

TEACHERS' PERCEPTIONS OF DIGITAL CURRICULUM IMPLEMENTATION IN JORDAN

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ABSTRACT

This study explores the perceptions of implementing digital curricula in terms of Readiness (technical and pedagogical) and the obstacles to implementation from teachers' perspective in the Directorate of Education of Al-Jami'ah District, Jordan. The study employs a descriptive survey and includes a random sample of 370 male and female teachers working in the Directorate of Education of Al-Jami'ah District, Amman. A questionnaire was developed, focusing on two domains: teachers' Readiness (technical and pedagogical) and the challenges of implementing digital curriculum supports. The results indicate that the overall Readiness for implementing digital curricula, in terms of technical and pedagogical Readiness, and the degree of obstacles to implementation were rated as moderate. There were significant differences in Readiness based on gender and school type, favoring males and private schools. However, no significant differences were observed concerning teaching experience or academic qualifications. The study recommends that stakeholders in the Ministry of Education prioritize digital curricula and work towards effective implementation in the educational field.

Keywords: Digital curricula, readiness, implementation challenges, teachers.

INTRODUCTION

Digital curricula are one of the key distinguishing features of developments in the 21st century, enabling the current era to be followed through the latest digital tools based on technology, such as text reading with sound, image, movement, and colors. Among these developments are those seen in the Arabic language, Islamic education, and science curricula. This has given these curricula a distinctive character compared to traditional ones that rely on printed papers discussed by the teacher, with their contents conveyed to students through conventional methods.

Digital technologies impact education, as the increasing digitalization in public life across all its domains, has become a basic requirement for students in this technologically advanced era. This aims to equip them with the cognitive skills accompanying learning through technology. For the impact of learning to appear in academic subjects, the effective tool of the era must contribute to a significant and active role in technology (Al-Hassan, 2022).

Digital curricula are distinguished by their cognitive aspects, allowing students to feel comfortable dealing with technology to prepare for the future. To achieve this, teachers need to be well-prepared and qualified to develop the necessary skills and knowledge to benefit fully from the potential of technology. They must be able to employ it in the classroom or a hybrid learning model by using new opportunities provided by digital technologies. This requires empowering teachers to ensure the necessary skills and competencies for integrating technology into an electronic learning environment that contributes to the success of the educational learning process (Ivus et al., 2021).

Educators emphasize the importance of providing physical and technological resources, such as modern devices, which can enhance the learning process in electronic classrooms. This, in turn, positively affects students' motivation toward learning, encourages collaboration, and improves cognitive interaction through available digital technologies (Al-Dada, 2023).

Integrating technology into curricula aims to enhance and update the educational process using technological capabilities. It has become necessary for traditional educational curricula to shift to digital formats (Munene, 2023) to become more attractive and engaging, reducing the burden on students and teachers from carrying heavy textbooks. Significant advancements in digital technology facilitate this shift, as now a tablet (iPad) or laptop can replace many printed books (Ibrahim, 2015), lightening the load of books and reducing their increasing weight due to curriculum expansion.

The theoretical foundation of digital curriculum design draws upon the Blended Learning Models Theory, which promotes the strategic integration of face-to-face instruction with digital elements to create a flexible and personalized learning experience. This theory underscores the importance of aligning digital tools with learning objectives to enhance learner engagement and improve educational outcomes (Walker & White, 2013). Additionally, it emphasizes the necessity of maintaining a balanced approach between online and offline activities by leveraging interactive media, digital platforms, and data analytics to monitor learner progress and tailor individualized learning pathways (Alhabish et al., 2024).

This framework facilitates the creation of adaptive learning environments that recognize diverse learning styles, encourage student autonomy, and enhance collaboration throughout the learning process. Successful implementation of this model necessitates meticulous curriculum planning, ongoing professional development for educators, and continuous evaluation to ensure that technology serves to enhance educational goals rather than distract from them or impose additional burdens on the teaching process. This theoretical perspective aligns with the current study's aim of identifying effective strategies for integrating technology into curriculum design in higher education, ultimately preparing students for a rapidly evolving, technology-driven world (Chanda et al., 2024).

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A digital curriculum is “an electronic form of the curriculum that facilitates learning through e-learning methods, using communication via an information network or through a digital technological medium, enabling educational experiences through communication between expert knowledge and the learner. This aims to harness the vast potential of information and communication technology to support the curriculum system in all its elements” (Khalifa, 2014).

The digital curriculum evolved with the emergence of e-learning and online education at the beginning of the 21st century. It has become a fundamental component of e-school education. To achieve the effectiveness of e-learning, it is necessary to have a curriculum that is taught to students digitally under the supervision and guidance of an educational institution, whether real or virtual (Avry et al., 2022). While the digital curriculum is not synonymous with e-learning, it is a key tool in implementing e-learning and enhancing student learning. The digital curriculum is known by several names, including the virtual curriculum, the e-curriculum, the programmed curriculum, and the modular curriculum (Mataoua, 2014).

The design of a digital curriculum follows a series of steps, including (Khalifa, 2014): determining measurable and observable learning outcomes, gathering the content of the subject material, including content, activities, and assessment methods, preparing the electronic programming designs, placing the educational material into the electronic design, testing the curriculum in its initial form, and finalizing the program to a form suitable for application and generalization.

It is worth mentioning that the philosophy of the digital curriculum did not emerge suddenly; rather, it has evolved through three generations since the early 1980s to its current form. The first generation began in the early 1980s when digital content was available on CDs, focusing on the individual interaction between the learner and teacher, which had a significant role for the learner. The second generation began with the Internet, shifting the delivery methods to network-based approaches and witnessing developments in content and interaction methods. The third generation emerged with e-commerce and cybersecurity in the late 1990s, coinciding with rapid advancements in multimedia, virtual reality, and satellite communication technologies (Al-Saadi, 2021). These three generations have contributed to the emergence of significant developments in the information age, changing the way educational curricula are handled.

Students interact with digital curricula even in remote education contexts, significantly enhancing the educational and learning process. These curricula offer many benefits, including easy accessibility and the ability to repeat lessons multiple times. In the digital age, the traditional form of curricula is no longer acceptable, necessitating a reevaluation of the role of the teacher in a world of rapid change, where knowledge transmission channels are increasingly overlapping. Most learning resources, materials, and tools are available to everyone at any time and place (Hamed, 2020).

