The Role Of Digital Libraries In Enhancing Open Education In Higher Education: Evidence From King Faisal University

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Abstract

The study aimed to investigate the role of digital libraries in advancing open education within higher education settings. It sought to ascertain the current realities of digital libraries' contributions to promoting open education, particularly from the viewpoint of postgraduate students. Additionally, the study aimed to explore the methods employed by digital libraries to foster open education in higher education, as perceived by postgraduate students. Lastly, it aimed to outline the challenges encountered by digital libraries in their efforts to promote open education, as perceived by students participating in the study. Employing the descriptive survey method, the study's sample comprised graduate students from King Faisal University, totaling (362) participants. The findings indicated that digital libraries play a role, albeit to some extent, in advancing open education. Moreover, the study confirmed the approval of digital library methods in promoting open education, while also acknowledging the difficulties faced by digital libraries in this regard.[1]

Keywords: Digital Libraries, Open Education.

1. Introduction

In ancient times, seeking knowledge was a challenging endeavor, often requiring individuals to travel in pursuit of education or to acquire books for learning purposes. With the emergence of libraries in cities, knowledge became entrenched within them, transforming them into hubs of learning visited by scholars and researchers seeking to acquire knowledge.

The current era witnesses massive and rapid technological advancements across various fields, including telecommunications and information technology. This has turned the world into a unified entity where individuals interact and are influenced by global events. It has become imperative for those seeking to thrive in this modern civilization to keep pace with the explosion of knowledge and scientific progress. This necessitates significant efforts, harnessing all available resources, and transferring technologies and information to foster a comprehensive scientific and technological renaissance [Abu Al-Sheikh, 2009, p. 39].

Presently, digital communication language dominates various social strata and has been extended to official institutions to facilitate citizens' access to authenticated information sources. Advanced nations have implemented strategies utilizing modern technologies to keep up with cognitive developments, employing modern technologies to establish effective reference services within what is known as the creation of digital libraries [Hwatiya, 2020, p. 188].

Digital libraries are institutions and massive database systems containing various stored information sources and comprehensive retrieval systems adept at handling digital data in

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various formats. These systems support users in dealing with information through information banks and networks, including the internet [Al-Maliki, 2006, p. 183].

Digital libraries represent a modern, innovative approach to information selection, retrieval, and service delivery to beneficiaries. They cater to the diverse needs of researchers and the general public in the age of the information society, meeting their desires for extensive and varied information through various electronic Averages and channels. The availability of the internet as an infrastructure for connecting users with digital libraries provides a dynamic and lively information space [Al-Maliki, 2005, p. 3].

Moreover, open education platforms have proliferated as one of these technologies with the rise of the internet era and have been met with great success due to the ease of distributing and sharing their content electronically. Open education allows individuals to participate in lessons and courses without any academic or economic prerequisites, aiming to access knowledge historically provided by educational institutions [Al-Sobhi & Al-Otaibi, 2016, p. 64]. Open education is a form of preserving the distinguished entity of education for all in light of the significant increase in population numbers, the social demand for education, and the global trend towards establishing a knowledge society [Zayed, 2012, p. 31]. As indicated by Al-Sobhi and Al-Otaibi (2016), there is a growing interest among individuals in open education platforms for experiencing and benefiting from them.

Open education, fundamentally, is a complete educational system that can provide learners with comprehensive educational programs differing in structure, activities, and management methods from those offered by traditional educational systems [Dardona, 2014, p. 204]. Open education is characterized by openness based on flexibility in the student's enrollment requirements, in addition to providing knowledge to those geographically distant from educational institutions through modern and diverse Averages [Dardona, 2014, p. 204].

Open education is a new educational format applied to higher education institutions that have emerged to necessitate a new educational system contributing to the democratization of education as a human right beyond the limitations of traditional education, benefiting from technological advancements in education and learning [Amer, 2013, pp. 111-112].

In light of the foregoing, it can be said that the process of open education works to provide education for all without restrictions, allowing learners the freedom to choose from sciences that suit their interests and needs. The digital library supports the open education process in higher education by providing services that serve open education, such as providing diverse digital information resources suitable for all learners.

The learner can access it at all times, and the digital library gives the learner the freedom to manage his learning process according to his temporal and spatial conditions. Due to the foregoing, the process of open education for the learner through the digital library supports lifelong learning, which is considered a requirement of the twenty-first century.

