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A Systematic Literature Review on the Implementation of E-Learning Platforms in the Covid-19 Pandemic

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ABSTRACT

The covid-19 pandemic has escalated widely and gained attention among people throughout the world. The COVID-19 pandemic has brought an enormous impact on the lives of many people all over the world. It significantly affects various dimensions such as the economy, society, tourism, and education of many nations. Online classes were found demandable as an alternative to institutional closure during this unprecedented time. The successful implementation of e-Learning systems depends on how the program is perceived by students and instructors. The current review aimed to identify the global picture of e-learning during the COVID-19 pandemic and the perceptual difference among the world regarding online-based learning in the pandemic timeframe. 19 articles were selected for this review study. The findings of this review illustrated that although online teaching is one of the best possible ways to continue teaching and learning during the pandemic, student faces a lot of challenges in the use of online learning systems. The positive perception of students and lecturers has on the availability of strong technological infrastructure, adequate equipment, and professional training. The outcome of this review will help to improve the e-learning education policy such as a standard marking system, accessible internet network, and equipment for all students.

Contribution/Originality: This study is among the few types of research that reviewed the literature on the implementation of e-learning platforms during the Covid-19 pandemic to solve the crises caused by the pandemic including lockdown and closure of schools in Saudi Arabia. Findings also highlighted the challenges faced by instructors while implementing distance learning in the pandemic era such as lack of infrastructure, internet coverage and connectivity, and students' perception, among others.

1. Introduction

The successful usage of e-learning has a significant impact on students' perceptions of the use of technology (Dhawan, 2020; Fageeh, 2011; Yen, 2020). E-learning refers to a formal learning system that makes use of electronic resources where education can take place inside (or outside) of the classroom, the use of computer technology and the internet is the primary component of e-learning (Aboagye et al., 2020). The electronic technique of teaching and learning (e-learning) completely supports the utilized educational model and is based on the use of technology to improve the availability of learning through training, communication, and interaction, all of which contribute to e-learning adoption (Almajali et al., 2016). With today's information and communication technology, information is continuously changing places in electronic media and continuing its journey. If we consider this trip in the context of teaching and learning, we arrive at distant education and the associated e-learning (electronic learning) ideas. E-learning is a subset of the notion of remote education (Urdan & Weggen 2000). As a result, before describing the notion of e-learning, it will be necessary to establish the concept of distance education.

Distance education is a type of institutional education in which students, teachers, and instructional materials from many locations are brought together by information and communication technology (Moore & Kearsley, 1996). It is said that conventional education's constraints have been removed,and it is an educational paradigm that is achieved without regard to time or location via the use of information and communication technology (Demir, 2014). The growth of information communications technology has gained momentum since the 1990s owing to the "Web" and "Internet" technologies, which had been carried out via letters, phones, and radios in the past (Casey, 2008). For classrooms, laptops are usually utilized, though some students attend lessons using their mobiledevices. The number of students is nevertheless minimal in contrast to face-to-face lessons,advancement might depend on the access of students to high-quality media, which may vary according to the student's economic status. Students experience problems in moments of crisis such as the Covid-19 Pandemic due to poorly designed classrooms and are not happy with educational inequalities and difficulty in acquiring educational resources (Affouneh et al., 2020). Accordingly, steps should be explored to improve access to required education resources so as not to adversely influence the economic condition for students' academic success. Thus, students must be prepared to acceptthe change from conventional to online learning, and they must be informed of the necessity of online learning tools as the sole replacement for conventional learning approaches (Fageeh, 2011).

However, the majority of prior empirical research concentrated on investigating the primary elements impactinge-learning adoption as a modern method in the education industry, and their findings show that lack of expertise, knowledge, and infrastructure for the transition to e-learning has been viewed as an emergency among educational institutions. Universities throughout the world are pushed and compelled to move from conventional to online learning and education with COVID-19 due to the widespread pandemic (Gesú & González, 2020). Universities faced difficulties such as accessibility, sustainability, flexibility, teaching, training, and managingquality. Martin (2020) stressed the necessity to implement a quality control program and to continually enhance online learning success, to prepare all of them for any troubled circumstance. Dawson and Golijani-Moghaddam (2020) says that as a result of the COVID-19 pandemic many have been compelled to alter their perception of education, it has been said at the World Economic Forum that the demandsare necessary. Ayebi-Arthur (2017) demonstrated the

strong IT infrastructure that instructors have proposed as a requirement for online learning when seismic events happened in New Zealand and the barriers have been resolved.

