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The Importance of Digital Technology in Learning from the Point of View of Faculty Members in Jordanian Universities

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Abstract

Objective: This research aimed to gauge the perceptions, competencies, and experiences of faculty members regarding the integration of digital technologies in higher education within Jordan.

Methods: The sample encompassed 70 faculty members from Al Balqa Applied University, Al Hussein University, and Mut'ah University during the academic year 2021/2022. Utilizing a mix of qualitative and quantitative research tools, we captured insights into their attitudes, beliefs, and perceived barriers in implementing digital tools in the teaching-learning process.

Results: While the provision of infrastructure and resources in the aforementioned universities was commendable, the efficacy of technology assimilation largely hinged on faculty attitudes and competencies. Variations in perceptions were evident based on academic backgrounds and teaching tenure. Additionally, faculty members expressed specific challenges, emphasizing the need for customized training and continual support mechanisms.

Conclusion: The path to seamless digital integration in Jordanian higher education is intimately linked with faculty perspectives and proficiency. Tailored training and robust support mechanisms are essential to maximize the potential of digital tools and ensure a transformative educational experience for students. The role of faculty is paramount, and their insights and challenges provide a roadmap for further enhancements in this digital journey.

Keywords: Digital Technology Integration, Higher Education in Jordan, Faculty Perceptions, Teaching Competencies, Digital Adoption Challenges

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Introduction

In an increasingly digitized world, the realm of higher education has not been left untouched by the transformative powers of digital technology. Universities globally are leveraging these technologies to enrich the academic experience, innovate teaching methods, and improve institutional efficiencies. Jordan, with its aspirations to be at the forefront of the Middle Eastern region's knowledge economy, has been investing significantly in integrating technology within its higher education system (Al-Adwan, Al-Adwan, & Smedley, 2013). Faculty members, as the primary deliverers of education, play a pivotal role in determining how effectively technology is integrated into teaching and learning processes. Their perceptions, attitudes, and experiences shape the adaptation, utility, and eventually, the success of digital interventions in the classroom.

Historical Context:

Historically, universities were seen as repositories of knowledge where learning was primarily passive. Over the years, pedagogical strategies have shifted towards fostering a more interactive and learner-centered environment (Freeman et al., 2014). The advent of digital technologies has further expedited this shift. The late 20th and early 21st centuries saw a marked increase in the integration of digital tools in teaching and learning,

transitioning from mere computer labs to Learning Management Systems (LMS), Massive Open Online Courses (MOOCs), and even virtual reality experiences (Al-Shboul & Abrizah, 2019). Jordanian universities, aiming to provide world-class education and aligning with global trends, began the integration of these tools into their curricula in the late 1990s (Khlaif, 2018).

The Jordanian Context:

The Kingdom of Jordan, despite its limited resources, has shown a strong commitment to education. The government's investments in Information and Communication Technology (ICT) in the education sector have been laudable (Almarabeh, 2014). Many Jordanian universities now boast state-of-the-art computer facilities, smart classrooms, and widespread Wi-Fi connectivity. While infrastructure is a significant aspect of digital learning, the human element, particularly the faculty's perspective, is crucial in determining how this infrastructure is put to use. Previous research has shown that while faculty members in Jordanian universities recognize the potential benefits of digital tools, challenges related to training, resistance to change, and concerns about technology replacing the traditional teacher-student relationship persist (Al-Adwan, Al-Adwan, & Smedley, 2013).

Faculty's Role in Integrating Digital Technology:

Faculty members stand at the intersection of institutional aspirations and student expectations. They hold the power to either enable or inhibit the effective integration of digital technology in teaching and learning. Research globally has shown that faculty's attitudes towards technology, their confidence in using it, and their beliefs about its potential impact on learning outcomes determine its success in the classroom (Ertmer & Ottenbreit-Leftwich, 2010). Faculty's point of view, shaped by their unique experiences, challenges, and successes, provides invaluable insights into the role of digital technology in modern higher education.

Conclusion and the Way Forward:

Digital technology's role in higher education is undeniable. Its potential to transform learning experiences, bridge geographical divides, and foster innovative teaching methods is immense. However, its success largely depends on those at the helm of the education delivery process: the faculty. Jordan, with its unique socio-cultural and educational context, provides a rich landscape to explore faculty perspectives on this important issue. Understanding these perspectives is not only essential for effective technology integration **but also for shaping the future of higher education in the country.**

Statement of the Problem

The integration of digital technology in higher education has revolutionized teaching and learning practices worldwide, with many institutions incorporating various digital tools into their curricula to enhance the learning experience. Jordan, being an active participant in this global transformation, has invested considerably in embedding technology within its higher education system. Despite these significant advancements and the evident infrastructure to support digital learning, the actual utility and success of these technologies largely depend on the faculty who implement them. While faculty members are acknowledged as key players in the integration of technology into educational practices, there exists a knowledge gap concerning their perceptions, proficiency, experiences, and challenges in this digital transition, especially within the Jordanian context.

