



A Faculty Perspective on the Effectiveness of Online Teaching in Higher Education

Hazzaa N. Alshareef¹, Sawsan Badrakhan², Junainah Abd Hamid³, Ali Khatibi^{4*}, Mohamd Mbaydeen⁵, Sakinah mohd shukri⁶.

ARTICLE INFO

ABSTRACT

Article History:

Received: 10 December 2020

Received in revised form: 17 June 2021

Accepted: 10 October 2021

DOI: 10.14689/ejer.2021.96.18

Keywords

Teachers' effectiveness, learning management system, research engine, quality of education, institutional support

Recently, the unfortunate Covid-19 shutdown had a detrimental effect on the quality of education, which has been the subject of new literature and policy debates worldwide. Thus, the current study investigates the effect of instructors' efficacy in utilizing a learning management system (LMS) and research engine on the educational quality in Jordan's public institutions. Additionally, this work examines the moderating effect of institutional support on the association between instructors' efficacy in using LMS and research engines and the quality of education at Jordan's public universities. The current paper collected data via survey questionnaires and used smart-PLS to verify the linkage understudy constructions. The findings suggested that teachers' ability to utilise a learning management system and

a research engine had a strong and favourable relationship with educational quality. Additionally, the data indicated that institutional support has a strong moderating effect on the relationship between teachers' efficacy in using LMS and research engines and the quality of education in Jordan's public universities. This study is significant for regulators as they develop guidelines governing the efficacy of teachers and the quality of education at institutions.

© 2021 Ani Publishing Ltd. All rights reserved.

¹ Saudi Electronic University, Email: h.alshareef@seu.edu.jo

² AL-Ahliyya Amman University, Hourani Center for Applied Scientific Research, Email: s_badrakhan@ammanu.edu.jo

³ Management and Science University, Email: junainah@msu.edu.my, ORCID: 0000000330786123

^{4*} Management and Science University, Email: alik@msu.edu.my, ORCID: 0000000225317720

⁵ AL-Ahliyya Amman University, Hourani Center for Applied Scientific Research, Email: mmubydeen@ammanu.edu.jo

⁶ Management and Science University, Email: sakinahshukri@msu.edu.my, ORCID: 0000-0002-9100-014X

Introduction

Education plays a key role in the social and economic well-being of people. People who are educated can make a substantial contribution to their families and society in a variety of ways, resulting in a stable and stimulating community. Some of the key benefits of education from an economic perspective are the creation of more employment opportunities, security to higher income, development of problem-solving skills, sustainability in economic growth (Esfijani, 2018). One with a low level of education has to face a large competition in the labor market from the hundreds of other candidates for the same time for the low-paying entry-level post. But the increase in education reduces the competition and gives employment opportunities. Moreover, education instils many professional skills and abilities along with enhancing essential knowledge (Demir et al., 2020). The increase in the human capital raises the level of production by bringing improvement in the production processes and technologies used, and the increase in the productivity level increases the employment opportunities and takes the income level upwards. Similarly, increased human capital bringing improvement in the production and services and enhancing the trade level from local to internal gives vent to the economic growth and sets a higher position for the country in the world market (Castro & Tumibay, 2021). On the other side, quality education is beneficial from a social perspective, like it provides prosperous life, a better community, modern society, equal development opportunities, bridges the borders, and develops social bonds. Social benefits are based on economic or scientific progress and the ethics taught during education (Schophuizen et al., 2018).

In the words of Gacs et al. (2020), high-quality education equips all students produced by the education institutions with the knowledge and skills they need to be economically productive, build sustainable incomes, contribute to democratic and peaceful societies, and improve the personal well-being of individuals. The consequences of learning that are required may be different depending on the context. Still, they must include threshold levels of literacy and numeracy, fundamental scientific knowledge, and life-developing skills such as disease awareness, prevention, and precautions at the end of the basic education process Villegas-Ch et al. (2020). Throughout this process, capacity building to increase the quality of teachers and other education stakeholders is critical. In the present era, online teaching is considered the best way to provide high-quality education. In online teaching, teachers and institutions play a crucial role (Dumford & Miller, 2018). The teachers who have effectiveness in the online learning processes like Learning Management System (LMS) can provide course knowledge, training for skills development, and other necessary information and assess their performance. In this way, they remove the misconception and provide the highest-quality education to the students (Zhu & Liu, 2020). The utilization of search engines is a key element of online education. The teachers' effective use of search engines improves their own knowledge and helps them teach the students in an efficient manner.

The focus of the current study is on the role of teachers' effectiveness in online teaching and its impact on the quality of education in the universities of Jordan. The good education

system has always played a significant role in the progress from a predominantly agricultural to an industrialized country. Jordan has 95th among 187 in the Human Development Index. Though the country has limited resources, the Ministry of Education has drawn a highly advanced national curriculum. The education system of Jordan acts as a role model to other nations. In the Arab world, Jordan ranks first in education (Bao, 2020). There are 32 universities, 19 private, ten public, one regional, and two operating under specific regulations in Jordan. Almost all universities are considered distinctive because they apply the highest higher education standards in the syllabus (Pastor et al., 2020). Over the last two decades, in Jordan, the higher education sector has achieved significant growth and progress, as evidenced by the rapid increase in the number of higher educational institutions, faculty members, administrators, enrolled students, and academic members, educational expenditures, and government financial support for this important educational sector (Osaili et al., 2018). The individuals who hold the General Secondary Education Certificate, or its international equivalent, have access to higher education. They can select between community colleges and public and private universities based on their marks or grades. Among Arab countries, Jordan is considered the leader in educational expenditures as 32 universities and more than 50 community colleges provide education and accommodation to over 44,000 international students, representing 107 world nationalities (Ayoub et al., 2019).

Education plays a key role in the social and economic well-being of people. People who are educated can make a substantial contribution to their families and society in various ways, resulting in a stable and stimulating community. Some of the key benefits of education from an economic perspective are creating more employment opportunities, security to higher income, development of problem-solving skills, sustainability in economic growth (Esfijani, 2018). One with a low level of education has to face a large competition in the labor market from the hundreds of other candidates for the same time for the low-paying entry-level post. But the increase in education reduces the competition and gives employment opportunities.

Moreover, education instills many professional skills and abilities and enhances essential knowledge (Demir et al., 2020). The increase in human capital raises production by improving the production processes and technologies used. The increase in productivity increases employment opportunities and takes the income level upwards. Similarly, increased human capital bringing improvement in the production and services and enhancing the trade level from local to internal gives vent to the economic growth and sets a higher position for the country in the world market (Castro & Tumibay, 2021). On the other side, quality education is beneficial from a social perspective. It provides a prosperous life, a better community, modern society, equal development opportunities, bridges the borders, and develops social bonds. Social benefits are based on economic or scientific progress and the ethics taught during education (Schophuizen et al., 2018).