Nonetheless, during the COVID-19 pandemic, teachers didn't care much about education quality but were busy implementing online learning (Martin, 2020; Mhlanga & Moloi, 2020). Physical access to the classroom has been restricted as a result of the long-term enactment of the lockdown. Due to the COVID-19 pandemic, about 1.5 billion school and university students have been affected by institution closures (IAU, 2020). Closings of educational institutions mostly affect children and young people (Araujo et al., 2020). The Covid 19 epidemic compels the government to relocate the educational and educational activities of the school to carry out home learning through distant learning (e.g., web-based learning, e-learning, m-learning). This transformation leads all educational institutions from the positive aspects to engage technology in the process of learning. A fully online course usually requires a design that is appropriate with learning resources for a certain subject, including audio or video content. The sudden closure of educational facilities because of the development of COVID-19 prompted authorities to propose using alternatives to traditional learning techniques in crises to ensure that students do not miss out on education and to prevent the epidemic from spreading. When the COVID-19 virus first arose, traditional educational techniques were replaced with e-learning since social meetings at educational institutions were thought to be a breeding ground for the virus. Despite the obstacles and analyzed data, which suggest that students are less likely to profit from this form of education,e-learning is the greatest alternative available to ensure that diseases do not spread (Lizcano et al.2020). Dhawan (2020) said that all these academic institutions were attempting to find a suitable option for dealing with these challenging conditions.

For example, China is the first country to conform to the abrupt transition, i.e., educators have adjusted their approach to teaching to deal with the new conditions and have adapted it to the contradictory scenario (Yen, 2020). Education institutes have provided students and teachers with complete guidelines to ease the problem and enabled everyone to use the learning management system (Yen, 2020). Saudi Arabia is not left behind blackboard learning system has been implemented by the universities as an online learning tool (Basilaia et al., 2020). In addition, United Nations Educational, Scientific and Cultural Organization (UNESCO) confirms that about 1.5billion students were lockdown in different countries throughout the period of COVID- 19, which ended on March 2020. Replacement techniques were used to provide uninterrupted education, including e-learning at home. To live in an uncertain world, students should be ready to survive in the skills of 21st century to work hard (Hoq, 2020). Fitness for self-discipline hasa key part in the achievement of learners. In times of disturbance of learning, it is a great opportunity to support the active learning of students at home in the formation of self-discipline (Huang, 2020). Furthermore, the present pandemic (COVID-19) has continuouslychanged the techniques of learning. Consequently, learning has considerably changed, and e-learning has increased enormously. Even before CoVID-19, educational technology was rapidly expanded and accepted, with global Edtech investments estimated at 18.66 billion USD in 2019 and the overall virtual education industry expected to reach 350 billion USD by 2025 (Hoq, 2020).

Online programs are supposed to be in high demand as an alternative to institutional closures during this unique period. Nonetheless, because of an ineffective learning strategy, students and instructors faced obstacles and difficulties, including psychological

issues (Alam, 2020). The effective deployment of e-learning systems dependent on how students and teachers carry out the program (Thongsri et al., 2019). While online education is one of the potential alternatives to physical schooling, students are showing a negative view of online learning behaviour. This might lead to a substantial consequence of psychological discomfort (Rohman et al., 2020). The preceding investigation indicated students are worried about the loss of class pleasure (Dewaele et al., 2019). Different factors for e-learning breakup include the qualityof the course, material usability, technical facility, technical support availability, and the probabilityof contact with classmates (Penna & Stara, 2007; Ssekakubo et al., 2011). Most e-Learning glitchesare technical in nature, with no software or device assistance accessible (Al-araibi et al., 2019).

The major purpose of this review was to find out the global picture of e-learning and the multicultural perception regarding the online education system during the Covid pandemic. The specific aim of the current review was to identify the perceptual difference in e-learning inthe world during the covid-19 pandemic. Besides that, the reason behind the perception of online-basedlearning during the covid -19 pandemic is also explored in this study.