The technical and pedagogical dimensions play a vital role in shaping the effectiveness of digital curricula, as they integrate to ensure a comprehensive and effective educational experience. The technical dimension focuses on providing the necessary tools and technologies, such as interactive software and modern devices, to facilitate educational content access and enhance student interaction. In contrast, the pedagogical dimension focuses on designing and organizing this content in alignment with modern learning strategies, such as active learning and project-based learning. Integrating the technical and pedagogical dimensions combines technological effectiveness with educational innovation, allowing teachers to present diverse educational content that suits various learning styles, enhancing student interaction, and encouraging self-directed learning. Consequently, these integrations help create a flexible educational environment that meets the challenges of the digital age (Al-Muslimani, 2022; Al-Rashidi, 2024). This integration strengthens the achievement of outstanding educational outcomes and keeps pace with rapid technological and educational developments.

The importance of the technical dimension in digital curricula is evident as one of the foundational pillars supporting the effectiveness of education in the modern age. Digital technologies enhance student interaction with educational content through interactive learning tools, such as simulations, online assessments, and interactive electronic activities that make learning more engaging and effective. These technologies also contribute to personalizing education to meet the needs of each student, which helps achieve distinguished educational outcomes. Furthermore, these technologies offer extensive opportunities for self-directed and remote learning, allowing students to access diverse educational resources anytime and anywhere. Additionally, they contribute to improving classroom management and developing 21st-century skills, such as critical thinking and problem-solving. In conclusion, the technical dimension of digital curricula provides innovative tools and techniques that improve education quality and make the educational process more interactive and adaptable to the needs of the digital age (Al-Saadi, 2021).

The technical dimension also improves educational assessment by utilizing advanced analytical tools. These technologies provide precise capabilities to track and assess student performance continuously, allowing teachers to identify strengths and weaknesses more clearly. Digital assessment tools help provide instant feedback to students, enhancing the learning process and enabling them to improve their performance continually. Additionally, the technical dimension enhances the effectiveness of collaborative learning through digital collaboration tools, enabling students to work together on projects and tasks online and strengthening teamwork and effective communication skills. Thanks to these capabilities, it is now possible to achieve a more integrated and comprehensive learning experience (El-Hamamsy, 2024), supporting modern educational outcomes and keeping pace with ongoing technological advancements.

Pedagogical dimensions in digital curricula are essential to ensuring the effectiveness of the educational process and achieving its goals successfully. Pedagogical dimensions focus on designing and organizing educational content in alignment with effective learning and teaching strategies. In digital curricula, the pedagogical dimension enables teachers to use various techniques, such as digital interaction, collaborative learning, and continuous assessment, to create an interactive and motivating learning environment. This dimension enhances the learning experience by adapting digital content to suit various learning styles, ensuring that the needs of all students are individually addressed. It also develops students' critical thinking and problem-solving skills through innovative educational tools and methods, resulting in a comprehensive and sustainable learning experience. Thanks to the pedagogical dimension, digital curricula can be more interactive and flexible, enhancing the achievement of educational goals and ensuring outstanding educational outcomes (Al-Saadi, 2021).

Moreover, the pedagogical dimension in digital curricula is fundamental in building flexible learning strategies that adapt to the rapid changes in the technology field. This dimension allows teachers to design integrated learning experiences based on modern learning theories like active and project-based learning. By integrating various digital educational tools, teachers can provide a stimulating learning environment that encourages exploration and experimentation, enhancing students' ability for self-directed learning and developing creative thinking skills (Al-Awidi & Aldhfeeri, 2017). It also improves interaction between students and teachers by providing platforms for digital communication and collaboration, enhancing the quality of learning, and helping to achieve educational goals more effectively. By focusing on pedagogical dimensions, digital curricula can offer innovative education that aligns with evolving educational needs and supports achieving outstanding educational outcomes in an advanced digital world (Seidi et al., 2014).

Undeniably, digital learning, represented by implementing digital curricula and providing a technological environment in schools, faces several challenges, especially when applying this technology in an interactive community environment. One of the main challenges is the Lack of technical knowledge and awareness of the requirements and benefits of digital education. Resistance to change may emerge from teachers, students, or parents. Furthermore, some members of society may downplay the value of digital education compared to traditional education (Al-Yami, 2020). This is confirmed by the study of Abu Shaidim (2020), which indicated weaknesses in the implementation of digital curricula among teachers, and the study of Al-Shamrani (2019), which pointed out weaknesses in the use of digital learning in the educational process.

The implementation of digital curricula faces several obstacles that may hinder the achievement of the desired educational outcomes, including Lack of data readers and technical information, such as Insufficient availability: Availability of tablets and the Internet, and old technology: Using old technology that may not support the latest software and systems. However, the reason for the Lack of training and qualification, such as Lack of cooperation After specialized training programs for teachers in the use of digital curricula, Isolation of change: In this case, some may not be ready to adapt to the new technology (Sari et al., 2023), and obstacles in the Lack of technical support, such as Technical problems: Defects in technical support to solve technical problems that many may face and demand, and unprovided updates: represented in updating the programs and technologies used (Basil, 2023).

Obstacles related to financial challenges, such as High costs, The costs of purchasing and maintaining hardware and software that may be high, and limited budgets, appear in the Lack of funding allocated to implementing and updating digital curricula (Al-Rashidi, 2024). Moreover, the Lack of appropriate digital content appears due to the Lack of integrated and high-quality digital educational materials and content

development. This is represented in the need to develop digital content compatible with educational curricula (Skoda & Luic, 2020) and the Lack of personal interaction, such as limited interaction. This is represented in the inability of digital curricula to provide personal and direct interaction between teachers and students and remote communication. This appears in the challenges of building strong educational relationships through digital media (Al-Ajmi, 2019). Perhaps these obstacles must be addressed comprehensively to facilitate the implementation of digital curricula and make the most of technology in education.

In contrast to the above, we find that many studies have indicated the importance of a qualitative shift in the application of digital curricula in school classrooms, including what (Munene, 2023) indicated that digital curricula have an effective role in keeping pace with the spirit of the age and its aspirations. Education is the most prominent aspect because most other sectors depend on education.

Many researchers have addressed digital curricula in their studies, most notably El-Hamamsy's study (2024), which aimed to model the sustainability of digital curriculum reform in basic education and develop the professional program for teachers by studying the impact of factors that affect teachers' continued use of digital education content after the end of the two-year professional development program. The study used a structural equation model to analyze data collected from 287 teachers, with the results showing that the sustainability of the reform depends on the usefulness of the educational content, ease of implementation, and the support available in schools. The results confirmed that the reform enhances teachers' confidence in teaching digital education, enhances school support, and encourages increased use of the content over time. However, there are still barriers to sustainability, such as the Lack of time and effort required, which requires joint treatment between researchers and practitioners in the field to achieve sustainability of the reform.