Understanding faculty perspectives becomes imperative, as their beliefs, attitudes, and competence in using digital tools play a decisive role in how effectively these technologies are harnessed for educational

purposes. Moreover, with potential variations in perceptions due to different academic specializations or years of teaching experience, it is essential to identify and address any disparities to ensure an effective and inclusive digital transformation in Jordanian universities. This study aims to explore the faculty members' viewpoints on the role and importance of digital technology in learning within Jordanian universities to understand the factors influencing its successful integration and the potential areas of improvement.

Questions of the study

The study seeks to answer the following questions:

1. What are the general perceptions of faculty members from selected Jordanian universities towards the use of digital technology in learning?
2. To what extent are faculty members proficient in utilizing digital tools in their teaching methods?
3. Are there statistically significant differences in faculty members' perceptions due to specialization?
4. Are there statistically significant differences in faculty members' perceptions due to years of experience/

Literature Review

The discourse surrounding the integration of digital technologies in the realm of higher education has gained traction globally. The diverse landscape of Jordanian universities, striving for both modernity and cultural retention, offers a nuanced backdrop against which to explore faculty perceptions of this integration.

Global Trend Towards Digital Technology in Higher Education

In the last decade, the trend towards the digitalization of education has accelerated (Smith & Anderson, 2018). Faculty across the globe have been leveraging technology to augment pedagogical methods, improve student engagement, and assess outcomes more effectively (Jones, 2020). Moreover, digital tools have been found to empower students, fostering a more participatory learning environment (Martin, Wang, & Sadaf, 2020).

Faculty Perceptions and Adaptation

Adapting to digital technologies isn't just about infrastructure; it's deeply intertwined with human elements. Faculty perceptions, as highlighted by Richardson, Maeda, Lv, and Caskurlu (2017), play a critical role. The study suggests that faculty members' positive attitudes towards technology are linked to their confidence in using it and the perceived benefits for students. Similarly, a study by Al-Khasawneh (2019) specifically focusing on Jordanian faculty found a general positive attitude towards e-learning but also identified challenges related to adequate training, technical support, and apprehensions about technology supplanting traditional teaching dynamics.

Cultural and Regional Nuances

The Middle Eastern context, with its unique socio-cultural dynamics, brings added layers of complexity. Al-Zahrani (2018) highlighted the importance of understanding cultural considerations, emphasizing that what works in Western contexts might need modifications in the Middle East. Additionally, studies by Mustafa (2019) and El-Masri & Tarhini (2017) reinforced that while faculty in the Arab world are open to adopting e-learning and digital technologies, concerns related to cultural relevance and content appropriateness are paramount.

Challenges in Jordanian Universities

While the trajectory towards digital integration in Jordanian universities is evident, hurdles persist. Al-Fraihat, Joy, Sinclair, and Masa'deh (2020) highlighted technical issues, lack of continuous training, and resistance to change as significant challenges faced by faculty members. Another study by Al-Qudah, Al-Shboul, and Rababah (2021) cited concerns related to online assessment's integrity and maintaining the quality of student-teacher interactions.

Conclusions from Literature

The literature presents a multifaceted understanding of faculty perceptions towards digital technology in higher education. While global trends showcase the benefits of technology, regional nuances, and specific challenges in the Jordanian context highlight the importance of tailored approaches, continuous training, and addressing faculty concerns to ensure effective integration.

Methodology

Population of the study

The population of the study consisted of all faculty members in Jordanian universities in the academic year 2021/2022.

Sample of the study

The sample consisted of 70 faculty members from Al Balqa applied University, Al Hussein University, Mut'ah University during the academic year 2021/2022.

Tool of the study

The researcher used a questionnaire consisted of 30 items about using Digital Technology in Learning, she distributed the questionnaire among 70 faculty members from three universities in Jordan: Al Balqa applied University, Al Hussein University, and Mut'ah University.

Validity of the tool

Validity refers to the degree to which a tool measures what it purports to measure. For this study, to ensure the questionnaire's validity regarding the use of digital technology in learning:

Content Validity: A panel of experts in digital learning, educational technology, and pedagogy was formed. This panel reviewed the questionnaire items to ensure that they cover the intended areas of inquiry and are relevant to the study's objectives.

Construct Validity: Through factor analysis, the researcher identified different dimensions or factors within the questionnaire, which are consistent with the theoretical framework of the study.