In the words of Gacs et al. (2020), high-quality education equips all students produced by the education institutions with the knowledge and skills they need to be economically

productive, build sustainable incomes, contribute to democratic and peaceful societies, and improve the personal well-being of individuals. The consequences of learning that are required may be different depending on the context. Still, they must include threshold levels of literacy and numeracy, fundamental scientific knowledge, and life-developing skills such as disease awareness, prevention, and precautions at the end of the basic education process Villegas-Ch et al. (2020). Throughout this process, capacity building to increase the quality of teachers and other education stakeholders is critical. In the present era, online teaching is considered the best way to provide high-quality education. In online teaching, teachers and institutions play a crucial role (Dumford & Miller, 2018). The teachers who have effectiveness in the online learning processes like Learning Management System (LMS) can provide course knowledge, training for skills development, and other necessary information and assess their performance. In this way, they remove the misconception and provide the highest-quality education to the students (Xu & Zhu, 2020). The utilization of search engines is a key element of online education. The teachers' effective use of search engines improves their own knowledge and helps them teach the students in an efficient manner.

The focus of the current study is on the role of teachers' effectiveness in online teaching and its impact on the quality of education in the universities of Jordan. The good education system has always played a significant role in the progress from a predominantly agricultural to an industrialized country. Jordan has 95th among 187 in the Human Development Index. Though the country has limited resources, the Ministry of Education has drawn a highly advanced national curriculum. The education system of Jordan acts as a role model to other nations. In the Arab world, Jordan ranks first in education (Bao, 2020). There are 32 universities, 19 private, ten public, one regional, and two operating under specific regulations in Jordan. Almost all universities are considered distinctive because they apply the highest higher education standards in the syllabus (Pastor et al., 2020). Over the last two decades, in Jordan, the higher education sector has achieved significant growth and progress, as evidenced by the rapid increase in the number of higher educational institutions, faculty members, administrators, enrolled students, and academic members, educational expenditures, and government financial support for this important educational sector (Osaili et al., 2018). The individuals who hold the General Secondary Education Certificate, or its international equivalent, have access to higher education. They can select between community colleges and public and private universities based on their marks or grades. Among Arab countries, Jordan is considered the leader in educational expenditures as 32 universities and more than 50 community colleges provide education and accommodation to over 44,000 international students, representing 107 world nationalities (Ayoub et al., 2019).

Education Sector of Jordan

In scientific, medical, and associated medical faculties, as well as in other fields of study, English is employed as a language of contact. Additionally, the credit hour system is used

rather than using the annual method for teaching. International accrediting bodies accredit various academic programmes, including those in the medical sciences, engineering, and business management (Alnusairat et al., 2020). Universities in Jordan provide a diverse range of educational programmes taught in Arabic and English. There are three types of higher educational institutions: public universities, private universities, and some special education institutions with unique characteristics, such as The World Islamic Sciences Education University and the Arab Open University-Jordan branch, which has its primary location in Kuwait (Al-Nawafah & Almarshad, 2020). These universities are required to adhere to global accreditation standards, which are overseen by the Ministry of Higher Education and Scientific Research, the Higher Education Council, and the Accreditation and Quality Assurance Commission for Higher Education Institutions (Almaiah & Al Mulhem, 2019). Most higher education institutions's professors are Ph.D. holders and graduates of prestigious European and American colleges or universities. They hold advanced degrees, demonstrating their superior qualifications and considerable expertise in their respective fields. Approximately 11,000 male and female faculty members are currently employed in various academic jobs (Professor/ Associate Professor/ Assistant Professor) (Qdais et al., 2019).

Education is critical for the development and well-being of all economic sectors and communal life in rising economies such as Jordan. Numerous quality education standards have been established and implemented by governing entities such as Accreditation and Quality Assurance. However, as competition intensifies and economies enter a world shaped by health crises. As school closures become more frequent, the development of teaching talents and the use of online education for high-quality education has become critical (Suliman et al., 2018). This article covers this requirement of the current and future educational systems. The purpose of this study is to investigate instructors' efficacy in online education, specifically teachers' effectiveness in using LMSs and teachers' effectiveness in using search engines to improve educational quality. Additionally, the study will explore institutional support as a moderator between teachers' efficacy in online education, such as their ability to utilize a learning management system (LMS), their ability to use search engines, and the quality of instruction.

Significance of the Study with Contribution

While this study evaluates the arguments of other authors, it makes a significant contribution to the literature. To begin, while research on teacher effectiveness in online teaching and its impact on educational quality has been conducted, their talents, skills, and performance are typically assessed collectively without their participation in some areas of online teaching. The current study divides teachers' efficacy in online education into their ability to use LMSs and their ability to use search engines to improve educational quality. Second, scholars have explored the effects of institutional support on teachers' performance in online education and the overall quality. However, relatively few researchers have examined the moderating effect of institutional support on the characteristics mentioned

above. The current study examines the moderating effects of institutional support on teachers' efficacy in using LMSs, teachers' effectiveness in using search engines, and educational quality. Third, because the present study analyses teachers' efficiency in online education, such as their ability to use LMSs and search engines to improve the quality of education in Jordan's education sector, the present study makes an exceptional contribution to the literature.

The current study is divided into five sections: The second section organizes previously done studies to generate hypotheses concerning the relationship between instructors' efficacy in using LMSs, teachers' effectiveness in using search engines, and educational quality. The third section describes the procedures used to analyze the factor and the reliability of the relationships between these components. The fourth section extracts the final results and compares them to previous investigations. The ramifications of the study, its conclusions, and future recommendations are then discussed.

Literature Review

The quality of education is directly related to its efficacy in everyday life. A high-quality education that adheres to universal education standards benefits both the economy and society. Over the last decade, online education has established itself as an effective source of education that connects disparate areas by eliminating distance learning barriers, overcomes the strokes of time by enabling education 24/7, making education comprehensive by providing an abundance of knowledge or information, and enhancing skill development (Muflih et al., 2021). As a result, online education is more effective and produces better results. Search engines and learning management systems are two excellent online education methods that educational institutions utilize to deliver higher education. Teachers must be proficient in using search engines and learning management systems to maximize the benefits of online education while also enhancing the quality of education Costello et al. (2018). The current study explores the role of instructors' effectiveness in online education, including teachers' effectiveness in using LMSs, teachers' effectiveness in using search engines, and teachers' effectiveness in using institutional assistance to improve educational quality. The effects of teachers' effectiveness in online education, such as teachers' effectiveness in using LMSs, teachers' effectiveness in using search engines, and teachers' effectiveness in using institutional assistance, on education quality have a strong presence in the existing literature. The current study draws on the perspectives of previous writers to propose ideas about the relationship between teachers' efficacy in using LMSs and teachers' effectiveness in using search engines and institutional assistance to improve educational quality (Min et al., 2021; Nguyen et al., 2021).

Teachers' Effectiveness to Use LMS and Quality of Education

According to Alturki and Aldraiweesh (2021), the learning management system (LMS) has significantly impacted the education sector because it can save space, time, and money

while improving the quality and scope of education and thus promoting sustainable development in the learning process. According to Badia et al. (2019), the LMS is an excellent teaching tool since it protects education from interruption or disturbance even in difficult circumstances. According to San-Martín et al. (2020), a learning management system (LMS) is a web-based technology and software system used to design for a specific learning process, implement it, administer the education, and evaluate the students' learning. Typically, an LMS provides tutors with a method for developing content, transferring it to students, tracking students' participation in learning processes, and assessing their performance. Proficiency in LMS enables teachers to use interactive features such as discussion boards, video conferencing, and threaded conversations. Moodle, Blackboard Learn, TalentLMS, Schoology, eFront, and iSpring Learn are just a few of the major LMSs used by educational institutions. These LMSs are specifically developed to improve the quality and uniformity of instruction (Castro & Tumibay, 2021). Raza et al. (2021) conduct research to determine how instructors' effectiveness in using LMS contributes to education sustainability. A school board distributed the study survey to 2400 teachers and 35,000 students. The validity of the elements' mutual relationships was determined in the research using statistical analysis software such as SAS and SPSS. According to the study, teachers must be effective in managing LMSs. Teachers must be familiar with appropriate LMSs and the methods for acquiring the digital device in use to readily understand the LMS's interface, acquire its capabilities, interact with it, and have a view of and keep an eye on online learning and training. Thus, teachers can allow students to continue their studies without interruptions in terms of time, space, or quality (Kose et al., 2021; Nguyen & Nguyen, 2021).