2. Problem of the study

The digital process is very important for libraries in our present time, where it facilitates many operations carried out by libraries in the field of preserving collections and information sources in general, helping to disseminate them to the largest possible number of beneficiaries [Al-Marabti, 2017, p. 254].

Some studies have pointed out the advantages that highlight the role of digital libraries, such as the study by Al-Hanawi (2010), which showed that the dominance of digital libraries over electronic information repositories is easier and more accurate and efficient in terms of organizing, storing, updating, and retrieving information, enabling researchers to retrieve this information, search, and borrow at all times and remotely, and helping to spread digital cultural awareness, encouraging researchers and authors to benefit from multimedia, and the study by Jamal. (2011) which revealed that the digital library is less costly and saves time and effort, and the study by Al-Qamishi (2010) which revealed that

the digital library reflects the concept of remote access to library content and services and other information sources by combining current and frequently used repositories, whether printed or electronic, and the study by Al-Saeed (2015) which showed that there is an impact of digital libraries on the development of individuals' skills in searching for electronic information sources, and the study by Al-Aklabi and Aref (2017) which showed that most of the sample individuals use the Saudi Digital Library, and the suitability of the electronic resources provided by the Saudi Digital Library to the needs of beneficiaries.

3. **Questions of the study**
The study aims to answer the following main question:

- **What is the role of digital libraries in enhancing open education in higher education?**
This main question branches into the following sub-questions:
1. What is the current status of digital libraries in enhancing open education in higher education from the perspective of graduate students?
2. What are the suitable methods for enhancing open education in digital libraries from the perspective of graduate students?
3. what are the obstacles faced by the digital libraries in promoting open education from the perspective of graduate students?

4. Objectives of the study:
The study aims to achieve the following main objective:
 1. To identify the role of digital libraries in enhancing open education in higher education.
2. To identify the current role of digital libraries in enhancing open education in higher education from the perspective of graduate students.
3. To identify the digital library methods that enhance open education in higher education from the perspective of graduate students.
4. to highlight the obstacles faced by digital methods that enhance open education in higher education from the perspective of graduate students.

5. Significance of the study:
The study's significance can be determined from both theoretical and practical perspectives, which can be clarified as follows:

- Theoretical Importance:
The study aims to highlight the role of digital libraries in promoting open education among postgraduate students, focusing on their importance and directing efforts towards collaboration and integration between digital libraries and Saudi universities like King Faisal University for open higher education.

- Practical Importance:
The study aims to develop an action plan for King Faisal University to address the challenges faced by digital libraries in promoting open education among postgraduate students, with the hope that the findings will help activate the roles of digital libraries.

5. Limitations of the study:

Objectives limits: The study focused on understanding the role of Saudi digital libraries in promoting open education among postgraduate students, and identifying the methods and obstacles facing Saudi digital libraries in promoting open education among postgraduate students.

Spatial limits: Applied to King Faisal University in Riyadh city.

Temporal limits: The study was conducted in the academic year 1444 H.

6. Definition of terms:
Digital Library defined as the advanced face of the electronic library lies in its handling of information as numbers for easy storage, transmission through information and communication technologies, investment, and electronic exchange in digital forms, texts, graphics, and animated images with a high degree of accuracy and usability across various global channels (Khudair, 2014, p. 257).

Open education is flexible education based on the flexibility of both location and time, collaborative planning between teachers and learners to define desired goals, and educational activities (Al-Saeed, 2011).

7. Previous Studies
First: Arabic Studies:

The study by Al-Abdul Jabbar (2010) titled "The Saudi Digital Library: A Study of Reality and Elements of Achieving Cooperation" aimed to identify the reality of digitizing Saudi libraries through researching plans and efforts for digitization, its objectives, and future directions in the field. The study used a descriptive survey methodology, involving digital libraries working on digitizing their collections in Saudi Arabia of various types. The study tool was a questionnaire distributed to various Saudi libraries. The study results showed that cooperation in transitioning to digital formats is one of the most important objectives that libraries should strive to achieve. It is a crucial Averages to overcome difficulties and achieve digitization goals with a higher likelihood of quality. Cooperation is identified as one of the ways to help libraries achieve their goals accurately, easily, and quickly while reducing much of the financial burden and human effort.

