Exploring Faculty Perceptions of Open Educational Resources at MJACT: Awareness, Willingness, and Challenges

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Abstract

UNESCO adopted the term OER, short for Open Educational Resources, in 2002 to refer to learning, teaching, and research materials that are freely accessible or licensed for use. A remarkable rise in the use of OER was noticed during the COVID-19 pandemic, which compelled higher education institutions worldwide to select OER as one of the solutions for enhancing continuity of learning and securing equal educational opportunities. Yet not all faculty embraced the use of OER. This inconsistency may be attributed to faculty members' perceptions of their value and usability, as well as the difficulties they face when using these resources. This study investigates how Awareness impacts OER engagement among faculty at Mohammed Jaber Al Ansari College for Teachers. A quantitative research design employing Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyse data from thirty faculty members. Three constructs were examined for their direct and indirect effects, namely Awareness, Willingness, and Challenges. The main findings show that Awareness significantly enhances Willingness to adopt OER ($p = 0.005$) but also increases perceived Challenges ($p = 0.012$). In contrast, Willingness demonstrates a significant negative effect on Challenges ($p = 0.034$), suggesting that motivational readiness may attenuate the barriers that awareness brings to the surface. The indirect effect of Awareness on Challenges through Willingness was negative in direction but did not reach statistical significance ($p = 0.099$), indicating that the mediating role of Willingness warrants further examination in larger-scale designs. Based on these findings, the study recommends that institutions establish structured awareness programmes, learning laboratories, and workshops addressing both the technical and pedagogical dimensions of OER adoption. This research contributes to the literature on OER adoption in higher education and emphasises faculty and institutional agency in overcoming barriers and embracing OER as a driver of pedagogical innovation.

Keywords: Open Educational Resources (OER), perception, awareness, willingness, challenges, Partial Least Squares Structural Equation Modeling (PLS-SEM), pedagogical innovation

1. Introduction

1.1 Introduce the Problem

Higher education faculty need to keep track of the rapid changes in the educational system which surged significantly in the last decade. Within this context, there should be a sustainable system of sharing new teaching resources that reduces obstacles and provides reliable equal learning opportunities for all. In this regard, the Open Educational Resources (OER) function as a fundamental educational innovation that supports faculty and students at all educational levels during this worldwide transition. Among the leading pioneers in investigating the potential of openness, there is the initiative led by the Université Virtuelle de Tunis (UVT), which launched its digital and distance education programs in 2001. Then, MIT OpenCourseWare (2001–2002) has been recognized globally as the first formal open-access initiative to publicly release full university course materials under open licenses. It is the origin of the Open Educational Resources (OER) movement, endorsed by UNESCO in 2002, defined as educational resources which exist under open licenses that are freely accessible allowing for use, reuse, adaptation, and redistribution with few or no restriction (Wiley et al., 2014). It could therefore be said that the worldwide shift to digital and open educational practices during COVID-19 transformed education, making OER an important

educational choice for the post-pandemic period. The accessibility and collaborative aspects of OER ensured their durability and long-term use, making it a potentially important mechanism for enhancing digital literacy. This shift in educational practices has been studied. For example, there were studies that explored the link between awareness and actual use of OER at the tertiary level. Previous studies have shown that faculty adoption of OER is influenced by perceptions of accessibility, relevance to teaching practice, and institutional support (Marín et al., 2022; Menzli et al., 2022; Oelfke et al., 2021). Within the Gulf Cooperation Council (GCC) context, research on faculty perceptions of OER remains limited but is gradually emerging. For example, Al-Zahrani (2024) investigated how Saudi university faculty members view and use OER in their teaching practice. It is reported that actual application of OER varies based on their teaching field and years of experience. The barriers mentioned included excessive workload, insufficient institutional support and doubts regarding quality and ethics. There are no studies that investigate how faculty members in Bahrain perceive OER adoption through their awareness levels and their willingness to use them and their evaluation of obstacles. This study addresses these gaps by exploring the dynamics of awareness, willingness, and challenges among faculty at Mohammed Jaber Al Ansari College for Teachers (MJACT), which is an institution that operates in multilingual, policy-driven environments where English is the medium of instruction for many content-area courses. The key objective of this study is to investigate the relationship between Awareness, Willingness, and Challenges in the context of using OER at MJACT. Specifically, the study is guided by the following questions:

RQ1: Does Awareness positively impact Willingness to engage in using OER?