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Al-Rashidi (2024) conducted a study to identify the requirements and obstacles to implementing digital transformation in educational institutions. The study followed the descriptive approach, and the study sample consisted of 20 school principals, 130 teachers, and 250 students in secondary schools in Kuwait. A questionnaire was used to collect data. The study reached the identification of the most important requirements for implementing digital transformation in light of international experiences, including: updating the laws and regulations governing education in line with digital transformation, re-engineering the structures, processes, and procedures in the educational institution to match the requirements for implementing digital transformation, and providing a distinguished infrastructure by strengthening the infrastructure of information and communications technology, preparing and qualifying human cadres in education, providing continuous learning and self-learning programs in the field of digital technology, exchanging experiences, and strengthening partnerships with the local community, institutions, individuals, and with the government and private sectors, while there are several obstacles, the most important of which are administrative obstacles that include (ambiguity of the concept - resistance to change), Lack of financial capabilities to implement digital transformation, and Lack of awareness of workers about the importance of digital transformation.

Chanda et al. (2024) explored effective strategies for integrating technology into higher education curriculum design to enhance teaching and learning outcomes. Conducted in five institutions in Lusaka, Zambia, the study employed a descriptive survey method with 210 lecturers and students. Findings highlighted key digital tools such as social media, educational apps, videos, podcasts, LMSs, and interactive technologies. Effective integration strategies included mobile and blended learning, needs-based planning, adaptive tools, and ongoing professional development. The study emphasized the importance of stakeholder collaboration

and recommended student-centered approaches, continuous teacher training, and industry partnerships to maintain curriculum relevance in the digital era.

Alhabish et al. (2024) conducted a study aimed at exploring the current state of teaching the Digital Skills course at the elementary level from teachers' perspectives, identifying the challenges they face, and proposing solutions in light of the digital transformation in public schools in Jeddah Governorate. The study adopted a descriptive (survey) method using a questionnaire as the main instrument. It was distributed to a random sample of 99 teachers, representing 26.2% of the total study population of 378 teachers. The findings revealed that participants strongly agreed on the presence of challenges related to the digital textbook, with a high mean score of 4.46. They also agreed on challenges related to computer labs (mean score: 3.62), while they remained neutral regarding administrative challenges (mean score: 3.73). The study recommended several actions, including providing students with a printed version of the Digital Skills textbook and offering alternative applications compatible with mobile devices to replace software used in the course.

Ghanem (2023) investigated the attitudes of secondary school teachers toward curriculum digitization in public schools in the United Arab Emirates. The study adopted a descriptive-analytical method and included a randomly selected sample of 50 male and female teachers. An attitude scale was used as the data collection tool, consisting of two parts: the first covered demographic information (gender, academic qualification, and years of experience), while the second included 20 items distributed across three domains. The first domain examined the perceived impact of curriculum digitization on students, the second addressed its impact on teachers' performance, and the third focused on the role of media and teaching methods in the digitization process. The results revealed that teachers held positive attitudes toward curriculum digitization across all three domains, with an overall mean score of 3.83. The findings also indicated no statistically significant differences in teachers' attitudes based on gender, academic qualification, years of experience, or the number of training courses attended related to digitization. The study recommended tailoring curriculum digitization to suit each grade level and subject, taking into account individual student differences, supporting the inclusion of students with disabilities, and providing tablets and educational media that accommodate diverse learner needs.

Al-Maslamani (2022) conducted a study to reveal the reality of digital transformation in Egyptian universities, its requirements, and implementation obstacles. The study used the descriptive approach, and a questionnaire was applied to a random sample of 173 male and female university faculty members. The study concluded that universities had taken satisfactory steps towards digital transformation, as the axis of the reality of digital transformation obtained a high score, and the axis of digital transformation requirements also obtained a high score and a higher arithmetic average. The results showed that Egyptian universities face obstacles towards digital transformation, as the axis of implementation obstacles obtained a high percentage, and the results showed that males are more inclined toward digital transformation than females.

Al-Saadi (2021) conducted a study that aimed to reveal the degree of Readiness for digital learning in Jordan during the coronavirus pandemic from the point of view of school teachers in northern Jordan to identify the suitability of digital learning curricula in Jordan, the availability of digital infrastructure in Jordan, to identify the impact of students' and teachers' abilities and skills on dealing with the technology necessary to prepare for digital learning in Jordan, and to identify the significance of differences in the perceptions of school teachers in northern Jordan regarding the degree of Readiness for digital learning in Jordan during the Corona pandemic attributed to variables (gender, academic qualification, experience). In this study, the researcher used the descriptive analytical approach, and the study community consisted of a group of male and female teachers in government schools affiliated with the education directorates in the Irbid Qasaba District. The number of male sample members was (130), and the number of females was (144) who were selected using a simple random method. Among the most prominent results reached by the study is that the arithmetic averages of the study areas related to Readiness for digital learning in Jordan came with a medium degree of approval. The highest was for the "Adaptiveness of Curricula for Digital Learning," followed by the field "Adaptiveness of Infrastructure in Jordan." At the same time, the lowest was for the dimension "Students' Capabilities and Skills in Dealing with Digital Technology." The fields came with a medium degree of agreement, and the results showed no differences in gender, experience, and academic qualification. In light of the results, the researcher recommends holding workshops and training courses for teachers and students to help them use computers and the Internet efficiently and effectively to deal with digital learning requirements and their strategies.

Mamkegh (2021) conducted a study to identify the degree of government school teachers' possession of digital learning skills and their attitudes towards using it in light of the coronavirus pandemic, using the mixed curriculum by developing a questionnaire consisting of (42) paragraphs. The study sample consisted of (310) male and female teachers from basic government schools in the capital, Amman/Wadi Al-Seer District, during the second semester of 2021. The results of the study showed that the degree of teachers' possession of digital learning skills was high, and the results showed that teachers' attitudes towards using digital learning skills in light of the coronavirus pandemic were moderate and showed no statistically significant differences attributable to the variables: (gender, teaching experience).

In a study conducted by Kavadze and Basilaia (2020), they aimed to study the experience of transitioning from face-to-face education in schools to online education and digitizing curricula remotely during the spread of the Coronavirus epidemic in Georgia. The study was implemented in a private school. It relied on statistics from that school's first week of teaching and its experience transitioning from face-to-face to digital distance education during the Corona pandemic. Educational platforms were used for online education, and the study results showed that the transition from traditional education to online education was successful. The school staff, administration teachers, and students can benefit from these skills and the distance learning system.

Abu Shakhdam's study (2020) aimed to reveal the effectiveness of e-learning and digital curricula in light of the spread of the Coronavirus from the teachers' point of view at Khadouri University. The descriptive analytical approach was used, and the study sample consisted of (50) faculty members at Khadouri University who taught during the period of the spread of the Coronavirus through the e-learning system at that university. A questionnaire was used and applied to the study sample. The study's results revealed that the degree of the study sample's evaluation of the effectiveness of e-learning in light of the spread of the Coronavirus from their point of view was average. The study recommended holding training courses in the field of e-learning for both faculty members at the university and students to eliminate all obstacles preventing them from benefiting from the e-learning system and the necessity of combining face-to-face education and e-learning in educational institutions.