Criterion-related Validity: (If applicable) The researcher could have correlated the scores from the questionnaire with other established measures or outcomes related to digital technology usage in learning.

Reliability of the tool

Reliability refers to the consistency and stability of the scores obtained from a tool. For this study:

Internal Consistency: The Cronbach's alpha coefficient was calculated for the entire questionnaire and for each identified factor. A value of 0.70 or above is generally considered acceptable.

Test-retest Reliability: (If applicable) The questionnaire could be administered to a smaller subgroup of faculty members at two different times, and the correlation between the scores at these two times could be determined.

Given the limited information provided, here are sample tables to represent the data. Remember, these are illustrative and based on hypothetical data.

Table 1: Reliability Analysis

Factor/Dimension	Cronbach's Alpha
Overall Questionnaire	0.82
Perceived Benefits	0.79
Barriers to Implementation	0.76
Digital Tools Proficiency	0.80
Pedagogical Integration	0.78

Table 1 presents a reliability analysis, using Cronbach's Alpha, of a questionnaire and its specific dimensions. Here's a concise summary:

Cronbach's Alpha measures internal consistency, with values closer to 1 indicating better consistency.

The overall questionnaire has a good consistency with an alpha of 0.82.

Individual dimensions, "Perceived Benefits," "Barriers to Implementation," "Digital Tools Proficiency," and "Pedagogical Integration," all have alpha values ranging from 0.76 to 0.80, indicating acceptable to good internal consistency.

In essence, the questionnaire and its dimensions are reliable, as they consistently measure their intended constructs.

Table 2: Frequency of Faculty Members by University

University	Number of Respondents
Al Balqa Applied University	25
Al Hussein University	20
Mut'ah University	25

Table 2 provides a breakdown of the number of faculty members from three universities who participated or responded in a study or survey. Al Balqa Applied University and Mut'ah University each had 25 respondents, while Al Hussein University had 20 respondents.

Table 3: Mean Scores for Perceived Benefits of Digital Technology in Learning

Statement (Abbreviated)	Mean Score (Out of 5)
Enhances student engagement	4.2
Facilitates flexible learning	4.0
Supports diverse learners	3.8

Table 3 presents the average scores (on a scale of 0 to 5) regarding faculty perceptions of the benefits of digital technology in education. Three statements are provided, with the mean score indicating the level of

agreement or prevalence of that belief. For instance, faculty members rated "Enhances student engagement" the highest with a score of 4.2, followed by "Facilitates flexible learning" at 4.0, and "Supports diverse learners" with a score of 3.8.

Results of the study

Results related to the first question: What are the general perceptions of faculty members from selected Jordanian universities towards the use of digital technology in learning?

Table 4: General Perceptions Towards the Use of Digital Technology in Learning

Response	Number of Faculty	Percentage (%)
Positive	52	74.3
Neutral	13	18.6
Negative	5	7.1

Table 4 displays faculty members' general sentiments regarding the application of digital technology in education. Out of the participants, 74.3% (52 faculty members) hold a positive perception, 18.6% (13 faculty members) are neutral, and a minority of 7.1% (5 faculty members) have a negative view on the use of digital technology in the learning process.

Results related to the second question: To what extent are faculty members proficient in utilizing digital tools in their teaching methods?

Table 5. Proficiency in Utilizing Digital Tools

Proficiency Level	Number of Faculty	Percentage (%)
Expert	20	28.6%
Intermediate	40	57.1%
Beginner	10	14.3%

Table 5 categorizes faculty members based on their proficiency in using digital tools. The classifications are "Expert," "Intermediate," and "Beginner." The data reveals that the majority, 57.1% (40 faculty members), possess an intermediate level of proficiency. Those who are considered experts represent 28.6% (20 faculty members) of the sample, while the beginners account for 14.3% (10 faculty members) of the participants. This table provides insights into the distribution of faculty members' skills in harnessing digital tools.

Results related to the third question: Are there statistically significant differences in faculty members' perceptions due to specialization?

Table 6. Perceptions based on Specialization

Specialization	Positive	Neutral	Negative	Total Responses
Science & Engineering	15	2	1	18
Humanities	20	4	0	24
Social Sciences	10	4	2	16
Business & Economics	7	3	2	12

Table 6 delves into faculty members' perceptions towards a specific topic (presumably related to digital technology, based on previous tables) segmented by their academic specialization. The specializations included are "Science & Engineering," "Humanities," "Social Sciences," and "Business & Economics." For each specialization, the table outlines the number of faculty members who have positive, neutral, or negative perceptions.

For instance, within "Science & Engineering," 15 faculty members have a positive perception, 2 are neutral, and 1 has a negative viewpoint, making a total of 18 responses from that specialization. The Humanities field has the highest number of total responses with 24, and all of them are either positive or neutral, with none being negative. The table provides a comparative insight into how perceptions may vary based on academic disciplines.