RQ2: Does Awareness impact perceived Challenges of using OER?

RQ3: Does Willingness mediate the relationship between Awareness and Challenges?

2. Literature Review

2.1 Open Educational Resources as a Pedagogical Tool

Open Educational Resources (OER) are part of a global movement to democratize access to education. UNESCO adopted the term "OER" in 2002 to refer to teaching, learning, and research materials that are freely accessible or licensed for use. They represent teaching, learning, and research resources that are used for educational purposes and are accessible without cost restrictions for community users (Butcher, 2011). They support life-long learning (Kim et al., 2015). The primary objective of OER involves providing free digital educational content which enables students to obtain quality learning materials and promotes ongoing education. The OERs are centered on the idea of reusability through licensing. It is argued that 'the emergence of open licenses has been driven strongly by a desire to protect a copyright holder's rights in environments where content (particularly when digitized) can so easily be copied and shared via the Internet without asking permission' (Butcher, 2011, p. 8).

There are many trends that have emerged since the rise of OER use among educators. These include the efforts made to broaden and deepen open education across different levels, such as designing OER repositories for secondary schools (Hakim, 2017). Besides, the implementation of OER in vocational and technical education raised the need to build open education systems which support digital transformation and sustainable development through their adoption. The situation required standardized resource management practices to reach quality standards and achieve scalability and international educational benchmarks (Magetos et al., 2023).

With the growth of the need for innovative teaching strategies, Open Educational Resources (OER) have evolved from basic sharing practices into sophisticated interconnected machine-readable ecosystems. The integration of metadata enrichment with Linked Data and Resource Description Framework (RDF) technologies enables better semantic interoperability which facilitates resource discovery as well as platform and institutional reuse and linking (Piedra et al., 2017). Recent research has also explored quality-driven and ontology-based frameworks for improving the discovery and recommendation of Open Educational Resources in digital learning environments (Bellal et al., 2023). The current data-oriented open education era has evolved openness from simple access to providing learners with organized adaptable high-quality educational materials. Herrera-Cubides et al. (2022) argue that the values of data quality and interoperability have become essential because the world is moving toward standardized OER frameworks which support institutional and pedagogical goals for digital infrastructure and knowledge management as well as accreditation systems.

The correlation between students' perceptions and faculty implementation of OER has also been subject to research. It is therefore important to identify the faculty understanding of how OER impacts their students' learning experience. Several studies have examined learners' perceptions of OER adoption. Zulaiha and Triana (2023) studied EFL

students' views about OER use for writing skill development and found students generally supported OER based on writing activity types, delivery methods and teaching quality. Research results show that student and faculty member opinions play a direct role in determining how well OER adoption works in higher education settings.

2.2 OER in the Arab Countries

The Arab League Educational, Cultural and Scientific Organization (ALECSO) plays a significant role in promoting educational development in the Arab region, including the Arab Gulf countries. The ALECSO organization uses Information and Communication Technologies (ICT) to enhance education through Open Educational Resources (OER) promotion for educational development. The readiness and implementation of ICT and OER follow distinct patterns between countries because their technological infrastructure and strategic policy approaches differ (Jemni & Khribi, 2017). Higher education institutions (HEIs) in the Gulf region function as key entities which direct national strategies for Open Access (OA) and OER. However, there is currently low commitment to Open Access, with limited policies, funding, and institutional repositories (Boufarss & Laakso, 2020). A comparative study analyzed the ICT development strategies across the six GCC states. It highlighted the discrepancies between innovation and the challenges such as skill shortages and institutional rigidity (Massalha, 2025). It could be said that while ALECSO and UNESCO are actively working to promote OER and ICT integration in the Arab region, including the Gulf countries, there are significant challenges related to infrastructure, policy, and awareness.