Falloon (2020) conducted a study that sought to provide a comprehensive framework focused on teacher digital competency (TDC). It goes beyond the traditional understanding of digital competencies by providing a more holistic vision that helps teachers prepare students to use technology effectively and safely in their educational environments. A literature review was used to identify the characteristics of current frameworks used in developing teachers' digital competency. A set of models and frameworks developed specifically for teacher education were analyzed, focusing on the extent to which they represent a comprehensive understanding of digital competency. The study tools relied on a literature review of digital competency frameworks and an analysis of current models such as TPACK and SAMR. Questionnaires and interviews with experts in education and technology to gain insights into digital competency. The results showed the comprehensive identification of 12 essential elements for digital competency, including knowledge and understanding, communication and collaboration, information management, and legal and ethical considerations, and the presentation of the TDC framework that includes methodological competencies and personal and ethical competencies. The results showed a need to change the approach to teacher preparation to go beyond a narrow focus on technical skills to a broader understanding that includes ethical and social considerations. The study demonstrated the importance of developing comprehensive digital competencies reflecting the challenges teachers and students face in today's digital world.

Al-Yami study (2020) sought to investigate digital teaching skills and digital curricula in the twenty-first century, identify the reality of female teachers' possession of digital teaching skills, and determine the degree of training needs for female teachers in digital teaching skills from their point of view and the point of view of school principals and supervisors of female teachers. A proposed training program was designed to develop the digital teaching skills of female teachers in public education institutions. The study used the descriptive analytical approach. A questionnaire consisting of (64) paragraphs distributed over (5) fields was developed, which was applied to a random sample consisting of (154) school principals and (981) female teachers. The results showed that the degree of training needed in digital teaching skills for female teachers from their point of view and the point of view of the school leader as a whole is very high. The study concluded that female teachers were able to employ e-training and integrate information and communications technology into the training provided to female teachers and to support this training with the training program proposed by the

Educational Training Department to train female teachers in digital teaching and digital curricula, and to seek to improve the proposed training program in light of the new changes in the field of digital teaching and training programs.

In a study conducted by Smith (2021) to investigate teacher interactions with digital science curricula, the science curriculum materials adopted in the United States were reviewed, focusing on digital science curricula according to the STEM framework for grades K-12. The STEM domains (linking science with technology, mathematics, and engineering) were included, as middle school science teachers used a digital science curriculum that provided rich and valuable information, and data was collected through a questionnaire administered to 35 science teachers. The study's results shed light on the participants' interactions in teaching science according to STEM fields. The results of the study showed that when teachers designed and evaluated teaching, they relied on their beliefs and goals regarding learning outcomes but ignored the use of important aspects of the curriculum, including teacher identity, which is affected by the implementation of the curriculum according to STEM fields and the absence of processes within planning, teaching, and evaluation. Therefore, the professional development process for teachers must include enhancing deep knowledge and understanding of state standards and developing their instructions and assessment by implementing professional learning communities to design instructions and a shared assessment process according to state standards to ensure that students learn science in the classroom.

The current study agreed with previous studies in addressing digital learning and digital curricula by emphasizing the importance of the subject and the occurrence of a qualitative shift in curricula development in the current era. However, the current study differs from previous studies in that the subject of the study addressed three aspects of digital curricula: technical Readiness of teachers, pedagogical Readiness, and obstacles to their implementation. It also addressed some variables specific to the study, such as the teacher's gender, teaching experience, academic qualification, type of school in Jordan, and different spatial and temporal circumstances. The current study benefited from previous studies in constructing the study tool, interpreting and analyzing the results, and presenting the study's theoretical framework.

Through the previous presentation, this study seeks to identify the reality of implementing digital curricula by teachers in the technical and pedagogical dimensions, hoping to provide recommendations that would contribute to the qualitative transition to employing digital curricula, especially in the age of technology and communications, and is concerned with studying the reality of Jordanian schools to receive everything new in the world of digital education.

Study Problem

In recent years, the Hashemite Kingdom of Jordan has transitioned towards digital curricula, providing comprehensive support to achieve educational advancements that position Jordan globally. It is anticipated that digitizing curricula will ensure equitable opportunities for learners by providing technological tools to all students and transforming the learning process through techniques that integrate learners into problem-solving and higher-order thinking skills.

The greatest challenge facing education systems and schools today is the integration of digital curricula in education, particularly with the advent of artificial intelligence in student learning and the shift from traditional to digital education through the concept of the electronic school. This transition aims to enhance education quality and access to advanced knowledge. Future learning is rooted in elements of the Fourth Industrial Revolution, characterized by the convergence of physical, digital, and biological factors and the reliance on AI and the Internet (Mazhar, 2022). Many studies indicate a lack of teacher proficiency in employing digital curriculum enhancements. For instance, Falloon (2020) proposed a comprehensive framework focusing on teachers' digital competence (TDC), moving beyond the traditional understanding of digital skills by offering a holistic vision to equip teachers for effective and safe technology use in educational settings. Al-Yamami (2020) also noted that some teachers lack the technical perspective required for utilizing digital content in education and perceive digitization as having minimal educational outcomes for students.

Based on field observations and researchers' insights into teaching digital curricula and the widespread dissatisfaction among teachers regarding contemporary educational technology and their inability to utilize

digital content with students effectively, this study seeks to explore the perceptions of implementing digital curricula in Jordan from teachers' perspectives, focusing on preparedness and obstacles. Specifically, this study aims to answer the following questions:

1. What are the perceptions of implementing digital curriculum enhancements from the teachers' perspectives in the University District Education Directorate in Jordan?
2. Are there statistically significant differences at the significance level ($\alpha=0.05$) in implementing digital curriculum enhancements due to variables such as gender, teaching experience, educational qualification, and school type?
3. What are the obstacles teachers face in implementing digital curricula from the perspective of the University District Education Directorate in Jordan?

Study Significance

The significance of digital curricula lies in enhancing the educational process by improving teacher performance and creating a flexible learning environment that keeps pace with modern technological developments. Digital curricula are an effective tool that empowers teachers and students to use advanced technologies, improving 21st-century skills and developing competencies relevant to digital curricula. These are essential for improving education quality and effectiveness, contributing to teacher skill development, and fostering students' constructive learning abilities.

This study is of significant importance in educational research as it is, to the best of the researcher's knowledge, the first to focus on the perceptions of applying digital curriculum enhancements in Jordan by analyzing teachers' Readiness and the challenges they face. It aims to provide a clear understanding of the implementation of these curricula, assisting in improving and adapting them to meet teachers' and students' needs. The study results offer insights for guiding future developments in this field and identifying suitable digital tools to update and develop curricula. This could strongly advocate for modernizing digital curricula in Jordan to align with contemporary educational advancements and fulfill the needs of the educational community.