Teachers' Effectiveness to Use Research Engine and Quality of Education

Teachers' effectiveness with research engines is defined as their ability to use research engines and impart knowledge to students within the confines of schools or outside of face-to-face classes. This is an effective way to improve and sustain educational equality, which benefits students in their practical social and professional lives. A research engine is a computer program used to do internet-based searches. The search engines scour the World Wide Web for data or information, most notably in a systematic textual search query (Lastrapes & Mooney, 2021). The search engines may present information in the form of photos, web pages, essays, research papers, videos, infographics, databases, directories, and a variety of other documents, depending on the nature of the information sought and the search engines' capabilities. The ability of teachers to select effective search engines, access them from any digital device and utilize the various features of search engines to facilitate the teaching process can be beneficial in enhancing students' learning and enhancing the quality of education beyond the boundaries of space and time (Heersmink, 2018). Teachers can educate their students how to use search engines and take use of their various features to clarify their concerns, solve their difficulties, and find information for their assignments, improving the quality of education. Murray (2018) conducted a study to determine instructors' effectiveness in utilizing search engines and the overall quality of

education. The research consists of examining case studies involving the use of digital technology in education and the resulting quality of education. It asserts that when teachers are effective at interacting with and using search engines such as Google, Microsoft Edge, Google Chrome, Firefox, Yahoo, Bing, and contextual web search, they can incorporate these search engines into classroom instruction and also increase students' familiarity with these search engines and their uses while enrolled in regular classes or distance education. This results in a significant increase in the educational quality. Similarly, Zlatkin-Troitschanskaia et al. (2021) claim that teachers' effectiveness in interacting with search engines enhances the quality of education by eliminating doubts and misleading perceptions (Suryana & Yulia, 2021; Susilawati et al., 2021).

Moderating Role of Institutional Support

The institution's support improves teachers' efficacy in using LMS because institutional policies affect teaching resources, instructional methods, and thus their relationship with students. The institution assists students by making decisions and taking measures in their favour, improving the level of education they get and their performance on tests, and developing practical talents to perform well in later social and economic life. The institutional support provided to teachers and students enhances teachers' effectiveness in using LMS and the quality of education received by students, hence increasing the contribution of teachers' effectiveness in using LMS to educational quality (Joshi et al., 2020). Stockless (2018) focuses on institutional support for increasing teachers' efficacy in using LMS to improve educational quality. According to the study, when institutional management supports instructors, it is easier for them to utilize LMS for teaching and prepare for teachers' effectiveness in this system. And as institutional support for students improves educational quality, it becomes easier for effective teachers to improve education through the LMS. Zheng et al. (2018) conducted a study examining institutional support, technical assistance, learning management systems, and educational quality. The empirical research is based on replies from 379 teachers at various universities who responded to a confidential survey. The findings show that institutional support is critical for increasing faculty teachers' self-efficacy and support for technology use in the LMS. In response, increased teacher self-efficacy and effectiveness in using LMS and technical abilities increase teachers' benefits from LMS in the classroom and overall educational quality. As a result, students' learning activities have become increasingly dependent on their professors' search engine effectiveness (Mazur, 2021).

Teachers who effectively use search engines to enhance their knowledge and teaching abilities can assist students in various ways, including meeting daily information needs, overcoming obstacles, resolving problems, gaining knowledge, eliminating uncertainties, explaining issues, having fun, and satisfying their curiosity about others. Institutional support for teachers is also crucial in developing instructors' efficacy in utilizing search

engines and enhancing the quality of education. Shodipe and Ohanu (2021) researched the relationship between institutional support, instructors' efficacy in using search engines, and educational quality. Emerging institutions aid faculty members by arranging for digital devices, internet connectivity, and programme installation and training them on how to utilize these devices effectively in their responsibilities. As a result, teachers' abilities to engage with relevant search engines for instructional reasons can be enhanced. Similarly, providing students with institutional support and excellent learning tools enhances the quality of education. With institutional assistance, instructors' proficiency in utilizing research engines can significantly improve the quality of education. Kim et al. (2021) published a research article to examine institutional support, instructors' efficacy in using search engines, enhanced learning, and educational quality. The institute assists teachers by providing them with digital gadgets and internet access and training them to use search engines efficiently. When lecturers are familiar with search engines and are adept at utilizing their many capabilities, they have a plethora of knowledge on the lecture topic. The data collected from multiple websites via search engines enhances the knowledge's clarity. They then impart to the students clear, complete information and knowledge (Mollard, 2021).

H1: Teachers' effectiveness to use LMS has a positive association with the quality of education.

H2: Teachers' effectiveness in using research engines positively correlates with the quality of education.

H3: Institutional support is an appropriate moderator between teachers' effectiveness in using LMS and the quality of education.

H4: Institutional support is an appropriate moderator between teachers' effectiveness in using research engines and the quality of education.

Materials and Methods

This article examines the impact of teachers' effectiveness in using LMS and research engines on educational quality and the moderating effect of institutional support on the relationship between teachers' effectiveness in using LMS and research engines and educational quality in Jordan's public universities. The current article collected data from previous studies using survey questionnaires, such as teachers' effectiveness to use LMS (TEULMS) with six items drawn from Almazova et al. (2020) study. Teachers' effectiveness to use research engine (TEURE) with five items drawn from Almazova et al. (2020). Additionally, institutional support (IS) has a five-item scale derived from Eairween (2018), and educational quality (QA) has a five-item scale derived from (Sobaih et al., 2021). These measurements are detailed in Table 1.

Table 1

Measurements

Variables	Items	Statements	Sources
Teachers' Effectiveness to use LMS	TEULMS1	"I have sufficient knowledge and skill to use e-teaching during the COVID-19 pandemic."	(Almazova et al., 2020)
	TEULMS2	"I have experience in using e-learning."	
	TEULMS3	"I prefer conventional learning to e-learning."	
	TEULMS4	"I need to learn how to use my computer for e-learning."	
	TEULMS5	"The use of e-learning during this pandemic is not convenient for me."	
	TEULMS6	"My discipline is suitable for e-learning."	
Teachers' Effectiveness to use Research Engine	TEURE1	"I feel enough computer literacy skills."	(Almazova et al., 2020)
	TEURE2	"The preparation of electronic education content using research engines is not much time-consuming."	
	TEURE3	"I feel the need to be taught how to work in a digital educational environment."	
	TEURE4	"It is not difficult to adopt new teaching methods using research engines within days."	
Institutional Support	IS1	"The University provides technical support for e-learning."	(Eairween, 2018)
	IS2	"The platforms chosen by the University to support e-learning are easy to use."	
	IS3	"The platforms chosen by the University include the necessary features and functions I need."	
	IS4	"There are enough and clear instructions/training about how to organize a digital educational process from the institution."	
	IS5	"I receive a satisfactory and timely response from the IT services staff."	
Quality of Education	QA1	"The class interactions online support enhance my learning experience."	(Sobaih et al., 2021)
	QA2	"My students feel a greater sense of community with class peers."	
	QA3	"My students have learned a great deal from peers through the online interactive activities."	
	QA4	"My students feel encouraged to learn more about the subject through the online activities."	
	QA5	"My students enjoyed the activities because they helped to understand the subject better."	