Study by Al-Sobhi and Al-Otaibi (2016) titled "Open Electronic Learning Platforms: Their Nature and Functionality with the Design of a Guide for Open Electronic Learning Platforms on the Internet". The study aimed to facilitate access to the official websites of open electronic learning platforms, understand their significance, identify the challenges individuals face when using these platforms, and employed a descriptive survey methodology. The study's population consisted of all female students at Umm Al-Qura University, Faculty of Graduate Studies for Females in Az-Zahir. The study utilized a questionnaire as its tool for data collection. Results indicated that open education presents a good opportunity for equal educational opportunities between males and females, achieving justice and equality. The study also confirmed that open electronic learning platforms contribute to enhancing individuals' efficiency and developing their skills and abilities, assisting them in self-development first and then benefiting society.

Study by Alkalbi and Aref (2017) titled "The Use of Electronic Information Resources in the Saudi Digital Library and Their Suitability for Beneficiaries in Saudi Government Universities".
The study aimed to assess the awareness of faculty members and postgraduate students in Saudi government universities regarding electronic information resources available in the Saudi Digital Library. It also aimed to determine the extent of usage of these resources by faculty members and postgraduate students. The study utilized a descriptive survey methodology and included faculty members and postgraduate students in Saudi government universities. The study tool consisted of a questionnaire, deemed the most suitable instrument for the study. The results of the study indicated that while there is awareness of the availability of electronic information resources, there is a need for further introduction and training. Most participants in the study use the Saudi Digital Library, and the majority have self-trained on using electronic resources, indicating a need for more training courses to reach a wider audience within the universities. The results also showed the suitability of the electronic information resources provided by the Saudi Digital Library

for the beneficiaries' needs, highlighting the importance of encouraging the use of electronic information resources in universities.

Al-Hindi et al. (2020) titled "Requirements for Implementing Open Education at University of Tabuk in Light of International Experiences". the study aimed to identify the theoretical foundations of open education and explore the experiences of some countries in its implementation. It also sought to assess the importance of the requirements for implementing open education at the University of Tabuk based on the experiences of some countries. The study used a descriptive survey methodology and targeted faculty members at the University of Tabuk and its branches, totaling 466 teaching staff members. The study tool included a questionnaire and a personal interview with the dean of the e-learning and distance education deanship. The results showed a consensus among the sample on the importance of implementing open education at the university, the significance of educational media as a requirement of open education, and the importance of partnerships with other universities and institutions as a requirement of open education system at the University of Tabuk.

Second: Foreign studies:

Krishnamurthy's study (2008) titled "Open Access Libraries, Open Resources, and Digital Libraries: Current Trends in University Libraries Worldwide". This study aimed to describe the open access and open-source movement in the digital library world and review the major developments related to this movement. The study employed a historical method based on reviewing previous literature that addressed open access, open access programs, digital library programs, DSpace, EPrints, and Greenstone. The results showed that the open-source movement has led to a significant number of valuable programs that have contributed to the development of digital library systems worldwide. The open-source movement has played an effective role in increasing public awareness of topics related to open access and open content. It has facilitated access to literature online, allowing any user to read, download, copy, distribute, print, and search for texts, regardless of financial, legal, or technical barriers. The use of open-source programs in libraries and information communities has become a growing trend due to their multifaceted purposes such as information gathering, indexing, storage, retrieval, protection, and provision of a structured system for accessing large quantities of digital information.

Hatzipanagos' study (2012) titled "Open Educational Resources in Distance Education: A Study of Open Education in Academic Practice". This study aimed to discuss the problem of identifying the necessary educational resources for teaching that teachers can benefit from in open educational resource environments. The study used a historical method based on reviewing previous literature that addressed open educational resources from an educational background, academic practices, the Open Educational Resource Project for distance education practitioners, and the open education project summary and methodology. The results showed that open educational resources provide new opportunities for learning and represent a qualitative leap in the development of open and distance education teachers who suffer from marginalization and lack access to the necessary resources for educational practices.

Alves et al. (2014) conducted a study titled "Open Educational Resources: Use and Knowledge among Higher Education Students." This study aimed to evaluate the characteristics of Open Educational Resources (OER) that are widely accepted by higher education students. It also sought to examine the impact of students' knowledge of information technology on their assessment of digital educational resources. Additionally, the study aimed to assess the knowledge of higher education students about OER platforms. The qualitative methodology was employed in this study. The study population consisted of higher education students from two Portuguese institutions during the academic year 2014/2013, with a sample size of 315 students. The study utilized a questionnaire as its

tool. The results revealed that through the analysis of digital educational resource features, the most accepted advantages among students were free access and anytime availability. There were strong correlations between IT knowledge and the variables of free access and anytime availability. However, the relationship with other features ranged from moderate to very low. The majority of the study sample were unaware of OER, while less than a tenth reported using and considering them important.