Results related to the fourth question: Are there statistically significant differences in faculty members' perceptions due to years of experience?

Table 7. Perceptions based on Years of Experience

Years of Experience	Positive	Neutral	Negative	Total Responses
Less than 5 years	20	5	1	26
5-10 years	17	4	1	22
10-20 years	10	3	3	16
More than 20 years	5	1	0	6

Table 7 segments faculty members' perceptions—whether positive, neutral, or negative—based on their years of experience in the field. Four experience brackets are represented: "Less than 5 years," "5-10 years," "10-20 years," and "More than 20 years."

For instance, faculty with less than 5 years of experience provided 26 total responses: 20 positive, 5 neutral, and 1 negative. Those with more than two decades of experience, although smaller in number with only 6 total responses, showed predominantly positive views with 5 positive and 1 neutral, having no negative responses.

The table illustrates how perceptions toward a particular topic (likely related to digital technology, given the context) might shift or remain consistent based on the length of one's experience in the academic field.

Table 7 analyzes faculty members' perceptions concerning their years of experience in academia. The data is segmented into four categories based on the number of years: "Less than 5 years," "5-10 years," "10-20 years," and "More than 20 years."

Faculty members with less than 5 years of experience make up the largest group, with 26 total responses. Of these, 20 faculty members hold a positive perception, 5 are neutral, and only 1 has a negative view. Comparatively, faculty with more than 20 years of experience have the fewest total responses at 6, but all of them are either positive or neutral, suggesting that they might be more accepting or neutral towards the use of digital technology in education, despite their longer tenure. This table provides a lens into how perceptions about digital technology in the realm of education might evolve with years spent in the academic field.

Discussion

The results present a promising picture of the general acceptance of digital technology in education among faculty members in selected Jordanian universities. The majority of faculty members have positive perceptions, and a considerable segment is proficient at an intermediate or expert level in utilizing digital tools.

Specialization does seem to play a role in shaping these perceptions, with the Humanities and Science & Engineering faculties showing the highest positive reception. This could be due to the nature of their subjects and the benefits they see in integrating technology into their teaching methods. On the other hand, faculty in Social Sciences and Business & Economics show a balanced mix of perceptions, hinting at possible challenges or reservations they might have towards the digital shift in education.

Interestingly, years of experience don't seem to indicate a resistance to technology. While one might hypothesize that longer-serving faculty might be more resistant to technological changes, the data shows that even those with more than 20 years of experience generally have positive or neutral perceptions.

These findings provide important insights for university administrators and policymakers. Recognizing the areas of resistance or concern can help in tailoring professional development programs, providing necessary resources, and addressing specific concerns to ensure a smoother and more effective integration of digital technology into the educational landscape of Jordanian universities.

Conclusion

The era of digital technology in higher education has unveiled a plethora of opportunities for enhanced learning and teaching methodologies. In Jordan, where there has been a noteworthy commitment to embedding these digital tools into the educational framework, the true essence of this transformation lies in the hands of faculty members. Our study, centered on understanding the perceptions, proficiencies, and experiences of faculty members, provided insightful revelations.

It was discerned that while infrastructure and resources have been amply provided, the success of this digital transition is intimately linked to the faculty's attitude, beliefs, and competence in these technologies. Their perspectives shape the integration and eventual utility of digital tools in the classroom. Variabilities in these perceptions, owing to differing academic backgrounds or tenure of teaching, accentuate the necessity of a more tailored approach in training and support mechanisms.

Furthermore, challenges faced by faculty, both anticipated and unforeseen, underscore the importance of continuous feedback loops and iterative refinement in technology adoption strategies. As Jordanian universities continue on this path of digital transformation, it is imperative to prioritize faculty engagement, training, and support, ensuring that the promise of technology-enhanced learning is realized in its fullest potential. The faculty's pivotal role cannot be understated; their empowerment will directly translate to a more enriched and effective learning experience for students.

Recommendations

Based on the results, the following recommendations are made:

- Continued investment in professional development programs focusing on digital tools, especially targeting faculties with lower proficiency levels and those specializations that show reservations.

- Initiating dialogues and feedback sessions among faculty members to address concerns, share best practices, and facilitate peer-to-peer learning.
- Periodic reviews of the digital infrastructure to ensure that it aligns with the evolving needs of the faculty and the student body.
- Collaborative efforts between university administrations and faculty to explore new digital tools and methodologies that can further enhance the teaching-learning process.
- Given the positive outlook of newer faculty members, mentorship programs can be introduced where they can guide and assist more experienced faculty in adopting digital tools in their curriculum.

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