Study Boundaries and Limitations

1. Subject Boundaries: The study is limited to exploring the perceptions of implementing digital curricula from the teachers' perspectives in the University District Education Directorate.
2. Human Boundaries: The study sample includes secondary school teachers from public and private schools.
3. Geographical Boundaries: The study was conducted in Amman, Jordan's University District Education Directorate.
4. Temporal Boundaries: The study was conducted during the second semester of the 2023–2024 academic year.

Study Limitations

The study findings are constrained by the generalizability of its results, based on the study population and sample, and the psychometric properties (validity and reliability) of the research instrument used.

Operational Definitions

- Digital Curricula: Procedurally defined as the set of learning experiences comprising the basic elements of a curriculum—objectives, content, methods, activities, and evaluation—delivered through a qualitative shift from paper-based to electronic formats using various interactive media. It is measured by the total score obtained through a questionnaire assessing teachers' Readiness to implement digital curriculum enhancements and the obstacles they face.

- **Obstacles to Digital Curriculum Implementation:** Defined as any barriers hindering the digital learning process in public and private schools related to using modern technological tools for curriculum digitization, including the integration of sounds, images, illustrations, colors, interactive videos, and other digital teaching aids, along with teacher, student, and parental motivation in Jordan.
- **Teachers in the University District Education Directorate:** Defined as the teaching staff in public and private schools who teach various curricula, such as Arabic, Islamic education, and science, and whose professional duties require implementing digital curricula in their teaching across different educational levels.

METHODOLOGY AND PROCEDURES

Study Methodology

The study employed a descriptive survey method to describe and analyze the current state of implementing digital curricula in Jordan. The quantitative research approach (questionnaire) was used to collect and analyze the study's data.

Study Population and Sample

The study population consisted of male and female public and private school teachers from the Ministry of Education under the University District Directorate in Amman during the 2023/2024 academic year. The study sample included 370 teachers selected randomly through a convenient sampling method. They taught various subjects, such as Arabic language, Islamic education, sciences, and others within the same population. Table 1 outlines the sample distribution based on the study variables.

Table 1. Distribution of Study Sample by Variables

Category	Frequency	Percentage (%)
Gender		
Male	170	45.95%
Female	200	54.05%
Total	370	100%
Teaching Experience		
Less than 5 years	135	36.49%
5–10 years	105	28.37%
More than 10 years	130	35.14%
Total	370	100%
Educational Level		
Bachelor's degree	205	55.41%
Graduate studies	165	44.59%
Total	370	100%
School Type		
Public	195	52.70%
Private	175	47.30%
Total	370	100%

Study Instrument

To achieve the study's objectives and answer its questions, a questionnaire was developed based on a review of relevant literature and previous studies, such as Al-Awidi & Aldhafeeri (2017) and Al-Saadi (2021). The questionnaire comprised three sections:

1. Readiness for Digital Curriculum Implementation, including:
2. Technical Readiness (12 items).
3. Pedagogical Readiness (12 items).
4. Barriers to Digital Curriculum Implementation (10 items).
5. The validity and reliability of the instrument were ensured.

Instrument Validity and Reliability

Apparent Validity

The questionnaire was reviewed by 12 experts specializing in educational technology, curriculum design, teaching methods (e.g., Arabic, Islamic education, sciences), and assessment and evaluation. They evaluated each item's clarity, appropriateness, relevance, and applicability. Based on their feedback, adjustments were made, such as combining e-learning with blended learning, adding items (e.g., teachers' use of augmented and virtual reality technologies), and removing others (e.g., uploading files and using email).

Discriminant Validity

Discriminant validity was confirmed by calculating the correlation coefficients between each item and its corresponding domain, a method for assessing construct validity. Table 2 presents the results.

Table 2. Correlation Coefficients for Questionnaire Items

Item	Field One	Correlation Coefficient Value	Item	Field Two	Correlation Coefficient Value	Item	Field Three	Correlation Coefficient Value
1		0.549	13		0.579	25		0.631
2		0.555	14		0.564	26		0.529
3		0.615	15		0.605	27		0.633
4		0.628	16		0.582	28		0.577
5		0.625	17		0.512	29		0.706
6		0.639	18		0.666	30		0.668
7		0.559	19		0.569	31		0.611
8		0.565	20		0.564	32		0.539
9		0.625	21		0.615	33		0.623
10		0.648	22		0.572	34		0.547
11		0.635	23		0.522			
12		0.619	24		0.656			

The correlation values ranged from 0.512 to 0.668, indicating acceptable validity for application.

Reliability

The questionnaire was piloted with 25 participants from the same population but outside the main sample to determine internal consistency reliability using Cronbach's alpha. Table 3 summarizes the results.

Table 3. Cronbach's Alpha Reliability Coefficients

Domain	Number of Items	Reliability Coefficient
Teachers' Technical Readiness	12	0.65
Pedagogical Readiness	12	0.62
Barriers to Implementation	10	0.68
Entire Instrument	34	0.88

The overall Cronbach's alpha of 0.88 indicates high reliability.

Statistical Standards

A five-point Likert scale was used, with the following scoring:

- Strongly Agree (5 points).
- Agree (4 points).
- Neutral (3 points).
- Disagree (2 points).
- Strongly Disagree (1 point).

The scale was categorized as follows:

- Low (1.00–2.33).
- Medium (2.34–3.67).
- High (3.68–5.00).

The interval calculation was as follows:

$$\text{Interval} = \frac{\text{Highest Score (5)} - \text{Lowest Score (1)}}{\text{Number of Categories (3)}} = 1.33$$
$$\text{Interval} = \text{Number of Categories (3)} \times \frac{\text{Highest Score (5)} - \text{Lowest Score (1)}}{3} = 1.33$$

Study Implementation Procedures

1. Reviewed theoretical frameworks and previous studies to establish the study's foundation.
2. Developed the questionnaire and ensured its validity and reliability.
3. Digitized the questionnaire using Google Drive and distributed it via WhatsApp to the pilot sample.
4. Distributed the questionnaire to the study sample through the researchers' professional networks, explaining the study's objectives and addressing participants' queries.
5. Analyzed the collected data using the Statistical Package for the Social Sciences (SPSS).
6. Answered the study questions and compiled the study report.

Statistical Analysis

To answer the study's questions, the following statistical methods were applied:

1. *Correlation Coefficients*: To verify instrument validity.
2. *Cronbach's Alpha*: To determine instrument reliability.
3. *Means and Standard Deviations*: To assess the implementation level of digital curricula and identify barriers.
4. *Four-Way ANOVA*: To detect statistically significant differences ($\alpha=0.05$) in teachers' attitudes based on study variables.