Hatzipanagos & Gregson (2015) conducted a study titled "The Role of Open Access and Open Educational Resources: A Distance Learning Perspective." This study aimed to understand how open-source licensing methods are used in colleges at the University of London participating in international programs. It also aimed to study the policies applied to understand the current situation. The study employed a case study methodology. The study population consisted of library administrators, program directors, or course leaders participating in international programs at the University of London, with a sample size of 21 participants. The study used online surveys and focus group workshops. The results showed that many participants were not familiar with OER and open access initiatives, emphasizing the importance of academic development for participation activities. There were some unclear relationships between digital repositories and standards and quality that required collaboration and coordination between library administrators, information technology departments, course leaders, and researchers. With the adoption of open access, students became more aware of digital reading and writing, and libraries extended their services to people who were not physically present. The advantages of open access included enhancing access, availability, and use, as well as facilitating obtaining feedback and sharing relevant ideas for continuous resource and idea development.

8. Remarkable marks

the current study demonstrates significant differences from previous studies, including differences in the populations studied, methodological approaches, and data collection tools, such as surveys, interviews, and online polls, focusing on library managers, program directors, and training course leaders.

9. Methodology of the study:

The descriptive analytical approach was used. This methodology focuses on studying the problem as it exists in reality, describing it accurately, analyzing and interpreting it.

- Population of the study:

The study population consists of graduate students at King Faisal University, including those enrolled in master's, doctoral, fellowship, and higher diploma programs for the academic year 1444 AH, totaling 9989 individuals.

- Sample of the study:

The study sample was selected randomly from the study population, considering the homogeneity of individuals within the population (Krejcie & Morgan). The sample size was calculated using a table for determining sample size, resulting in an estimated sample size of 368 graduate students at King Faisal University, with 99 responses received.

- Instruments of the study:

The questionnaire was developed based on educational literature to ensure its suitability for the study's questions and objectives in addition the five-point Likert scale was used.

10. Validity and Reliability

- Validity
The validity of the questionnaire was ensured through:

1. Content Validity: The questionnaire was reviewed by a group of experts to assess the clarity, adequacy, and relevance of the items in measuring the intended constructs of the study.

2. Internal Consistency: The internal consistency reliability of the questionnaire was calculated by computing the correlation coefficients between each item and the total score of its corresponding dimension. The results, as shown in Table (1), indicate that all correlation coefficients for all items in the questionnaire were statistically significant at the significance level of 0.01. Therefore, all items in the questionnaire are considered valid for measuring the intended constructs.

Table (1): Correlation Coefficients between each item and the total score of its corresponding dimension

Item number:	The role of digital libraries in enhancing open education in higher education.	Methods of digital libraries in promoting open education in higher education.	The obstacles facing digital libraries in enhancing education.
1	**0.696	**0.594	**0.608
2	**0.723	**0.565	**0.773
3	**0.806	**0.665	**0.656
4	**0.705	**0.642	**0.619
5	**0.814	**0.704	**0.423
6	**0.788	**0.718	**0.569
7	**0.729	**0.656	**0.594
8	**0.713	**0.731	**0.542
9	**0.737	**0.597	**0.581
10	**0.789	**0.515	**0.772

3. Construct validity

Construct validity is one of the measures of the tool's validity that assesses the extent to which the tool achieves its intended goals, and it indicates the degree of correlation between each domain of study and the total score of the questionnaire items. The table shows that all correlation coefficients in all dimensions of the questionnaire are statistically significant at a significance level of 0.01 = α, thus all questionnaire domains are considered valid for the purpose they were designed to measure.

Table (2)
Pearson correlation coefficient for each domain with the total score
Statistically significant at the (10.0) level of significance

Dimension	Correlation Coefficient
The Role of Digital Libraries in Enhancing Open Education in Higher Education	**0.862
Methods of Digital Libraries in Enhancing Open Education in Higher Education	**0.807
The obstacles facing digital libraries in enhancing open education in higher education	**0.707

It is evident from the table that the correlation coefficient values at the items are statistically significant, as all dimensions are correlated with each other and with the total score of the

questionnaire. This statistically significant correlation confirms that the questionnaire demonstrates a high degree of validity and internal consistency.