2. Methodology

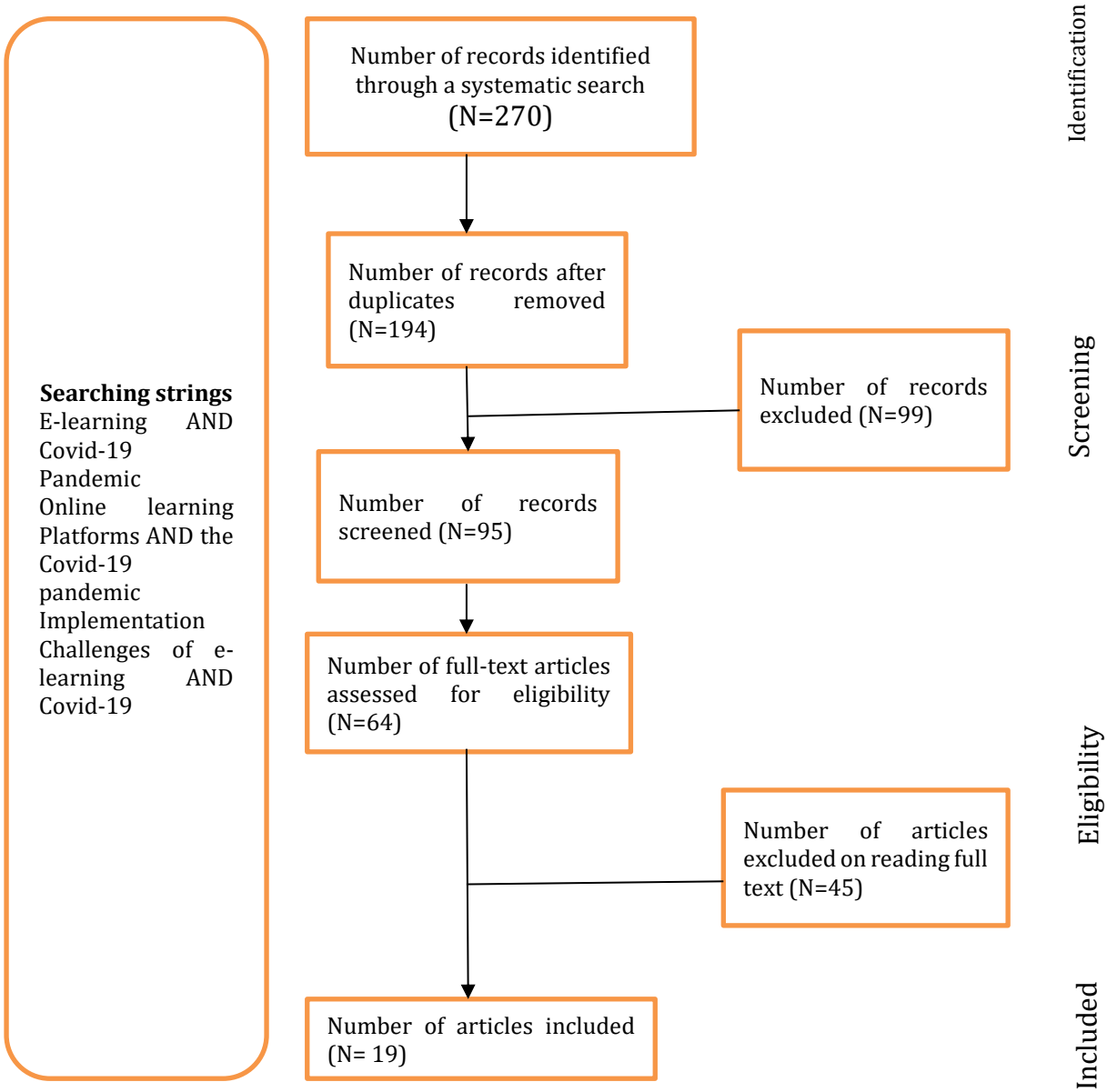
2.1 Method for finding literature

The literature was carefully searched for research concentrating on e-learning instruction since the aim of this study was to obtain an overview of the implementation of e-learning education. Since Scopus contains the biggest abstract and citation database of peer-reviewed literature, only Scopus journals were used in this investigation. The searches were entered in by protocol entries describing the year, research strings, database, and the number of articles identified to identify the appropriate studies. To keep the search results manageable and the current batch of articles relevant, the search results were restricted to the years 2019–2022

2.2 Eligibility Criteria

Figure 1 displays the search technique in general. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) declaration serves as the foundation for this methodology (Moher et al., 2010). The pursuing inclusion criteria were used: Studies had to concentrate on e-learning during the Covid-19 Pandemic, they had to offer a full and understandable indication of the mode of instruction, and they had to describe online learning platforms used for instruction during the Covid-19 pandemic. The following exclusion standards were established: Implementation of e-learning instruction before the pandemic, lack of complete text for research, conference papers without a clear explanation of e-learning implementation in the Covid-19 pandemic, and book (chapter) reviews without empirical data.

Figure 1: Inclusion and Exclusion Criteria



3. Findings and Discussions

The summary report of the selected articles is presented in Table 1. The findings of the review arepresented following the sequences, such as the name of the authors, publication years, article titles,country, a sample of the study, and the findings that are in alignment with the purpose of this paper.