Within the specific context of Bahrain, higher education has undergone significant transformation over the past two decades, driven by government investment in quality assurance and international recognition (MacLeod, 2022). Efforts to enhance educational quality through institutional reforms have been documented, yet the integration of open digital resources into teaching practice remains an underexplored dimension of this broader modernisation agenda (Shomotova & Karabchuk, 2022). In fact, while the GCC region as a whole shows emerging interest in OER and open access frameworks, Bahrain-specific studies on faculty perceptions of OER adoption at the tertiary level remain absent from the literature. It could therefore be said that this study addresses a documented gap not only at the regional level but also within the specific national and institutional context of Bahrain.

2.3 Barriers for OER Adoption

Literature about OER frequently refers to barriers to use being mainly technical. For example, because OER encompass various digital assets such as text, media, and other educational materials that are freely accessible and openly licensed for educational purposes (Muñoz-Rujas et al., 2021), they need open repositories that guarantee functionality, usability and reliability. In their study, Da Silva & Fiorese (2020) argue that OER organization needs experts who can understand software quality, standards of metadata and user experience principles. Barriers could also be linked to standardized policies. UNESCO drafted two documents outlining recommendations for the use of OER (2019; 2024), delineating the importance of creating a protocol that systematizes OER policies across institutions. Although Arab countries have endorsed UNESCO's recommendations on Open Educational Resources, including the Dubai Declaration in 2024, implementation remains uneven and largely dependent on national policies and institutional initiatives rather than coordinated regional adoption.

2.4 Theoretical Frameworks

Studies exploring OER have used a range of theoretical frameworks, with technology acceptance theories being the most frequently referenced. Among these, the Unified Theory of Acceptance and Use of Technology (UTAUT) and its extension UTAUT2 have been widely applied to explain individuals' behavioral intentions and usage behavior in digital and educational contexts (Venkatesh et al., 2003; Venkatesh et al., 2012; Tamilmani et al., 2021). These models use performance expectancy, effort expectancy, social influence, and facilitating conditions as their core constructs in OER-related research studies (Alkawsi et al., 2025; Latief et al., 2022). The Technology Acceptance Model (TAM) serves as a research tool to study what drives users to adopt OER through their assessment of usefulness and their perceived ease of use (Kim et al., 2015). Yet, Almahri & Saleh, (2024) argue that the current technology acceptance models which include UTAUT do not fully explain how people interact with technology systems. The existing frameworks fail to match the research requirements which aim to understand how awareness affects willingness and how people view obstacles in their path. These frameworks provide limited attention to awareness development as an initial stage while they fail to recognize how institutional barriers affect faculty members who want to use Open Educational Resources. As a result, while UTAUT or TAM are effective in explaining intention to use technology, they offer a limited lens for exploring the deeper cognitive dimensions underlying awareness and resistance in OER adoption within higher education. Consequently, many researchers have designed questionnaires that included context-dependent variables (Tamilmani et al., 2021).

Building on the reviewed literature on Open Educational Resources adoption, this study proposes a set of hypotheses to examine the relationships among awareness of OER, willingness to use OER, and perceived challenges within a college of education context. These hypotheses reflect theoretical insights and the interplay between knowledge, intention, and constraints in OER adoption:

H1: Awareness about OER has a positive impact on Willingness.

H2: Awareness about OER has a positive impact on Challenges.

H3: Willingness negatively impacts Challenges.

H4: Willingness mediates the relationship between Awareness and Challenges.

Together, the four hypotheses establish a model that positions awareness as a foundational determinant shaping educators' willingness to engage with OER and the challenges they ultimately perceive.

3. Materials and Methods

3.1 Research Design, Context, and Participants

This study employed a quantitative, cross-sectional survey design to examine faculty perceptions of Open Educational Resources (OER) at MJACT. The questionnaire items were selected because they enable systematic measurement of perceptions and support statistical examination of relationships among awareness, willingness to use OER, and perceived challenges.