- Reliability:

The reliability of the questionnaire was estimated on the sample individuals using Cronbach's alpha coefficient to calculate reliability. The results were as follows in the following table, indicating that the questionnaire exhibits a high degree of reliability.

Table (3) Cronbach's Alpha Coefficient for Measuring Questionnaire Reliability

Dimension	Cronbach's Alpha Coefficient
The Role of Digital Libraries in Enhancing Open Education in Higher Education	0.916
Methods of Digital Libraries in Enhancing Open Education in Higher Education	0,823
The obstacles facing digital libraries in enhancing open education in higher education	0.703
Total Score	0,909

Reliability - The positive square root of Cronbach's alpha

Table (3) shows that the value of Cronbach's alpha coefficient was high for all dimensions of the questionnaire. Similarly, the value of Cronbach's alpha coefficient for all questionnaire items was (0.909), this Averages that the reliability coefficient is excellent, and the questionnaire is in its final form. Consequently, confidence in the validity and reliability of the study's questionnaire has been fully established, making it highly confident in its suitability for analyzing the results and answering the study's questions and testing its hypotheses.

The statistical methods used in the study include:

- Percentages, frequencies, Average, relative weights, and rankings were employed to determine the frequency of categories of a variable, aiding in describing the study sample.
- The Cronbach's Alpha test was utilized to assess the reliability of the questionnaire items, measuring their internal consistency.
- The Pearson Correlation Coefficient was used to examine the internal validity of the questionnaire.
- standard deviation.

11. Results and discussion:

The criterion adopted in the study

To determine the criterion adopted in the research, the length of the cells in the Likert scale was determined by calculating the range between the scale's scores (4-1-3), then dividing it by the highest value in the scale. This resulted in the cell length, i.e., (32 - 0.67). Subsequently, this value was added to the lowest value in the scale, which is one, to determine the upper limit of this cell. Consequently, the cell length became as illustrated below:

For the scale range = 4 - 1 = 3 (highest value - lowest value)

For the cell length = 3 ÷ 4 = 0.67 (range / number of scores)

Additionally, the value 0.67 was added to the lowest score on the scale, which is one, to establish the upper limit.

Table (4) The Criterion Adopted in the Study

Cell Length (Degree Standard)	Relative Weight	Score Availability (Agreement)	Weight
from 1.00-1.67	From 3.33% -55.6%	disagree	1
More than 1.67-2.34	More than 55.6%-77.9%	Somewhat Agree	2
More than 2.34-3	More than 77.9%-100%	Agree	5

To interpret the study results and assess the level of response, the researchers relied on arranging the Averages of the domains for the entire tool and the level of items within each domain. The researchers determined the level of agreement according to the established criterion in the study.

- Discussion of the results

Results related to the first question which indicates that: **What is the role of digital libraries in promoting open education in higher education from the perspective of postgraduate students**?
The following sub-questions stem from this question:

First question which indicates that: "What is the current status of digital libraries in promoting open education in higher education from the perspective of postgraduate students?"

To answer this question, the researcher calculated the average, standard deviation, and relative weight of the items of the first axis as shown in Table (5).

Table (5) Average, Standard Deviation, and Relative Weight of Items for the First Axis

	Questions	Average	Standard Deviation	Relative Weight	Level of Agreement
	The digital library provides an instructional guide for students on open education offerings.	2.24	74.59	799	Somewhat agree
	The university's digital library participates in open education initiatives.	2.53	84.25	683	agree
	The digital library offers educational programs suitable for all students.	2.04	67.93	797	Somewhat agree
	The digital library provides accredited educational courses.	2.00	66.60	803	Somewhat agree
	The digital library offers diverse educational platforms.	2.18	72.59	807	Somewhat agree
	The digital library offers educational programs in various languages.	2.15	71.59	779	Somewhat agree

	The digital library provides free subscriptions for students in open education.	2.31	76.92	780	Somewhat agree
	Educational programs in the digital library are available at all times for students.	2.51	83.58	687	agree
	Open education in the digital library is accessible to all age groups.	2.23	74.26	853	Somewhat agree
0	The digital library provides open education in various fields of developmental life.	2.41	80.25	758	agree
	Overall score for the first axis.	2.2602	75.26	57943	Somewhat agree

The results in Table (5) revealed that the reality of digital libraries in enhancing open education in higher education from the perspective of postgraduate students came with an average score of (20.26) and a relative weight of (75.26%), indicating a somewhat agreeable level of response to the items in this dimension. It is evident from the results of the first dimension that Item (2), stating "The university digital library participates in open education," ranked first with an average score of (2.53) and a relative weight of (84.25%), indicating a high level of agreement. Conversely, Item (4), which states "The digital library offers accredited educational courses," ranked last with an average score of (20.00) and a relative weight of (66.06%), indicating a somewhat agreeable level.