The current study has selected the public universities and teachers as the study's respondents. The "simple random sampling" was used to select the respondents and personal visits and mail to forward the surveys. 535 surveys were sent but received only 290 surveys that showed about 54.21 per cent response rate. In addition, the present article has also used smart-PLS because it is the best estimation tool for primary data analysis. It provides effective findings even article has used a large sample size and complex models (Hair Jr et al., 2021). The current article has used TEULMS and TEURE as the independent variables. In contrast, institutional support (IS) has been taken as a moderator, and quality of education has been taken as the predictive variable. Figure 1 shows these constructs in the framework.

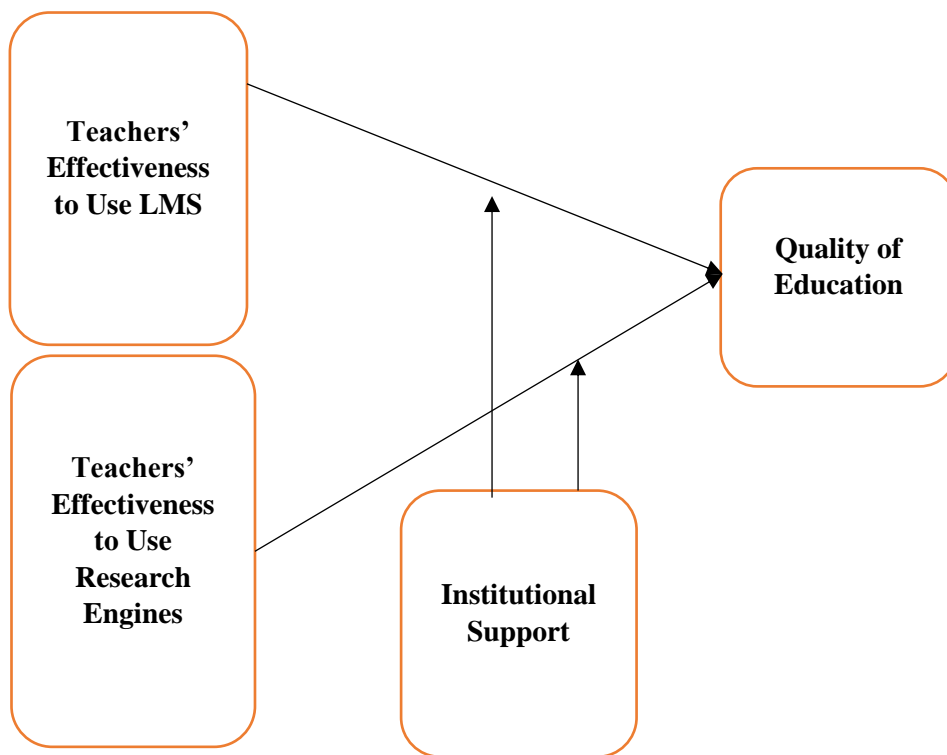


Figure 1: Framework of the Study

Research Findings

Firstly, the present study examines the convergent validity that shows the correlation between items. The convergent validity has been checked using "Alpha, composite reliability (CR), average variance extracted (AVE) and factor loadings." The outcomes are shown in Table 2 exposed that "Alpha and CR" figures are higher than 0.70 while "loadings and AVE" values are bigger than 0.50. These values indicated that convergent validity is valid and high nexus among items.

Table 2

Convergent validity

Constructs	Items	Loadings	Alpha	CR	AVE
Institutional Support	IS1	0.937	0.944	0.958	0.820
	IS2	0.857			
	IS3	0.935			
	IS4	0.938			
	IS5	0.856			
Quality of Education	QA1	0.825	0.827	0.878	0.594
	QA2	0.819			
	QA3	0.839			
	QA4	0.649			
	QA5	0.702			
Teachers' Effectiveness to use LMS	TEULMS1	0.908	0.971	0.976	0.874
	TEULMS2	0.962			
	TEULMS3	0.951			
	TEULMS4	0.919			
	TEULMS5	0.959			
	TEULMS6	0.907			
Teachers' Effectiveness to use Research Engine	TEURE1	0.864	0.899	0.929	0.766
	TEURE2	0.876			
	TEURE3	0.882			
	TEURE4	0.880			

Secondly, the present study examines the discriminant validity that shows the correlation between variables. The discriminant validity has been checked using “Fornell Larcker, cross-loadings, and Heterotrait Monotrait (HTMT) ratio.” Firstly, Fornell Larcker results in Table 3 indicated that the values that indicated the link with the variable itself are bigger than those that indicated the nexus with other constructs. These values indicated that discriminant validity is valid and low nexus among variables.

Table 3

Fornell Larcker Criterion

	IS	QA	TEULMS	TEURE
IS	0.905			
QA	0.499	0.770		
TEULMS	0.499	0.497	0.935	
TEURE	0.380	0.381	0.412	0.875

Secondly, cross-loading results shown in Table 4 indicated that the values that indicated the link with the variable itself are bigger than those that indicated the nexus with other constructs. These values indicated that discriminant validity is valid and low nexus among variables.

Table 4

Cross-loadings among constructs

	IS	QA	TEULMS	TEURE
IS1	0.937	0.456	0.456	0.322
IS2	0.857	0.451	0.441	0.373
IS3	0.935	0.457	0.458	0.324
IS4	0.938	0.444	0.459	0.324
IS5	0.856	0.447	0.443	0.374
QA1	0.491	0.825	0.393	0.327
QA2	0.450	0.819	0.427	0.359
QA3	0.389	0.839	0.401	0.319
QA4	0.285	0.649	0.354	0.185
QA5	0.248	0.702	0.333	0.242
TEULMS1	0.467	0.447	0.908	0.380
TEULMS2	0.461	0.467	0.962	0.400
TEULMS3	0.453	0.448	0.951	0.407
TEULMS4	0.475	0.459	0.919	0.376
TEULMS5	0.466	0.468	0.959	0.396
TEULMS6	0.473	0.495	0.907	0.354
TEURE1	0.299	0.323	0.350	0.864
TEURE2	0.347	0.328	0.361	0.876
TEURE3	0.312	0.309	0.352	0.882
TEURE4	0.365	0.369	0.378	0.880

Thirdly, HTMT ratios results shown in Table 5 indicated that the values are lower than 0.90. These values indicated that discriminant validity is valid and low nexus among variables.