The study was conducted at Mohammed Jaber Al Ansari College for Teachers (MJACT), University of Bahrain, a teacher education institution in which Arabic and English are used as the medium of instruction in several programs and content-area courses. Participants were faculty members currently teaching at MJACT across different departments and academic ranks. MJACT is a state college dedicated to running programs for pre-service and in-service teacher education. The college teaches and evaluates many of its subjects through Arabic and English, making pedagogical innovations in Arabic- and English-mediated instruction particularly significant. A non-probability convenience sampling approach was employed due to accessibility and voluntary participation. A total of n = 30 valid responses were obtained and included in the analysis. Participation was voluntary, and responses were collected anonymously to encourage honest reporting of perceptions related to Open Educational Resources. The research design was suitable for this study because it matched the exploratory nature of the investigation. The 30 participants in this study accounted for approximately one third of the total faculty population at the college, thus representing a valid sample for descriptive and correlational analysis in small institutional studies, as the sample included faculty members from different departments and teaching programs. While modest, this sample size is considered adequate for exploratory PLS-SEM model specification, as PLS-SEM produces stable estimates with small samples provided that reliability and convergent validity thresholds are met (Hair et al., 2019).

3.2 Instrument Development and Data Collection

Data were collected in the early months of 2025 using a structured questionnaire of 12 items, distributed via email to faculty members at MJACT. The questionnaire comprised background variables, such as department and academic program, and three main constructs: Awareness, Willingness, and Challenges. Each item was rated on a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The survey required approximately 5-7 minutes to complete. The researcher provided information about the study purpose and confidentiality, and completion of the questionnaire was treated as informed consent. Approval to conduct the study was obtained from the research committee at MJACT prior to data collection.

The questionnaire items were grounded in established OER and technology acceptance literature (Marín et al., 2022; Menzli et al., 2022) and adapted to the specific institutional context of MJACT. It was reviewed for clarity and contextual relevance prior to distribution. Items on Awareness investigated faculty members' prior exposure to OER, conceptual understanding, and familiarity with open licensing frameworks. Willingness reflects behavioural intention in technology acceptance research (Venkatesh et al., 2003) and represents faculty members' motivational readiness to engage with OER, aligning with the Behavioural Intention and Performance Expectancy dimensions of UTAUT2 (Venkatesh et al., 2012). Willingness was operationalised through items addressing the perceived contribution of OER to student learning outcomes, the enhancement of teaching practices through high-quality and customisable resources, and the role of institutional support in the form of training and infrastructure. Challenges reflect perceived barriers in institutional contexts and correspond, in inverse form, to the Facilitating Conditions dimension of UTAUT2. The items on this construct address perceived quality and reliability of OER content, the time and effort

required for adoption, and concerns related to institutional policies and technical support.

Following the item-level analysis, indicators with insufficient outer loadings were removed. Three items were retained for Awareness (AW2, AW3, and AW4), three items for Challenges (CHL2, CHL3, and CHL4), and four items for Willingness (WL1, WL2, WL3, and WL4). The removed items were AW1 ("I have heard of Open Educational Resources (OER) before this survey") and CHL1 ("I lack sufficient knowledge of copyright and licensing associated with OER"). This procedure is consistent with recommended practice in exploratory PLS-SEM research, whereby items that compromise construct validity are eliminated without altering the theoretical meaning of the construct (Hair et al., 2019). Table 1 presents the questionnaire structure, including participant information and construct measurement items.

Table 1. Questionnaire Constructs and Measurement Items

Section	Item code	Measurement item
Participant Information	PI1	Please indicate your department
	PI2	Please indicate your academic program
Awareness	AW2	I am familiar with the concept of Open Educational Resources (OER).
	AW3	I understand what OER means and how it differs from traditional educational resources.
	AW4	I am familiar with the Creative Commons licenses associated with OER.
Willingness	WL1	If publishing my teaching materials as Open Educational Resources could positively impact student learning outcomes, I would be motivated to explore it.
	WL2	If publishing my students' projects as Open Educational Resources could positively impact student learning outcomes, I would be motivated to explore it.
	WL3	If I know that OER can improve my teaching practices with high-quality and customizable resources, I will explore its use.
	WL4	If I know that my institution supports OER adoption with resources and training, I will confidently use them in my work.
Challenges	CHL2	I am concerned about the quality and reliability of OER content.
	CHL3	I am concerned about the time and effort required for using OER content.
	CHL4	I am concerned about the lack of institutional policies or technical support for OER use.