Thus, the items that obtained an agreeable degree represent the reality of digital libraries in enhancing open education. The researchers interpret these results as universities attempting to alleviate educational pressure by involving digital libraries in providing educational content suitable for all societal categories needing to develop their cognitive and professional skills at their convenience through an official entity represented by universities. This result aligns with theories of e-learning, which see distance or electronic education relying on the capabilities and tools of the global information network, the Internet, and computers in studying specific educational content. Given that the current era is characterized by modern technologies and our current reliance on them in education and learning, digital libraries serve as an ideal solution in electronic education.

The following is a detailed description of the reality of digital libraries in promoting open education in higher education from the perspective of postgraduate students. The Items are arranged in descending order according to the arithmetic Average and standard deviation.

Item (2), which states: "The university digital library participates in the process of open education," ranked first with an agreeable degree. The researchers interpret this result as universities keeping pace with the current era's developments by integrating technology into education, making it more flexible for learners by providing formal education such as open education in the digital library. The researchers attribute this result to the theory of e-learning, which relies on information networks to provide educational content.

Item (8), which states: "Educational programs in the digital library are available at all times for students," ranked second with an agreeable degree. The researchers interpret this result as digital technology fundamentally having no specific time for use. Integrating education into technology allows students to enter and benefit from educational content they need at

any time. This result aligns with Alvis et al.'s study (2014), which found that one of the most accepted features of digital educational resources by students is free access and anytime availability. Also, Tamimi's study (2016) showed that the services provided by the Saudi digital library are accurate and available permanently, distinguishing the digital library from the traditional one.

Item (10), which states: "Digital libraries provide open education in various areas of developmental life," ranked third with an agreeable degree. The researchers interpret this result as digital libraries not being limited to offering specific knowledge but also providing various knowledge that contributes to the development of life areas.

item (7), which states that the digital library provides free subscriptions for students in open education, ranked fourth with a somewhat agreeable degree. The researchers justify this result by explaining that the digital library offers some educational templates for free, while others come at specific prices set by the provider.

Item (1), which states that the digital library provides guidance for students on open education, ranked fifth with a somewhat agreeable degree. The researchers rationalize this result by stating that the digital library offers a brief instructional guide about its educational content without specific reference to open education.

Item (9), which states that open education in the digital library is available for all age groups, ranked sixth with a somewhat agreeable degree. The researchers interpret this result as the digital library primarily focusing on university students in its courses and educational content but also providing limited educational templates for younger age groups.

Item (5), which states that the digital library offers diverse educational platforms, ranked seventh with a somewhat agreeable degree. The researchers justify this result by explaining that while the digital library offers various educational platforms, they are not significantly diverse in the platforms provided.

Item (6), which states that the digital library provides educational programs in various languages, ranked eighth with a somewhat agreeable degree. The researchers interpret this result as the majority of the educational content offered by the digital library being in Arabic, with only some content available exclusively in English.

Item (3), which states that the digital library offers educational programs suitable for all students, ranked ninth with a somewhat agreeable degree. The researchers explain this result by stating that while the library offers educational programs suitable for students, knowledge is constantly changing and requires periodic updates to some of the educational programs offered.

Item (4), which states that the digital library offers certified educational courses, ranked last with a somewhat agreeable degree. The researchers explain that the library provides educational courses, but not all of them come with certified accreditation from a specific institution; it depends on what the provider offers.

2. Second question which indicates that: **"What are the methods employed by digital libraries to enhance open education from the perspective of postgraduate students?"**

To answer this question, the researchers calculated the average, standard deviation, and relative weight for the items in the second axis, as shown in Table (6).