Table 5

Heterotrait Monotrait ratio

	IS	QA	TEULMS	TEURE
IS				
QA	0.548			
TEULMS	0.521	0.552		
TEURE	0.410	0.430	0.441	

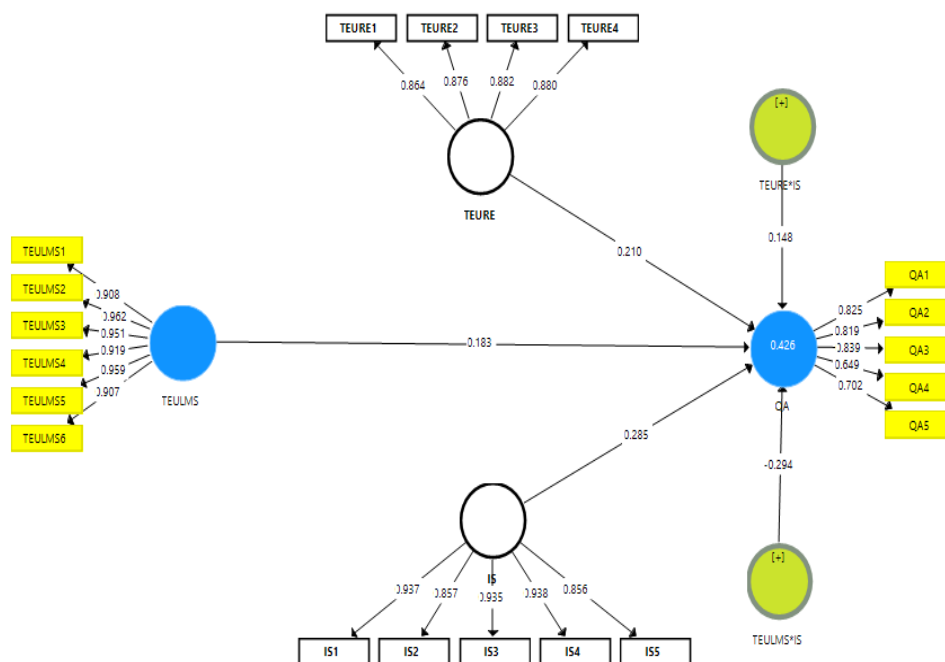


Figure 2: Measurement model assessment

The results of path analysis indicated that teachers’ effectiveness to use LMS and research engine has a significant and positive linkage with quality of education and accept H1 and H2. The results also indicated that if one per cent change in IS, the QA will also change by 0.285 per cent in the same direction. In addition, if one per cent increase in TEULMS, the QA will also increase by 0.183 per cent and vice versa. Moreover, if one per cent increase in TEURE, the QA will also increase by 0.210 per cent and vice versa. The findings also exposed that institutional support significantly moderates among the linkage of teachers’ effectiveness to use LMS and research engine and quality of education in the public universities in Jordan and accept H3 and H4. Table 6 shows these linkages among the understudy constructs.

Table 6

Path analysis

Relationships	Beta	Standard Deviation	T Statistics	P Values	Lower Limits	Upper Limits
IS -> QA	0.285	0.065	4.419	0.000	0.179	0.392
TEULMS -> QA	0.183	0.067	2.731	0.004	0.067	0.285
TEULMS*IS -> QA	-	0.071	4.136	0.000	-0.375	-0.157
TEURE -> QA	0.210	0.073	2.861	0.003	0.078	0.327
TEURE*IS -> QA	0.148	0.051	2.874	0.002	0.053	0.229