RESULTS AND DISCUSSION

Results Related to the First Question

"What are Teachers' Perceptions of Implementing Digital Curricula in the Directorate of Education in the University District in Jordan?"

The means and standard deviations for implementing digital curricula from teachers' perspectives were extracted to answer this question. Table 4 below illustrates this:

Table 4. Means, Standard Deviations, and Rankings for the Study Tool and Its Domains (Overall) in Descending Order

Field Number	Field Name	Field Ranking	Mean	Standard Deviation	Degree
2	Pedagogical Preparedness	1	3.364	0.651	Medium
1	Teachers' Technical Preparedness	2	2.992	0.857	Medium
Overall			3.178	0.711	Medium

The data in Table 4 shows that the degree of implementing digital curricula from teachers' perspectives is medium, with an overall mean of (3.178) and a standard deviation of (0.711). The *Pedagogical Preparedness* field achieved the highest mean of (3.364), ranked medium, with a standard deviation of (0.651). The *Technical Preparedness* field ranked second, with a mean of (2.992), also rated medium, and a standard deviation of (0.857).

These results indicate that teachers' preparedness for implementing digital curricula is generally at a medium level in both pedagogical and technical aspects. This can be attributed to the need to alter teachers' perceptions toward digitalizing curricula, as some advocate for traditional teaching methods. Implementing digital curricula often requires significant effort, high-cost resources, and comprehensive training to embrace modern educational approaches.

This finding aligns with El-Hamamsy (2024), which emphasized that the sustainability of reforms depends on the usefulness of educational content, ease of implementation, and available support in schools. Results highlighted the importance of reinforcing teachers' confidence in digital teaching and increasing support over time. Similarly, Al-Saadi (2021) concluded that the means for digital learning preparedness in Jordan were medium and suggested workshops and training courses for teachers and students to improve digital literacy. Moreover, Falloon (2020) stressed the importance of developing comprehensive digital competencies to address the challenges teachers and students face in today's digital world.

Detailed Results for the First Domain: Teachers' Technical Preparedness

Table 5. Means, Standard Deviations, and Rankings for the Technical Preparedness Domain Items in Descending Order

Paragraph Rank	Item	Technology Readiness Field Paragraphs	Mean	Standard Deviation	Rank
1	3	I use e-learning platforms like Moodle or Classroom to manage classrooms and distribute educational content.	3.58	1.188	Moderate
2	2	I regularly use digital tools (e.g., presentations, videos, and interactive content) in my lessons to enhance learning.	3.39	1.151	Moderate
3	12	I can use e-learning and blended learning methods.	3.37	1.072	Moderate
4	1	I can design interactive visual content using graphic software, such as Canva or Photoshop.	3.29	1.481	Moderate
5	5	I can use social media with students efficiently (Twitter, Instagram, etc.).	3.24	1.203	Moderate
6	9	I can use chat and online discussions to teach classrooms.	3.07	1.123	Moderate
7	11	I can develop e-learning activities that encourage my students to be critical thinkers.	2.96	1.046	Moderate
8	10	I can publish my lessons and classroom activities on the web.	2.92	1.171	Moderate
9	8	I have skills in designing and using online tests in virtual classroom teaching.	2.89	1.129	Moderate
10	7	I can convert printed content and activities in the curriculum into digital format.	2.63	1.208	Moderate
11	6	I can integrate modern educational technologies (e.g., augmented reality, educational games, interactive platforms) into digital lesson plans.	2.52	1.134	Moderate
12	4	I can create wiki sites or websites.	2.07	1.075	Moderate
Overall Field			2.992	0.857	Moderate

When reviewing the paragraphs of the first field: *“Technological or Technical Readiness of Teachers,”* as shown in Table 5, it is found that the mean values for the paragraphs and the field as a whole ranged between (2.07–3.58) with a moderate degree. The overall mean for this field was (2.992) with a moderate rank and a standard deviation of (0.857). The third paragraph, which states: *“I regularly use e-learning platforms (such as Moodle or Google Classroom) to manage classrooms and distribute educational content,”* ranked first with a mean of (3.58) and a standard deviation of (1.188). The second paragraph followed this: *“I regularly use digital tools, such as presentations, videos, and interactive content, in my lessons to enhance learning,”* with a mean of (3.39) and a standard deviation of (1.151). Meanwhile, the fourth paragraph, which states: *“I can create wiki sites or websites,”* ranked last in this field with a low rank, a mean of (2.07), and a standard deviation of (1.075).

The results of the paragraphs that received medium evaluations can be explained based on several factors related to technological and digital skills. While most teachers may be able to use some technological tools effectively in their daily lives or academic work environments, the level of proficiency across all areas varies depending on previous experiences, available training, and exposure to technology. Some teachers may have strong abilities in file uploads or using word processing programs while facing difficulty or a lack of knowledge in other areas, such as developing e-learning activities or designing online tests, which might have led to the medium evaluations. Additionally, varying exposure to advanced technology may impact teachers' proficiency in using tools like Learning Management Systems (LMS) or creating wiki sites. Furthermore, some educational environments might limit professional training on these tools, hindering advanced skills development. Moreover, while some tools, such as social media, are generally simple and easy to use, their systematic and effective use in educational contexts requires specific skills. Based on these factors, the results indicate a need for more training and opportunities to gain advanced technological experience, enhancing teachers' abilities to utilize modern tools and techniques in the educational process.

The findings of this study align with the findings of Al-Saadi (2021), which indicated a medium level of Readiness for digital learning in Jordan. It recommended workshops and training sessions for teachers and students to help them use computers and the Internet efficiently and effectively to meet the demands of digital learning and its strategies.