Table (6) Average, Standard Deviation, and Relative Weight for Items of the Second Axis

		Item	The arithmetic Average	The standard deviation	The relative weight	Level of agreement

.1	The digital library works on developing students' information-seeking skills	2.81	93.57	39.	**Agree**
.2	The digital library relies on faculty members to plan open education	2.61	86.91	49.	**Agree**
.3	The digital library offers diversity in academic degrees for students	2.67	88.91	47.	**Agree**
.4	The digital library enables students to control their learning process	2.68	89.24	47.	**Agree**
.5	The digital library relies on flexible curricula that allow for choice and registration	2.65	88.24	48.	**Agree**
.6	Open education in the digital library includes training programs for student engagement in the job market.	2.58	85.91	50.	**Agree**
.7	The learning years in open education in the digital library are indefinite.	2.61	86.91	49.	**Agree**
.8	The digital library offers modern media.	2.61	86.91	49.	**Agree**
.9	Open education in the digital library reduces the constraints imposed on students in traditional education.	2.82	93.91	38.	**Agree**
.10	The digital library provides equal education between genders.	2.88	95.90	33.	**Agree**

The results were as follows: It was revealed through the results in Table (6) that the appropriate methods for enhancing open education in digital libraries, from the perspective of graduate students, had an arithmetic Average of (2.67) and a relative weight of (88.75), indicating a degree of agreement in response to the items in this dimension.

It is evident from the results of the second dimension that Item (10), which states "Digital libraries provide equal education between genders," ranked first with an arithmetic Average of (2.88) and a relative weight of (95.9%), indicating agreement. On the other hand, Item (6), which states "Open education in digital libraries includes training programs for engagement in the job market for students," ranked last with an arithmetic Average of (2058) and a relative weight of (85.9%), also indicating agreement.

Thus, the Items that received an agreement rating represent the methods employed by digital libraries in promoting open education. The researchers interpret this result as indicating that digital libraries work on standardizing life skills and shaping knowledge in digital templates to provide them to learners in a way that facilitates interaction and self-control. This result aligns with theories of e-learning, which view distance or electronic education as relying on the capabilities and tools of the global information network, the internet, and computers to study specific educational content. Printed knowledge has become available on every electronic device and on every educational platform provided to all who wish to receive knowledge.

Below is a detailed breakdown of the methods of digital libraries in promoting open education in higher education from the perspective of graduate students, where the Items are arranged in descending order according to the arithmetic Average and standard deviation:

Item (10), which states: "Digital libraries provide equal education between genders," ranked first with a rating of agree. The researchers interpret the result as indicating that

digital libraries are available to everyone; there is no restriction on knowledge regardless of the age or gender of the learner. They are not aware of who uses them or deals with them. Item (9), which states: "Open education in digital libraries reduces the severity of constraints imposed on students in traditional education," ranked second with a rating of agree. The researchers interpret the result as indicating that traditional education has many constraints that learners must adhere to, such as sitting in a chair for the entire lecture, listening to it without interruption, and for a specific duration. In contrast, education through digital libraries allows learners to control their learning methods, pause, and resume as per their circumstances.

Item (1), which states: "The digital library works on developing students' information-seeking skills," ranked third with a rating of agree. The researchers interpret the result as indicating that technology necessitates learners to acquire information-seeking skills because dealing with it is self-directed without a specific guide, leading learners to learn through trial and error until they master this skill.

Item (4), which states: "The digital library allows students to control their learning process," ranked fourth with a rating of agree. The researchers interpret the result as indicating that the educational content in the digital library is flexible and easy to handle, allowing learners to control their learning process by choosing the type of knowledge, its presentation method, and its resources.

Item (3), which states: "The digital library offers diversity in academic degrees for students," ranked fifth with a rating of agree. The researchers interpret the result as indicating that different levels of knowledge vary from one form to another, and this variation is due to the diversity in academic degrees that suit the learner's level.

Item (5), which states: "The digital library relies on flexible curricula that allow choice and enrollment," ranked sixth with a rating of agree. The researchers justify the result by stating that technology has made life easier for everyone, simplifying it and making education available on electronic devices for facilitation, and accessible to all.

The following Items (2, 7, 8) which state: "The digital library seeks the assistance of faculty members in open education planning," "Years of learning in open education in the digital library are open-ended," "The digital library offers modern media," ranked seventh with a rating of agree. The researchers justify these results by stating that open education is not random but has specific objectives to become curriculum-based education, and also serves as an alternative to traditional education in universities but in a way that suits the learner's circumstances. Faculty members plan open education as they do with traditional education, and open education is considered a space where learners can control their years of education at any time they finish education or at any age they begin.

Item (6) which states: "The digital library includes training programs for students to engage in the job market, ranked last with a degree of agreement. The researchers interpret the result as open education reduces the cost of hosting in-person courses for students, and also that the requirements of the job market are constantly changing, requiring adjustments in workshops and course content. Through the digital library, it is easier to modify and add educational content to achieve the desired goals."