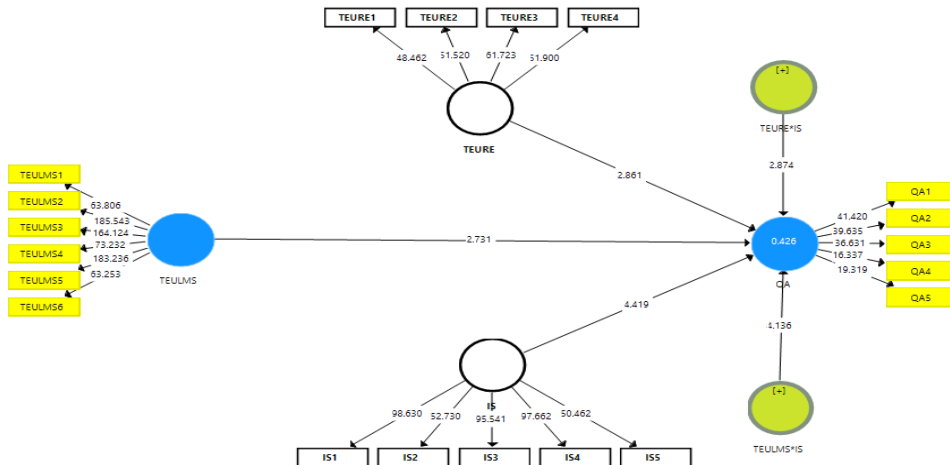


Figure 3: Structural model assessment

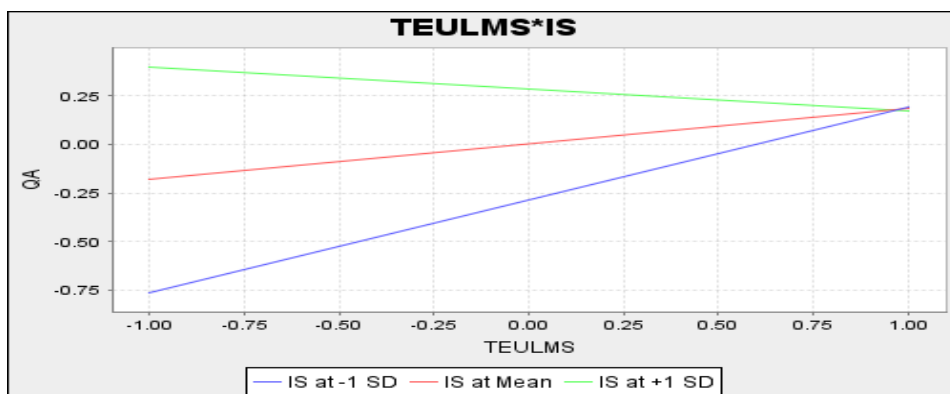


Figure 4: TEULMS*IS

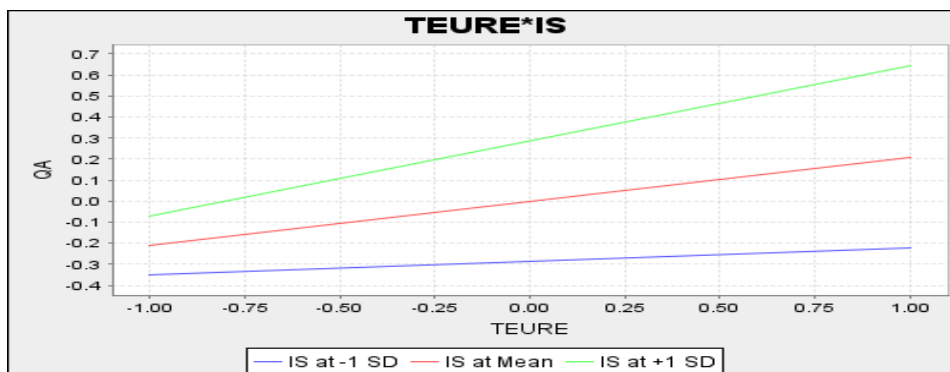


Figure 5: TEURE*IS

Discussions

The findings indicate that teachers' effectiveness in utilizing LMS positively correlates with educational quality. A previous study conducted by Kerimbayev et al. (2020), which demonstrates that when teachers possess knowledge of LMS software, its features, and navigation process and apply that knowledge to manage, document, track, report, automate, and deliver education courses, training programmes, and learning programmes to their full potential and effectiveness, students can obtain a high-quality education. These findings are also corroborated by a previous study conducted by Buabeng-Andoh and Baah (2020), which examined the LMS, teacher effectiveness within the system, and educational quality. According to the study, an LMS is a type of system software specifically intended for online education. The effectiveness of teachers in carrying out LMS functions such as course management, engagement with students and parents as required, training and lecture delivery, and assessment of students' learning increases both the capacity for learning and the quality of knowledge and skills obtained. These findings also corroborate a previous study by Almazova et al. (2020). Teachers who use the LMS effectively can deliver course materials with appropriate lectures and positively utilize student and parent feedback to improve their teaching style. As a result, pupils can receive a higher-quality education.

The findings reveal that teachers' ability to use search engines effectively correlates positively with educational quality. These findings are corroborated by Dymont and Downing (2020) previous study, which established that a search engine is a software system designed to conduct web searches. The effectiveness of teachers in interacting with a suitable search engine for search purposes and using it to acquire information relevant to the topic. This assists the teacher in clarifying students' points, broadening the scope of their presentation, and adding some enjoyment. Thus, teachers' efficacy in utilizing or benefiting from search engines benefits students' educational quality. These findings corroborate a previous study by Szucs et al. (2021), which asserts that many teachers are proficient at searching for data in the form of text, documents, video, and audio, extracting and manipulating such material for content creation and sharing with students. These teachers can better manage their students through their education, ensuring that they meet all board or university requirements and achieve higher exam scores. Thus, teachers' proficiency with search engines enhances the quality of education provided to students. These findings also corroborate a previous study by Wilson et al. (2020), which has shown that teachers' knowledge and skills affect students' levels of learning and abilities. When teachers broaden their expertise and refine their teaching methods through successful interaction with search engines, they may raise the educational quality of their pupils and prepare them for the real world.

The findings indicated that institutional support is an adequate moderator of the relationship between teachers' efficacy in using LMSs and educational quality. Dindar et al. (2021) corroborates the existing findings. The study asserts that the education management's behaviour is represented in the decisions they make within the institution to achieve their objectives. When an institution's management supports teachers, it assists them in utilising LMSs for instruction and arranging for the growth of teachers' abilities to be effective in this system. And, when institutional support for students enhances

educational quality, it becomes easier for teachers who are effective in the LMS to enhance education. These findings are corroborated by Siyam (2019) previous research, demonstrating that institutional support enhances teachers' efficacy in using LMS and the quality of education. As a result, the effectiveness of teachers in using LMS contributes to the overall quality of education.

The findings indicated that institutional support is an effective modulator of the relationship between teachers' efficacy in using research engines and educational quality. These findings are corroborated by a previous study by Guillén-Gámez et al. (2021), which demonstrates that emerging institutions assist teaching staff by arranging for digital devices, internet access, and application installation, as well as training them on how to use these devices in their roles. Thus, teachers can establish a high level of competence in interacting with appropriate search engines and utilizing the search engines' educational benefits. Similarly, institutional support for students increases the quality of education by assisting them in the learning environment and providing them with adequate learning tools. That is how, in the presence of institutional support, teachers' efficacy in utilizing research engines can increase the quality of education. The findings also corroborate a previous study by Napal Fraile et al. (2018), which emphasized the importance of emerging educational institutions in remaining innovative, providing innovative educational resources to teachers, and developing proficiency in the use of search engines. Teachers' proficiency using search engines enhances the quality of ideas and education offered to students.

Implications

The new work has a variety of theoretical ramifications. From various angles, this work makes a significant contribution to the literature. The effectiveness of teachers in online instruction and the quality of education are the primary foci of this research. This study explores the effects of two elements on the quality of education: instructors' efficacy in using LMSs and teachers' effectiveness in using search engines. In previous studies, teachers' efficacy in online education was studied in isolation, without emphasizing its dimensions or establishing their relationship to educational quality. The current study sheds light on two characteristics of teachers' efficacy in online teaching: teachers' ability to use a learning management system (LMS) and teachers' ability to use search engines to improve the quality of education. The previous literature has examined teachers' ability to use LMSs and teachers' ability to use search engines as predictors of educational quality, but not concurrently. The current study makes a significant addition by combining instructors' efficacy in using LMSs and teachers' effectiveness in using search engines for analyzing educational quality. This study is significant for regulators as they develop guidelines governing the efficacy of teachers and the quality of education at institutions. This study has significant empirical implications for governments in developing economies such as Jordan. This study serves as a guide for the government, economics, educators, and parents interested in preserving the country's educational quality through regulations that encourage instructors' effectiveness in online education. It instructs educators to increase instructors' effectiveness to maximize their usage of LMSs and search engines to instruct pupils better.

Conclusions and Limitations

The purpose of this study was to explore the role of teachers' effectiveness in online education, specifically teachers' effectiveness in using learning management systems (LMS) and teachers' effectiveness in using search engines to improve educational quality. Additionally, one of its aims is to investigate the function of institutional support in enhancing teachers' effectiveness in using LMSs and instructors' effectiveness in using search engines on educational quality. Through questionnaire surveys at Joran's institutions, data on instructors' efficacy in using LMSs, teachers' effectiveness in using search engines, institutional support, and their effects on educational quality were collected. According to the study's findings, instructors' efficacy in using LMSs and teachers' effectiveness in using search engines has a beneficial effect on educational quality. When teachers can utilize all of the characteristics effectively, they can significantly increase the quality of education.

Similarly, teachers' good use of search engines enables them to deliver comprehensive knowledge, dispel myths, and train students. As a result, it is beneficial to enhance the quality of schooling. The study indicated that when educational institutions promote teachers' use of LMSs and search engines, the quality of education can be improved.

Numerous limitations exist in the current investigation. All of these restrictions are likely to be overcome in subsequent research. The study evaluates the effects of only two elements on educational quality: instructors' efficacy in using LMSs and teachers' effectiveness in using search engines. Online education and traditional modes of education play a critical role in enhancing educational quality, and there are other additional influencing elements in online education. In the future, authors are encouraged to examine these variables in greater detail and provide a clear definition of online education and educational quality.

Similarly, this study is based on evidence gathered from Jordanian universities. Jordan has a unique educational system with a strong commitment to technological advancement. As a result, the current study lacks equal validity, and future writers will need to undertake a research survey across multiple educational sectors.