3.3 Data Analysis

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software (Ringle et al., 2015). PLS-SEM is generally recommended for exploratory and perception-based research. Besides, it is effective in estimating complex models with latent constructs. This multivariate statistical approach is commonly used to analyze complex structural models, particularly when data are not normally distributed or when the sample size is relatively small.

The procedure used included two steps. First, the measurement model was assessed to examine internal consistency, reliability and convergent validity. Reliability was evaluated using Cronbach's alpha, Rho_A, and composite reliability, while convergent validity was assessed through the Average Variance Extracted (AVE). Second, the structural model was evaluated to test the hypothesized relationships among Awareness, Willingness, and Challenges. Path coefficients and significance levels were examined to determine the strength and direction of the relationships. In addition, the mediating role of Willingness in the relationship between Awareness and Challenges was assessed within the structural model.

The proposed Partial Least Squares Structural Equation Modeling (PLS-SEM) framework includes three latent variables named Awareness, Willingness and Challenges to study their direct, indirect, and mediated connections.

Each variable has a distinct function in explaining the faculty perceptions and engagement with Open Educational Resources (OER) at MJACT. The study uses the independent variable Awareness, which evaluates how well faculty members understand OER use. It serves as an exogenous variable influencing other constructs within the model but is not affected by them. Willingness functions as a mediating variable that exists as both an endogenous and exogenous factor. Willingness represents the degree of faculty readiness with regard to adopting OER. It operates as an internal factor which Awareness influences and an external factor which affects Challenges thus creating a link between Awareness and Challenges. The third variable Challenges is dependent. It represents all obstacles which prevent faculty from adopting OER through technical difficulties, institutional challenges and personal beliefs. It is an endogenous variable influenced by both Awareness and Willingness.

Overall, the PLS-SEM results provided empirical support for the proposed model, allowing for simultaneous examination of direct and indirect relationships while accounting for measurement limitations inherent in exploratory institutional research contexts such as MJACT.

4. Results

4.1 Measurement Model Assessment

4.1.1 Reliability and Validity Procedures

The measurement model was assessed using SmartPLS, focusing on internal consistency reliability, convergent validity, and discriminant validity. Internal consistency reliability was evaluated using Cronbach's alpha, rho_A, and composite reliability (CR), while convergent validity was assessed through the average variance extracted (AVE). Following item-level analysis, items with insufficient outer loadings were removed from two constructs in order to improve convergent validity. This procedure is consistent with recommended practice in PLS-SEM research, whereby items that compromise construct validity are eliminated without altering the theoretical meaning of the construct (Hair et al., 2019).

As presented in Table 2, Cronbach's alpha values ranged from 0.695 to 0.886, indicating acceptable to excellent internal consistency across all constructs. In particular, the Awareness construct (Cronbach's $\alpha = 0.886$; Rho_A = 0.896; CR = 0.920; AVE = 0.794) and the Challenges construct (Cronbach's $\alpha = 0.805$; Rho_A =0.831; CR = 0.910; AVE = 0.835) demonstrated strong reliability and excellent convergent validity, with AVE values substantially exceeding the recommended threshold of 0.50 (Fornell & Larcker, 1981). The Willingness construct (Cronbach's $\alpha = 0.695$; Rho_A = 0.714; CR = 0.809; AVE = 0.514) also met the required thresholds, confirming adequate reliability and convergent validity. These findings suggest that the measurement model demonstrated satisfactory psychometric properties across all three constructs, providing a sound basis for proceeding with the assessment of the structural model.

