI-powered opportunistic education can help address the educational needs of marginalized or underserved communities in the	35/26.1	40/47.8	15/13	5/8.7	5/4.3



Arab region?						
Overall, how would you rate your interest and willingness to participate in AI-powered opportunistic learning platforms designed to meet the unique needs of Arab learners?	35/43.5	45/39.1	10/17.4	5/0	5/0	

Analysis of the survey results:

The survey results indicate that Arab learners have a generally positive outlook on the potential of AI-powered opportunistic learning platforms to address their educational needs and preferences. There are some key takeaways:

Access and Relevance of Educational Resources:

The majority of respondents (70-90%) feel they have good or excellent access to high-quality educational resources and that the content reflects their cultural/linguistic background.

However, around 40-55% still face challenges in understanding the language of instruction, highlighting the importance of native language/dialect options.

Personalization and Adaptability:

Over 70% of respondents see significant value in AI-powered personalization and adaptive learning to improve the relevance and effectiveness of their learning.

Flexible learning paths and schedules are also highly desired, with 45% rating this as excellent or good.

Career Preparedness and Skill Development:

60-80% of respondents feel their current programs are preparing them well for job market needs and that AI-powered recommendations can help identify and develop necessary skills.

Community and Collaboration:

75-85% of respondents see great value in opportunities for cultural/interest-based community engagement and collaboration facilitated by AI-powered platforms.

Adoption and Trust:

80% of respondents express a high likelihood of using an AI-powered opportunistic learning platform designed for their needs.



However, privacy and data security concerns are also present, with 70-80% of respondents rating this as average or poor.

In conclusion, the survey results indicate a strong interest and openness among Arab learners to adopt AI-powered opportunistic learning platforms that can address their unique linguistic, cultural, and educational needs. Key focus areas should be on improving access to native language resources, enhancing personalization and adaptability, strengthening community engagement, and addressing data privacy concerns. Overall, there is significant potential for such platforms to positively impact the educational experiences and outcomes of Arab learners.

Discussion:

The findings of this survey furnish high-quality new evidence on how Arab emerging adults perceive and engage with AI-powered opportunistic learning. Despite many respondents finding they did have positive access to high-quality educational resources, large gaps continue specifically in terms of linguistic and cultural relevance. One potential explanation for why personalization helps: the vastly uneven levels of satisfaction indicate that multilingual support and culturally relevant content on educational platforms must be given high priority. Moreover, these challenges that arise from training in a specific language highlight the need for materials to incorporate multiple linguistic possibilities. For students in underserved communities — where resources might be rarer, this is particularly key.

Positive remarks about how AI can diversify learning pathways suggest that such tools could be critical in maintaining students' persistence (and consequently, speed of completion), especially for those who must manage pressures and demands outside the coursework.

Furthermore, the data shows that students are very interested in AI-powered platforms, highlighting the potential of these tools to satisfy the changing educational requirements of Arab students. To build confidence and promote the broad use of AI technologies, privacy and data security issues must be resolved.



Recommendations:

Recommendations	Description
1. Multilingual Content	Provide content in multiple languages and dialects to cater to diverse learners.
2. Culturally Relevant Content	Collaborate with regional experts to create AI-driven learning platforms that resonate with Arab learners.
3. Flexible Learning Pathways	Offer distance learning programs to accommodate students' varied schedules and responsibilities.
4. Privacy and Security	Implement robust privacy policies and data management practices to ensure learner trust.
5. Community Engagement	Foster a sense of community among students through tools that facilitate connection.
6. Constant Feedback	Gather user feedback to continuously improve AI-enhanced offerings and learner support.

Conclusion:

This validates the hypothesis and demonstrates that AI-driven digital learning platforms can overcome geographical barriers to provide equal opportunities in education for all students, no matter where they live. To! provide them with key learnings which transform the way they learn and adapt to information being entered for their education helps them understand that AI can also be utilized to bridge the disparities between different regions of society as well, thus showing how important it is — utilize AI in delivering higher-level educational opportunities across The Arab League. The findings of the study highlight rigorous evidence for how AI-enabled opportunistic education can be used to expand access and cater effectively high-quality educational interventions among students in the MENA region.

Personalized Learning: Deliberative Methodology with the AI will probably fulfill the linguistic and cultural necessities of Arab learners just says research. A personalized learning recommendation and adaptive algo aims at improving the conception of students by considering differences in backgrounds which leads to better educational outcomes.

The results indicate that, in a setting where Arab students are labouring under multiple personal/professional/academic commitments and constrained mobility - AI's flexible learning routes will live or die (succeed/persist against the odds) on how best it enables these learners to learn. The greater



convenience offered to students in accessing learning materials has helped improve completion rates and increase effective learning.

More research suggests the necessity of AI-driven opportune education in facilitating Arab students cultivate their much needed niche skills to enter a swiftly transformative work market. Using learner data analytics, they can identify on demand skill requirements and deliver just-in-time training——tailored learning pathways where students attain the skills that meet modern industry demands.

Community and connection: The study supports all three elements of Dawes (1975) model simultaneously because the provision for community building enables students to feel their cultural/ identity connections are permissible. This community focus, in turn, enhances the significance and impact of educational experiences from a cultural perspective.

Conclusion: Taken together, these findings clearly show that AI-facilitated opportunistic education is an innovative way to overhaul classroom performance for fulfilling the variegated requirements of students and scaling up top-notch higher education across Arab globe. Policy makers, academic institutions and technology companies can benefit from the new findings to conceive and deliver transformative educational experiences that best serve Arab learner needs and goals.

By prioritizing multilingual support, cultural relevance, flexible pathways, and community engagement, stakeholders can fully leverage the potential of AI-driven education to create a more productive and inclusive learning environment that will ultimately enable Arab learners to thrive in an increasingly complex global landscape.

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