Table 6. Mean Scores, Standard Deviations, and Ranks of the “Pedagogical Readiness” Domain Items Ordered in Descending Order

Item Rank	Item Number in the Tool	Pedagogical Domain Items	Mean Score	Standard Deviation	Rank
1	6	I encourage my students to integrate daily life experiences into the classroom and create new activities based on those experiences.	3.80	0.915	High
2	5	I support student interaction through collaborative activities as a digital teaching and learning method.	3.69	0.888	High
3	9	I am confident in using technology to implement digital curricula.	3.65	0.944	Medium
4	4	High-quality learning experiences can create a transformative shift in face-to-face education.	3.54	0.982	Medium
5	1	I can use technology to support my teaching methods.	3.48	0.992	Medium
6	10	I am motivated to develop my technical skills in line with digital curricula requirements.	3.45	0.955	Medium
7	7	I am comfortable communicating online and confident in conveying my messages effectively.	3.33	1.018	Medium
8	2	I can deliver personalized instruction using technology to meet the needs of students at various levels.	3.33	1.075	Medium
9	11	I recognize the importance of employing online-directed learning strategies suitable for different learning styles.	3.31	0.952	Medium
10	8	I possess time management skills in a technology-rich virtual classroom.	3.21	1.029	Medium
11	12	Using online platforms in education saves time and effort and provides the necessary security for implementing digital curricula.	2.87	0.996	Medium
12	3	I believe in the importance of digital transformation in enhancing the educational process with flexibility.	2.75	1.021	Medium

When reviewing the paragraphs of the second field: “*Pedagogical Readiness of Teachers*,” it is found that the mean values for the paragraphs and the field as a whole ranged between (2.75–3.80), from a moderate to a high level. The overall mean for this field was (3.364) with a moderate rank and a standard deviation of (0.651). The sixth paragraph, which states: “*I encourage my students to integrate everyday life experiences into the classroom and innovate new activities based on those experiences*,” ranked highest with a mean of (3.80) and a standard deviation of (0.915). The fifth paragraph followed this: “*I support student interaction through collaborative activities as a method for digital teaching and learning*,” with a mean of (3.69) and a standard deviation of (0.915). Meanwhile, the third paragraph, which states: “*I believe in the importance of digital transformation in developing the educational process flexibly*,” ranked last in this field with a moderate rank, a mean of (2.75), and a standard deviation of (1.021).

The results related to the pedagogical aspect, in general, can be attributed to the primary goal of digital curricula for teachers: their desire to develop their skills and break the routine of relying solely on printed books and traditional curricula. Teachers believe that digital curricula offer advantages that significantly differentiate them from traditional teaching methods. Some teachers supported the alternatives listed in the questionnaire because they offer engaging and attractive teaching methods.

The reasons for the high ratings of the paragraphs “*Integrating everyday life experiences into the classroom and innovating new activities based on those experiences*” and “*Supporting student interaction through collaborative activities as a method for digital teaching and learning*” can be attributed to modern and effective teaching

methods that enhance the learning experience. Encouraging students to integrate everyday life experiences into the classroom helps make the content more relevant and realistic, which enhances their engagement and deep understanding of digital curricula. Additionally, supporting student interaction through collaborative activities fosters cooperation and participation in the digital learning environment, encouraging collective thinking and idea exchange, which is highly valued in modern learning methods. These factors contribute to the increased effectiveness of the educational process, reflected in the high ratings for these two paragraphs. The results align with Mamkh (2021), which showed that teachers' digital learning skills were rated highly, and with the study of Kvavadze & Basilaia (2020), which emphasized that the transition from traditional education to online learning was successful. The school staff, including administrators, teachers, and students, were able to benefit from these technological skills and the remote learning system. The findings also align with Basilaia and Kvavadze (2020), who highlighted the importance of successfully transitioning from traditional to digital curricula and acquiring essential skills for students to stay connected with school during crises.

As for the paragraphs that received medium ratings, this can be explained by the fact that teachers may have a partial or limited understanding of certain skills or concepts related to technology-based education. For example, handling flexible student issues such as assignment deadlines and absenteeism may vary based on personal experience and work environment, which led to these moderate results. Similarly, in areas such as using technology to support teaching methods or managing a technology-rich classroom, teachers may accept these methods but face challenges in applying them efficiently or may not receive adequate training to use digital tools effectively. These reasons explain the medium ratings. Concerns about using websites for teaching due to security or the belief that digital curricula are less flexible than printed curricula. Some teachers are still hesitant to fully embrace technology due to concerns about security or adapting to digital tools. These factors highlight teachers' need for more training and support in effectively and flexibly integrating technology into the educational process. The results of this study align with Al-Yami (2020), which indicated that the need for female teachers to train in digital teaching skills, as seen from their perspective and the school leader's perspective, is very high. The study recommended empowering teachers to employ online training and integrate ICT in digital teaching and curricula training. The results also align with Smith (2021), which showed that when teachers engaged in designing and evaluating teaching, they relied on their beliefs and goals related to learning outcomes, ignoring important aspects of the curriculum, such as teacher identity, which is influenced by the implementation of the curriculum according to STEM areas and the Lack of processes within planning, teaching, and evaluation.

Results Related to the Second Question

“Are there statistically significant differences at the significance level ($\alpha = 0.05$) between the Mean Scores of teachers' perspectives on the implementation of digital curricula in the Directorate of Education in Al-Jame'a District, Jordan, attributed to the variables of gender (Male, Female), teaching experience (Less than five years, 5-10 years, more than 10 years), academic qualification (Bachelor's, Graduate Studies), and type of school (Public, Private)?”

To answer this question, the Mean Scores and standard deviations of teachers' estimates regarding their attitudes toward digital curricula at the significance level ($\alpha = 0.05$) were calculated according to the levels of the study variables. A four-way ANOVA analysis was conducted to identify the differences according to gender, teaching experience, academic qualification, and type of school. Below are the results and discussion of these findings.

Table 7. Mean Scores, standard deviations, and ranks of teachers' responses regarding the perceptions of teachers' attitudes toward the implementation of digital curricula in Jordan according to variables (Gender, Teaching Experience, Academic Qualification, Type of School)

Variable	Count	Mean Score	Standard Deviation
Gender			
Male	170	3.345	0.748
Female	200	3.102	0.683
Teaching Experience			
Less than 5 years	135	3.007	0.511
5-10 years	105	2.972	0.656
More than 10 years	130	3.178	0.727
Academic Qualification			
Bachelor's	205	3.111	0.706
Graduate Studies (Master's – PhD)	165	3.245	0.715
Type of School			
Public	195	3.153	0.703
Private	175	3.245	0.759
Total	370	3.178	0.711

Table 7 shows apparent differences between the Mean Scores and standard deviations of the responses of the study sample regarding the overall score for teachers' attitudes toward digital curricula based on gender, years of teaching experience, academic qualification, and type of school. A four-way ANOVA was applied to determine whether these differences are statistically significant at the significance level ($\alpha = 0.05$). The results of this analysis are shown in Table 8.

Table 8. Results of the four-way ANOVA without interactions for the differences between the Mean Scores of the teachers' attitudes toward the implementation of digital curricula in Jordan based on the variables of gender, teaching experience, academic qualification, and type of school.