Table 2. Measurement Model Assessment (SmartPLS): Reliability and Convergent Validity

	Cronbach's Alpha	**Rho_A**	**CR**	**AVE**
Awareness	0.886	0.896	0.920	0.794
Challenges	0.805	0.831	0.910	0.835
Willingness	0.695	0.714	0.809	0.514

4.1.2 Discriminant Validity and Inter-Construct Correlations

Table 3 presents the correlations among the study constructs along with the square roots of the average variance extracted (AVE), shown on the diagonal. Awareness and Willingness exhibit a moderately strong positive correlation ($r = 0.499$), indicating a meaningful association between these two constructs. In contrast, Challenges show a weak positive correlation with Awareness ($r = 0.185$) and a moderate negative correlation with Willingness ($r = -0.263$), suggesting that perceived challenges are not strongly aligned with either awareness or willingness levels. The square roots of the AVE for all constructs exceed the corresponding inter-construct correlations, thereby confirming adequate discriminant validity according to the Fornell–Larcker criterion (Fornell & Larcker, 1981).

Table 3. Inter-construct Correlations and Discriminant Validity (Fornell–Larcker criterion)

	Awareness	Challenges	Willingness
Awareness	**0.891**		
Challenges	0.185	**0.914**	
Willingness	0.499	-0.263	**0.717**

To further strengthen the discriminant validity assessment, the Heterotrait-Monotrait ratio of correlations (HTMT) was also computed, as recommended by Henseler et al. (2015). As presented in Table 4, all HTMT values fall well below the conservative threshold of 0.85. This may imply that both criteria jointly confirm that the three constructs are empirically distinct, providing a sound basis for the structural model assessment that follows.

Table 4. Heterotrait-Monotrait Ratio of Correlations (HTMT)

	Awareness	Challenges	Willingness
Awareness	—		
Challenges	0.188	—	
Willingness	0.501	0.324	—

4.2 Structural Model Assessment

Following the assessment of the measurement model, the structural model was evaluated to examine the significance of the hypothesized relationships among Awareness, Willingness, and Challenges. Additional diagnostic procedures were conducted to assess collinearity. Collinearity diagnostics indicated acceptable internal VIF values (1.331), suggesting absence of multicollinearity issues among predictor constructs.

4.2.1 Direct Effects

Table 5 presents the direct effects among the three constructs. Awareness shows a significant positive effect on Willingness ($\beta = 0.499$, $t = 2.824$, $p = 0.005$), thereby supporting H1. This finding suggests that faculty members with greater familiarity and understanding of OER exhibit stronger motivational readiness to engage with and adopt such resources.

Awareness also shows a significant positive effect on Challenges ($\beta = 0.420$, $t = 2.532$, $p = 0.012$), supporting H2. This result indicates that as faculty members become more informed about OER, they may simultaneously become more conscious of the institutional, technical, and pedagogical barriers associated with OER implementation and adoption.

Regarding H3, Willingness shows a significant negative effect on Challenges ($\beta = -0.472$, $t = 2.122$, $p = 0.034$), indicating that faculty members with higher motivational readiness tend to perceive fewer obstacles to OER adoption. This finding suggests that attitudinal readiness may help mitigate or reduce the perceived intensity of adoption-related barriers.

Table 5. PLS-SEM Direct Effects: Structural Model Results and Hypothesis Testing

Path	β (Beta)	t	p	Result
Awareness →Willingness	**0.499**	2.824	0.005	H1 supported
Awareness →Challenges	**0.420**	**2.532**	0.012	H2 supported
Willingness →Challenges	**-0.472**	**2.122**	0.034	H3 supported

Overall, the results reveal significant relationships among the study constructs. Awareness positively predicts both Willingness and perceived Challenges, while Willingness is associated with lower perceived Challenges.

4.2.2 Mediation Analysis

The indirect effect of Awareness on Challenges through Willingness was examined to test H4. Table 6 shows that Bootstrapping results indicated a negative indirect effect ($\beta = -0.235$, $t = 1.652$, $p = 0.099$), with a 95% confidence interval of [−0.468, 0.051]. As the confidence interval crosses zero, H4 is not supported at the conventional significance level. Nevertheless, the negative direction of the indirect effect is theoretically consistent with the

proposed model, suggesting that higher willingness may reduce perceived challenges associated with awareness. Given the exploratory nature of this study and its institutional sample, this pattern warrants further examination in larger-scale and longitudinal designs before any mediating role can be confirmed.