References

- Al-Nawafah, S., & Almarshad, M. (2020). The role of decentralization for balancing employee performance in governmental universities in Jordan. *Management Science Letters*, 10(14), 3217-3224. <https://doi.org/10.5267/j.msl.2020.6.017>
- Almaiah, M. A., & Al Mulhem, A. (2019). Analysis of the essential factors affecting of intention to use of mobile learning applications: A comparison between universities adopters and non-adopters. *Education and Information Technologies*, 24(2), 1433-1468. <https://doi.org/10.1007/s10639-018-9840-1>
- Almazova, N., Krylova, E., Rubtsova, A., & Odinkaya, M. (2020). Challenges and opportunities for Russian higher education amid COVID-19: Teachers' perspective. *Education Sciences*, 10(12), 368. <https://doi.org/10.3390/educsci10120368>

- Alnusairat, S., Al Maani, D., & Al-Jokhadar, A. (2020). Architecture students' satisfaction with and perceptions of online design studios during COVID-19 lockdown: the case of Jordan universities. *Archnet-IJAR: International Journal of Architectural Research*, 15(1), 219-236. <https://doi.org/10.1108/ARCH-09-2020-0195>
- Alturki, U., & Aldraiweesh, A. (2021). Application of learning management system (Lms) during the covid-19 pandemic: A sustainable acceptance model of the expansion technology approach. *Sustainability*, 13(19), 10991. <https://doi.org/10.3390/su131910991>
- Ayoub, N. M., Qandil, A. M., & McCutchan, J. A. (2019). Knowledge, attitudes, and practice regarding research ethics committees among health care faculty at two public universities in Jordan. *Journal of Empirical Research on Human Research Ethics*, 14(4), 372-382. <https://doi.org/10.1177%2F1556264619851351>
- Badia, A., Martín, D., & Gómez, M. (2019). Teachers' perceptions of the use of Moodle activities and their learning impact in secondary education. *Technology, Knowledge and Learning*, 24(3), 483-499. <https://doi.org/10.1007/s10758-018-9354-3>
- Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human behavior and emerging technologies*, 2(2), 113-115. <https://doi.org/10.1002/hbe2.191>
- Buabeng-Andoh, C., & Baah, C. (2020). Pre-service teachers' intention to use learning management system: an integration of UTAUT and TAM. *Interactive Technology and Smart Education*, 17(4), 455-474. <https://doi.org/10.1108/ITSE-02-2020-0028>
- Castro, M. D. B., & Tumibay, G. M. (2021). A literature review: efficacy of online learning courses for higher education institution using meta-analysis. *Education and Information Technologies*, 26(2), 1367-1385. <https://doi.org/10.1007/s10639-019-10027-z>
- Costello, E., Holland, J., & Kirwan, C. (2018). The future of online testing and assessment: question quality in MOOCs. *International Journal of Educational Technology in Higher Education*, 15(1), 1-14. <https://doi.org/10.1186/s41239-018-0124-z>
- Demir, A., Maroof, L., Khan, N. U. S., & Ali, B. J. (2020). The role of E-service quality in shaping online meeting platforms: a case study from higher education sector. *Journal of Applied Research in Higher Education*, 13(5), 1436-1463. <https://doi.org/10.1108/JARHE-08-2020-0253>
- Dindar, M., Suorsa, A., Hermes, J., Karppinen, P., & Näykki, P. (2021). Comparing technology acceptance of K-12 teachers with and without prior experience of learning management systems: A Covid-19 pandemic study. *Journal of Computer Assisted Learning*, 37(6), 1553-1565. <https://doi.org/10.1111/jcal.12552>
- Dumford, A. D., & Miller, A. L. (2018). Online learning in higher education: exploring advantages and disadvantages for engagement. *Journal of Computing in Higher Education*, 30(3), 452-465. <https://doi.org/10.1007/s12528-018-9179-z>
- Dymont, J. E., & Downing, J. J. (2020). Online initial teacher education: A systematic review of the literature. *Asia-Pacific Journal of Teacher Education*, 48(3), 316-333. <https://doi.org/10.1080/1359866X.2019.1631254>
- Eairween, G. (2018). *Perceived organizational culture, perceived organizational support and self-efficacy on work engagement among academic staff in Universiti Utara Malaysia* [Universiti Utara Malaysia]. <https://etd.uum.edu.my/id/eprint/7590>

- Esfijani, A. (2018). Measuring quality in online education: A meta-synthesis. *American Journal of Distance Education*, 32(1), 57-73. <https://doi.org/10.1080/08923647.2018.1417658>
- Gacs, A., Goertler, S., & Spasova, S. (2020). Planned online language education versus crisis-prompted online language teaching: Lessons for the future. *Foreign Language Annals*, 53(2), 380-392. <https://doi.org/10.1111/flan.12460>
- Guillén-Gámez, F. D., Mayorga-Fernández, M., Bravo-Agapito, J., & Escribano-Ortiz, D. (2021). Analysis of teachers' pedagogical digital competence: Identification of factors predicting their acquisition. *Technology, Knowledge and Learning*, 26(3), 481-498. <https://doi.org/10.1007/s10758-019-09432-7>
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook. In (pp. 197): Springer Nature.
- Heersmink, R. (2018). A virtue epistemology of the Internet: Search engines, intellectual virtues and education. *Social Epistemology*, 32(1), 1-12. <https://doi.org/10.1080/02691728.2017.1383530>
- Joshi, A., Vinay, M., & Bhaskar, P. (2020). Impact of coronavirus pandemic on the Indian education sector: perspectives of teachers on online teaching and assessments. *Interactive Technology and Smart Education*, 18(2), 205-226. <https://doi.org/10.1108/ITSE-06-2020-0087>
- Kerimbayev, N., Nuryim, N., Akramova, A., & Abdykarimova, S. (2020). Virtual educational environment: interactive communication using LMS Moodle. *Education and Information Technologies*, 25(3), 1965-1982. <https://doi.org/10.1007/s10639-019-10067-5>
- Kim, S., Jang, Y., Choi, S., Kim, W., Jung, H., Kim, S., & Kim, H. (2021). Analyzing teacher competency with TPACK for K-12 AI education. *KI-Künstliche Intelligenz*, 35(2), 139-151. <https://doi.org/10.1007/s13218-021-00731-9>
- Kose, N., Kayapinar, U., & Erkirc, S. (2021). The Effect of Tablet Use on EFL Reading Achievement. *Eurasian Journal of Applied Linguistics*, 7(2), 58-72. <https://doi.org/10.32601/ejal.911505>
- Lastrapes, R. E., & Mooney, P. (2021). Teachers' use and perceptions of research-to-practice articles. *Exceptionality*, 29(5), 375-389. <https://doi.org/10.1080/09362835.2020.1772068>
- Mazur, J. (2021). Informacja i dezinformacja w przestrzeni publicznej. Wprowadzenie do problematyki *socialspacejournal.eu*, 21(1), 69-95. <https://socialspacejournal.eu/wp-content/uploads/2021/12/Social-Space-Journal-1202121.pdf>
- Min, T., Xiaoyue, Z., Miaoyu, T., & Xiaohui, O. (2021). Influence of Low Emotion Filtering and Explicit and Implicit Learning Abilities on Children's Second Language Acquisition in China. *Eurasian Journal of Educational Research*, 96(96), 201-216. <https://ejer.info/index.php/journal/article/view/553>
- Mollard, P. J.-P. (2021). L'École des Troupes Aéroportées, maison-mère des parachutistes. *Res Militaris*, 11(2), 1-10. https://resmilitaris.net/wp-content/uploads/2021/12/Res_Militaris_5.pdf
- Muflih, S., Abuhammad, S., Al-Azzam, S., Alzoubi, K. H., Muflih, M., & Karasneh, R. (2021). Online learning for undergraduate health professional education during