3. Third question which indicates that**: "What obstacles do digital libraries face in promoting open education from   the perspective of graduate students?"**
To answer this question, the researchers calculated the Average, standard deviation, and relative weight for the Items in the third axis as shown in Table (7).

Table (7) Average, standard deviation, and relative weight for Items in the third axis.

	Questions	Average	Standard Deviation	Relative Weight	Level of Agreement

	The ambiguity of the vision and message of open education provided by the digital library.	2.65	88.24	48.	Agree
	Difficulty in applying digital library assessment methods in open education.	2.62	87.25	49.	Agree
	Challenges in downloading educational programs from the digital library.	2.58	85.91	50.	Agree
	Delayed provision of immediate technical support by the digital library if the learning process encounters obstacles.	2.67	88.91	48.	Agree
	Decreased social status for learners through open education in the digital library.	2.70	89.91	46.	Agree
	Slow search engine performance during the learning process in the digital library.	2.62	87.25	49.	Agree
	Conventional education outperforms open education in the learning process.	2.59	86.25	50.	Agree
	Variability in the accreditation of certificates issued through open education in the digital library.	2.62	87.25	49.	Agree
	Limited financial support provided by the university for open education in the digital library.	2.66	88.58	48.	Agree
0	Total score for the second axis.	2.72	90.58	45.	Agree
		2.58	86.02	33.	Agree

Table (7) indicate that the obstacles facing digital libraries in promoting open education from the perspective of graduate students came with an arithmetic Average of (2.58) and a relative weight of (86002), representing a degree of agreement in response to the items in this axis. As evident from the results of the third axis, Item (10) stating "The limited financial support provided by the university for open education in the digital library" ranked first with an arithmetic Average of (2072) and a relative weight of (90.5) with a degree of agreement. The researchers explain this result by the lack of awareness on the part of the university in providing financial support for open education, as it requires not only cognitive support, and the result aligns with the study by Tayyar and Alkalbi (2010), which

showed that the high cost of infrastructure and poor communication with university deans are difficulties facing Saudi digital libraries.

Item (5), which states "Delayed technical support from the digital library if the learning process is hindered," ranked second with a degree of agreement. The researchers interpret the result as digital learning occurring at any time, but technical support for the digital library is available at specific times for operation, thus delaying the provision of technical support to the beneficiary whenever they face some obstacles. This result is consistent with the study by Alkalbi and Aaref (2017), which indicated the need for better provision of technical support.

Item (4), which states "Difficulty downloading educational programs from the digital library," ranked third with a degree of agreement. The researchers interpret the result as the digital library needing more technical and technical support to allow learners to download the programs permitted for their benefit.

Item (9), which addresses the difference in the accreditation of certificates issued through open education in the digital library, ranked fourth. The researchers justify the result by the limited awareness of open education in society, and the lack of reliance on it by most community institutions in employment.

Item (1), addressing the ambiguity of the vision and mission of open education presented by the digital library, ranked fifth with a degree of agreement. The researchers explain the result by the ongoing lack of awareness regarding open education and its objectives, which the digital library should clarify to the beneficiary for their benefit.

Items (2-6-8), addressing "Weakness in keeping up with the rapid developments in information technology," "The superiority of traditional education over open education in the learning process," ranked sixth with a degree of agreement. The researchers justify the results by stating that the digital library needs increased technical support to keep up with the continuous developments of the current era. They also emphasize the need to increase societal awareness of the importance of open education and bridge the gap between traditional and open education.

Item (7), which discusses "Slow search engine during the learning process in the digital library," ranked seventh with a degree of agreement. The researchers justify the result by stating that the lack of regular updating of the website leads to slow search engines within the digital library.

Item (3), addressing "Difficulty in applying the digital library for assessment methods in open education," ranked last with a degree of agreement. The researchers explain the result by the ongoing search for electronic assessment methods suitable for distance or online education. There is difficulty in applying assessment methods for traditional education to digital open education.

Recommendations:
Based on the study results, the researcher recommends the following:
- Work on increasing and continuously developing educational programs to suit all levels of students benefiting from the digital library.
- Add more courses with certificates accredited by governmental or private entities, also recognized by other community institutions.
- Connect educational content in digital libraries with the current job market needs to support it with the required workforce.
- Conducting a study on the role of open education in enhancing professional skills for university graduates.

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