Table 6. Mediation Analysis Results (indirect effects)

Path	β (Indirect Effect)	t-value	p-value	95% CI
Awareness→ Willingness → Challenges	-0.235	1.652	0.099	[−0.468, 0.051]

To conclude, Willingness cannot be confirmed as a partial mediator. However, the direction of the effect suggests a possible exploratory buffering role. Awareness may increase faculty recognition of OER-related challenges, while higher Willingness may be associated with lower perceived challenges.

5. Discussion

The findings support H1, which proposed that Awareness of OER has a positive impact on Willingness. In fact, greater familiarity with OER was found to enhance faculty motivational readiness to engage in open educational practices, a result that aligns with the growing body of evidence on awareness-driven adoption behaviour (Mullens & Hoffman, 2023; Marín et al., 2022). H2 was also supported, as Awareness was found to positively influence perceived Challenges. This suggests that a more informed understanding of OER does not reduce barriers. Rather, it sharpens faculty recognition of the institutional, technical, and pedagogical constraints involved in their adoption. As far as H3 is concerned, Willingness was found to negatively impact Challenges, indicating that motivational readiness may serve as a mechanism through which awareness-related barriers are mitigated. The indirect effect of Awareness on Challenges through Willingness was negative in direction but did not reach statistical significance. This may imply that the mediating role of Willingness remains to be confirmed under conditions of stronger institutional support and larger samples.

5.1 Positive Perception

According to Mullens and Hoffman (2023), increased awareness of the accessibility and cost benefits of OER tends to enhance users' willingness to adopt them. Besides, Marín et al. (2022) demonstrated that institutions need to actively support their faculty members and communicate the advantages of OER for these resources to become more widely adopted. These studies align with the positive relationship between Awareness and Willingness observed at MJACT, reinforcing the view that knowledge of OER is a necessary, though not sufficient, condition for its adoption.

5.2 Barriers to Adoption

The findings also show that Awareness and Challenges are positively related. In fact, the growing recognition of OER-related barriers among faculty members suggests that there are operational boundaries that could affect the experience of integrating these resources into teaching practice. This is consistent with Menzli et al. (2022), who argued that challenges such as complexity and compatibility are closely tied to the level of faculty awareness. It could therefore be said that Awareness, while a driver of Willingness, simultaneously surfaces the obstacles that institutions must address in order to sustain OER adoption.

5.3 Incentives for Adoption

It has become clear that OER adoption could be enhanced when barriers are managed and advantages are made salient, confirming what studies on faculty perceptions of OER suggest in this regard. Menzli et al. (2022) argue that the adoption of OER by faculty members becomes possible when institutions provide incentives, including professional development opportunities, recognition, and compensation for the time invested in creating and implementing OER materials (Oelfke et al., 2021). In this regard, ease of use constitutes one of the key motivational factors that make faculty willing to engage with OER. Kim et al. (2015) describe ease of use as instances whereby resources are intuitive, accessible, and directly relevant to the professional needs of users. Kuder (2021) further argues that OER integration is facilitated when universities prioritise accessibility, innovation, collaborative work, and scholarly evaluation. The success of such initiatives depends on institutions providing support through policy alignment, infrastructure development, professional training, and recognition of OER-based teaching as a legitimate form of academic work.

The current research demonstrates that OER adoption requires institutional backing through investments in digital infrastructure. Higher education institutions, together with ministries of education, need to build repositories and

metadata systems that support long-term OER creation and accessibility. In fact, the implementation of Resource Description Framework (RDF) and Linked Open Data (LOD) technologies for educational resource interoperability depends on the active involvement of institutional Information Technology units and libraries (Herrera-Cubides et al., 2022). The international example of MERLOT, presented by Muñoz-Rujas et al. (2021), shows how global repositories operate through systems of open educational resource curation and peer review, helping teachers develop trust in OER materials beyond the mere fact of making resources available. It could therefore be said that quality assurance and institutional infrastructure appear to be as important as awareness in sustaining OER engagement among faculty.