- COVID-19: Jordanian medical students' attitudes and perceptions. *Heliyon*, 7(9), e08031. <https://doi.org/10.1016/j.heliyon.2021.e08031>
- Murray, J. (2018). Student-led action for sustainability in higher education: A literature review. *International Journal of Sustainability in Higher Education*, 19(6), 1095-1110. <https://doi.org/10.1108/IJSHE-09-2017-0164>
- Napal Fraile, M., Peñalva-Vélez, A., & Mendióroz Lacambra, A. M. (2018). Development of digital competence in secondary education teachers' training. *Education Sciences*, 8(3), 104. <https://doi.org/10.3390/educsci8030104>
- Nguyen, K. D., & Nguyen, U. H. T. (2021). Common Errors in Writing of EFL Sophomores in a Context of the Mekong Delta. *Eurasian Journal of Applied Linguistics*, 7(2), 46-57. <https://doi.org/10.32601/ejal.911504>
- Nguyen, T.-H., Pham, X.-L., & TU, N. T. T. (2021). The Impact of Design Thinking on Problem Solving and Teamwork Mindset in A Flipped Classroom. *Eurasian Journal of Educational Research*, 96(96), 30-50. <https://www.ejer.info/index.php/journal/article/view/540>
- Osaili, T. M., Al-Nabulsi, A. A., & Krasneh, H. D. A. (2018). Food safety knowledge among foodservice staff at the universities in Jordan. *Food control*, 89, 167-176. <https://doi.org/10.1016/j.foodcont.2018.02.011>
- Pastor, R., Tobarra, L., Robles-Gómez, A., Cano, J., Hammad, B., Al-Zoubi, A., Hernández, R., & Castro, M. (2020). Renewable energy remote online laboratories in Jordan universities: Tools for training students in Jordan. *Renewable Energy*, 149, 749-759. <https://doi.org/10.1016/j.renene.2019.12.100>
- Qdais, H. A., Saadeh, O., Al-Widyan, M., Al-tal, R., & Abu-Dalo, M. (2019). Environmental sustainability features in large university campuses: Jordan University of Science and Technology (JUST) as a model of green university. *International Journal of Sustainability in Higher Education*, 20(2), 214-228. <https://doi.org/10.1108/IJSHE-06-2018-0102>
- Raza, S. A., Qazi, W., Khan, K. A., & Salam, J. (2021). Social isolation and acceptance of the learning management system (LMS) in the time of COVID-19 pandemic: an expansion of the UTAUT model. *Journal of Educational Computing Research*, 59(2), 183-208. <https://doi.org/10.1177%2F0735633120960421>
- San-Martín, S., Jiménez, N., Rodríguez-Torrico, P., & Piñeiro-Ibarra, I. (2020). The determinants of teachers' continuance commitment to e-learning in higher education. *Education and Information Technologies*, 25(4), 3205-3225. <https://doi.org/10.1007/s10639-020-10117-3>
- Schopuizen, M., Kreijns, K., Stoyanov, S., & Kalz, M. (2018). Eliciting the challenges and opportunities organizations face when delivering open online education: A group-concept mapping study. *The Internet and Higher Education*, 36, 1-12. <https://doi.org/10.1016/j.iheduc.2017.08.002>
- Shodipe, T. O., & Ohanu, I. B. (2021). Electrical/electronics technology education teachers attitude, engagement, and disposition towards actual usage of Mobile learning in higher institutions. *Education and Information Technologies*, 26(1), 1023-1042. <https://doi.org/10.1007/s10639-020-10297-y>
- Siyam, N. (2019). Factors impacting special education teachers' acceptance and actual use of technology. *Education and Information Technologies*, 24(3), 2035-2057. <https://doi.org/10.1007/s10639-018-09859-y>

- Sobaih, A. E. E., Salem, A. E., Hasanein, A. M., & Elnasr, A. E. A. (2021). Responses to Covid-19 in higher education: Students' learning experience using microsoft teams versus social network sites. *Sustainability*, 13(18), 10036. <https://doi.org/10.3390/su131810036>
- Stockless, A. (2018). Acceptance of learning management system: The case of secondary school teachers. *Education and Information Technologies*, 23(3), 1101-1121. <https://doi.org/10.1007/s10639-017-9654-6>
- Suliman, M., Al Qadire, M., Alazzam, M., Aloush, S., Alsarairih, A., & Alsarairih, F. A. (2018). Students nurses' knowledge and prevalence of Needle Stick Injury in Jordan. *Nurse education today*, 60, 23-27. <https://doi.org/10.1016/j.nedt.2017.09.015>
- Suryana, D., & Yulia, R. (2021). Model of Questioning Skill Teacher for Developing Critical Thinking Skill in Early Childhood Education in West Sumatra, Indonesia. *Educational Sciences: Theory & Practice*, 21(2), 101-114. <https://doi.org/10.12738/jestp.2021.2.007>
- Susilawati, E., Khaira, L., & Pratama, I. (2021). Antecedents to Student Loyalty in Indonesian Higher Education Institutions: The Mediating Role of Technology Innovation. *Educational Sciences: Theory & Practice*, 21(3), 40-56. <https://doi.org/10.12738/jestp.2021.3.004>
- Szucs, L. E., Andrzejewski, J. D., Robin, L., Telljohann, S., Pitt Barnes, S., & Hunt, P. (2021). The Health Education Teacher Instructional Competency Framework: A Conceptual Guide for Quality Instruction in School Health. *Journal of School Health*, 91(10), 774-787. <https://doi.org/10.1111/josh.13076>
- Villegas-Ch, W., Román-Cañizares, M., & Palacios-Pacheco, X. (2020). Improvement of an online education model with the integration of machine learning and data analysis in an LMS. *Applied Sciences*, 10(15), 5371-5386. <https://doi.org/10.3390/app10155371>
- Wilson, M. L., Ritzhaupt, A. D., & Cheng, L. (2020). The impact of teacher education courses for technology integration on pre-service teacher knowledge: A meta-analysis study. *Computers & Education*, 156, 103941. <https://doi.org/10.1016/j.compedu.2020.103941>
- Xu, S., & Zhu, S. (2020). Factors Influencing K-12 Teachers' Intention to Adopt Mobile Devices in Teaching. *Computers in the Schools*, 37(4), 292-309. <https://doi.org/10.1080/07380569.2020.1830257>
- Zheng, Y., Wang, J., Doll, W., Deng, X., & Williams, M. (2018). The impact of organisational support, technical support, and self-efficacy on faculty perceived benefits of using learning management system. *Behaviour & Information Technology*, 37(4), 311-319. <https://doi.org/10.1080/0144929X.2018.1436590>
- Zhu, X., & Liu, J. (2020). Education in and after Covid-19: Immediate responses and long-term visions. *Postdigital Science and Education*, 2(3), 695-699. <https://doi.org/10.1007/s42438-020-00126-3>
- Zlatkin-Troitschanskaia, O., Hartig, J., Goldhammer, F., & Krstev, J. (2021). Students' online information use and learning progress in higher education—A critical literature review. *Studies in higher education*, 46(10), 1996-2021. <https://doi.org/10.1080/03075079.2021.1953336>