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	F-value	Significance Level
Gender	2.859	1	2.859	5.887	0.016*
Teaching Experience	1.153	2	0.576	1.187	0.307
Academic Qualification	1.068	1	1.068	2.199	0.140
Type of School	1.991	1	1.991	4.101	0.04*
Error	94.206	194	0.486		
Corrected Total	100.715	199			

Significant at $\alpha = 0.05$

The results in Table 8 also indicate the presence of statistically significant differences at the significance level ($\alpha = 0.05$) for the following study variables:

Gender: The calculated F value was (5.887), with a significance level of (0.016), which is statistically significant at the ($\alpha = 0.05$) level. The differences regarding the gender variable favored the male group, with a mean of (3.345) compared to females, who had a mean of (3.102). This can be attributed to the ease of communication between male teachers and students through smart devices and the availability of sufficient time for them. Additionally, male students often have more access to digital technology due to their gender, as Arab societies tend to favor males in this regard. The results are consistent with Al-Muslamani (2022), which found that males are more inclined toward digital transformation than females. Still, they differ from the studies by Al-Saadi (2021) and Mamkh (2021), which showed no gender-related differences.

School Type: The calculated F value was (4.101), with a significance level of (0.04), which is statistically significant at the ($\alpha = 0.05$) level. The differences in the school type variable favored private schools, with a mean of (3.245), compared to public schools, with a mean of (3.153). This can be attributed to the fact that private schools are more advanced in implementing digital curricula due to the availability of modern technological tools and the infrastructure to support them. Moreover, private sector developments regarding digital curriculum enhancers are faster due to competition and the effort to provide community perceptions aligned with contemporary culture. This explains the difference from public schools, where technological development might be slower in comparison.

The results in Table 8 also indicate no statistically significant differences at the significance level ($\alpha = 0.05$) for the following study variables:

Teaching Experience: The calculated F value was (1.187), with a significance level of (0.307), which is not statistically significant at the ($\alpha = 0.05$) level.

Academic Qualification: The calculated F value was (2.199), with a significance level of (0.140), which is also not statistically significant at the ($\alpha = 0.05$) level. This may be because attention to digital curricula does not differ based on qualification or experience. The factors driving teachers to implement digital curricula are intrinsic and are based on their motivation and beliefs about the importance of digital curricula in education. This negates the relevance of teaching experience and academic qualifications. The results of this study are consistent with those of Al-Saadi (2021), which showed no differences related to experience or academic qualification, and with Mamkh's (2021) study, which also found no statistically significant differences related to teaching experience.

Results Related to the Third Question

“What are the degree of obstacles facing the implementation of digital curricula from the teachers’ perspective in the Directorate of Education in Al-Jame’a District, Jordan?”

To answer this question, the Mean Scores and standard deviations for the degree of obstacles facing the implementation of digital curricula in Jordan from the teachers’ perspective were calculated. Table 9 presents the results:

Table 9. Mean Scores, standard deviations, and ranks for the degree of obstacles facing the implementation of digital curricula in Jordan from the teachers’ perspective.

1	6	A weak economic level hinders some students from obtaining a computer or Internet to communicate with the teacher.	4.05	1.016	High
2	5	Excessive professional commitments of teachers hinder digital learning.	3.82	0.966	High
3	1	Weak internet network and sudden disconnections.	3.81	0.994	High
4	7	Most available devices (computers, smartphones, and iPads) are old, slow, and must be updated.	3.76	0.948	High
5	4	Lack of incentives and motivation for teachers using digital learning.	3.70	1.070	High
6	10	Implementing digital curricula requires a lot of effort, time, and incentives.	3.68	0.961	High
7	3	Lack of financial and technical resources for using digital learning.	3.45	1.168	Medium
8	9	Parents do not encourage their children to interact with the new e-learning system.	3.42	1.004	Medium
9	8	Misalignment between school curricula and digital learning.	3.40	1.041	Medium
10	2	I lack the advanced technical skills to use modern technological applications.	2.18	1.120	Medium
Total			3.53	0.679	Medium

When reviewing the sections of “*Barriers to Implementing Digital Curricula for Teachers*,” it is evident that the mean values of the items and the overall barriers ranged from (2.18 to 4.05), with an average rating between medium and high. The overall barrier score was categorized as medium, with a mean of (3.53) and a standard deviation of (0.679). The sixth item, which reads “*Economic hardship constitutes an obstacle for some students in acquiring a computer to communicate with the teacher*,” ranked first with a mean of (4.05) and a standard deviation of (1.016). The fifth item followed this, “*The abundance of professional commitments is an obstacle to digital learning*,” with a mean of (3.82) and a standard deviation of (0.966). Meanwhile, the second item, “*I lack advanced technical skills to use modern technological applications*,” ranked last in this field with a medium rating, a mean of (2.18) and a standard deviation of (1.120).

The high scores on these items can be explained by the fact that these factors represent real challenges many teachers and students face in digital learning environments. Economic hardship may be a primary reason for the difficulty in acquiring the necessary devices to communicate with teachers, significantly impacting access to digital education. Additionally, the abundance of professional commitments prevents teachers and students from allocating enough time for digital learning, especially in work environments that demand more focus on daily tasks.

Moreover, weak or intermittent internet connectivity presents a significant challenge, especially in regions that may lack strong infrastructure to support effective digital education. Furthermore, outdated or slow devices delay the educational process and limit the effectiveness of modern teaching technologies. The Lack of incentives and motivation for digital learning teachers reflects the challenges they face in maintaining enthusiasm and productivity under these circumstances. Therefore, the prominent presence of these factors in the digital learning environment contributes to the high ratings of these items, as these challenges are common issues faced by many teachers in the educational field.

As for the items that received medium ratings, several interrelated factors may explain this. Some teachers may face a lack of financial resources for digital learning. However, this issue may not be as severe as to significantly impact digital education, as the resources may vary among teachers. Also, the Lack of encouragement from some families for their children to engage with the new e-learning system indicates hesitation or Lack of conviction from parents despite other families providing full support. Additionally, the challenge of some school curricula not aligning with digital learning methods hinders the ideal integration of the educational process. The Lack of sufficient skills to use a computer indicates no complete lack of skills, but there may be a need for more training and practice. These medium ratings generally reflect that some teachers face limitations and challenges while indicating gradual improvement and familiarity with these issues.

The study’s results align with Al-Rashidi (2024), who confirmed the existence of barriers, the most important of which are administrative barriers, including (concept ambiguity - resistance to change), limited financial resources for digital transformation, and a lack of awareness among staff about the importance of digital transformation. This aligns with Al-Muslamani’s (2022) study, which showed that Egyptian universities face barriers regarding digital transformation, where the implementation barriers axis received a high percentage.

RECOMMENDATIONS

Based on the study’s findings, the following recommendations were made:

- Train teachers on how to use digital curricula effectively in Jordan.
- Develop and implement strategies and plans for the continuous development and monitoring of digital curricula in Jordan, which are future-oriented and keep pace with technological advancements.
- Conduct further studies on digital curricula in Jordan.
- Design programs to enhance teachers’ attitudes toward digital curricula.
- Provide financial support to properly implement curricula in the digital learning environment.

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