5.4 OER as Pedagogical Innovation

Open educational resources are increasingly framed not only as cost-saving materials, but as a driver of pedagogical innovation. In fact, educators are empowered by OER insofar as they are able to adapt, remix, and redistribute content in ways that respond to their specific institutional and pedagogical contexts. This flexibility is well established in the OER literature, which positions these resources as part of an innovative educational ecosystem that is increasingly shaping learning experiences (Wiley et al., 2014). The attitudinal readiness identified in this study may therefore operate as a key mechanism through which faculty translate Awareness into sustained innovative practice despite barriers. This finding aligns with the view that pedagogical innovation is strengthened when educators possess both knowledge of the innovation and the intention to enact it in context (Muñoz-Rujas et al., 2021; Jemni & Khribi, 2017).

5.5 Recommendations

In Bahrain, the government has invested considerably in higher education, aiming to improve quality and global recognition (MacLeod, 2022). Besides, efforts are ongoing to enhance educational quality through various reforms and quality assurance measures (Shomotova & Karabchuk, 2022). Given that studies focusing specifically on OER at the tertiary level in Bahrain remain limited, it becomes particularly important to consider solutions aligned with the government's strategic vision.

Based on the findings of this study, higher education institutions should develop structured awareness programmes that go beyond introductory exposure, ensuring that faculty develop a sustained and operationally informed understanding of OER and its pedagogical potential. Policymakers should address barriers by establishing learning laboratories and workshops addressing both the technical and pedagogical dimensions of OER adoption, while also offering institutional incentives that encourage faculty to engage actively as OER practitioners. Institutional repositories should furthermore ensure that materials shared through OER pathways meet established quality frameworks, thereby building the trust that is essential for sustained faculty engagement.

6. Conclusion

This study investigated the dynamics of Awareness, Willingness, and Challenges among faculty at Mohammed Jaber Al Ansari College for Teachers (MJACT), with a view to understanding how these constructs interact in shaping OER adoption in a teacher education context. Three hypothesized relationships were examined for their direct effects, and one for its indirect mediating role. The findings provide empirical support for three of the four proposed relationships, offering a coherent picture of how Awareness functions as a foundational driver of OER engagement at the institutional level.

In particular, the results show that Awareness significantly enhances Willingness, confirming that faculty members who develop a more informed understanding of OER are also more motivated to engage with them. At the same time, Awareness was found to positively influence perceived Challenges. This suggests that greater familiarity with OER does not reduce barriers. Rather, it sharpens faculty recognition of the institutional, technical, and pedagogical constraints involved in their adoption. As far as H3 is concerned, Willingness demonstrated a significant negative effect on Challenges. This finding suggests that motivational readiness may mitigate the barriers identified through increased awareness. It could therefore be said that Awareness and Willingness operate as two complementary yet distinct forces in this context: the former opens faculty to both the possibilities and the difficulties of OER adoption, while the latter equips them with the attitudinal readiness to navigate those difficulties in practice.

The indirect effect of Awareness on Challenges through Willingness was negative in direction but did not reach statistical significance. It could therefore be said that the mediating role of Willingness remains to be confirmed under conditions of stronger institutional support and more diverse samples. In fact, this finding reflects not a theoretical implausibility, but rather the complexity of OER adoption dynamics in institutional settings where

motivational readiness alone may be insufficient to overcome structural barriers without accompanying facilitation.

Yet, this study has several limitations that should be acknowledged. First, it was conducted within a single higher education institution, which may limit the generalisability of the findings to other institutional or national contexts. Second, the cross-sectional design captures associations at a single point in time and does not allow causal inferences to be drawn. Longitudinal designs are critical for understanding how institutional policies, organisational support, and faculty engagement interact to sustain OER adoption over time and across different institutions. Future studies are therefore encouraged to examine these relationships across multiple institutions and with larger samples, and to explore the role of institutional facilitation as a potential moderating condition that could strengthen the awareness–willingness–challenges pathway identified in this study.

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