Table 1: Summary of Selected Literature

Author & Year	Title	Country	Sample	Findings
Puriwat & Tripopsakul (2021)	The impact of e-Learning quality on student satisfaction and continuance	Thailand	185 students	The overall E-learning quality had a significant positive impact on student satisfaction and Continuance usages

	usage intentions during COVID-19			intention toward e-learning platforms
Almajali et al. (2021)	E-learning through the COVID-19 crisis in Developing Countries	Jordan	300 faculties	A strong relationship between perceived ease of use, perceived benefit, infrastructure for managing cultural knowledge, and the acceptance of E-learning in Jordan.
Ntshwarang et al. (2021)	eLearning tools at the University of Botswana: Relevance and use under COVID- 19 crisis	Botswana		To the lack of readiness and accessibility to online learning platforms, the student found less motivated toward e-learning. On the other hand, teachers used e-learning on average for lack of training.
Mishra et al. (2020)	Online teaching-learning in higher education during the lockdown period of the COVID-19 pandemic	India	78 faculties and 260 students	Third-world countries are suffering with the e-learning process because of having fractured technical infrastructure, academic incompetency, and lack of resources.
Almekhlafy (2020)	Online learning of English language courses via blackboard at Saudi universities in the era of COVID-19: perception and use.	Saudi Arabia	228 students	Students who had no prior experience of online learning via Blackboard had slightly positive perceptions, whereas those students who had prior experience of online learning via Blackboard had fewer positive perceptions of Blackboard as an online learning tool
Alhumaid et al. (2020)	COVID-19 & E-learning: Perceptions & Attitudes of Teachers Towards E-Learning Acceptance in The Developing Countries	Pakistan	30 students	E-learning not welcoming during the covid -19 in Pakistan for having a comparatively weak technological system and technology acceptance was slow.
Arshad et al. (2020)	Academic Semester Activities by Learning Management System during COVID-19	Saudi Arabia	84 faculty members	Faculty members found blackboard learning as an effective e-learning tool to improve the success of the students to achieve the learning outcomes

	Pandemic: A Case of Jazan University			following their expectations
Siron et al. (2020)	Factors Affecting the Adoption Of E-Learning In Indonesia: Lesson from Covid-19	Indonesia	210 students	The student's intention in using e-learning was determined by several variables, including perceived enjoyment, students' experience, computer anxiety, and perceived self-efficacy.
Chavarría-Bolaños et al. (2020)	E-Learning in Dental Schools in the Times of COVID-19: A Review and Analysis of an Educational Resource in Times of the COVID-19 Pandemic	Costa Rica	450 students	Teachers' training as well as student evaluation may increase the effectiveness of online learning among dental students. Besides that, it is necessary to categorize the academic courses depending on their virtualization possibility
Alhadreti (2021)	Assessing Academics' Perceptions of Blackboard Usability Using SUS and CSUQ: A Case Study during the COVID-19 Pandemic	Saudi Arabia	187 faculty members	Usability of Blackboard at the current institution is inadequate and needs to be further enhanced
Al-Okaily et al. (2020)	Impact Of Covid-19 Pandemic On Acceptance Of E-Learning System In Jordan: A Case Of Transforming The Traditional Education Systems	Jordan	587 students	The social a d peer influence and the usefulness of e-learning determine the intention of the usability of e-learning among students.
Al-Nofaie (2020)	Saudi University Students' perceptions towards Virtual Education During Covid-19 Pandemic: A Case Study of Language Learning via Blackboard	Saudi Arabia	25 students	The students preferred the asynchronous environment to the synchronous one due to its flexibility and virtual education is not always appealing to students.
Jawad & Shalash (2020)	The impact of E-Learning Strategy on Students' Academic Achievement Case Study: Al- Quds Open University	Palestine	382 Students	E-learning helps access an enormous amount of information with less time and effort and provides more flexibility in learning taking into account the academic achievements at the

				university level considering gender, the Programs of Study, and academic level.
Akcil & Bastas (2020)	Examination of University Students' Attitudes towards E-learning during the COVID-19 Pandemic Process and the Relationship of Digital Citizenship	Cyprus	105 students	The digital citizenship behavior digital learning process could be a positive response to the COVID-19 closure period. On the other hand, the negative anxiety of students due to the pandemic is reflected in their e-learning processes.
Hasan & Bao (2020)	Impact of "e-Learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year loss"	Bangladesh	400 students	Students are suffering from psychological distress due to ineffective e-Learning systems and fear of academic year loss
Edelhauser & Lupu-Dima (2020)	Is Romania Prepared for eLearning during the COVID-19 Pandemic?	Romania	200 students	Students adapted so quickly to e-learning to having strong infrastructure and tools availability.
Fatonia et al. (2020)	University Students Online Learning System During Covid-19 Pandemic: Advantages,	Indonesia	100 students	Students perceived e-learning positively because of having accessibility from home, comfortable education, and use of free time. On the contrary students have a negative feeling

The perceptions of students and teachers on e-learning during the COVID-19 epidemic varied from oneculture to the other. In the present study, online learning is seen by students and instructors as extremely favorable for continuous academic development and carrier throughout the COVID-19 epidemic. In contrast, students and teachers felt e-learning was a great challenge because of technological deficiencies, poor connectivity to the internet, absence of a consistent grading system, and difficulty in studying. The Covid-19 problem posed worldwide challenges, accordingto the United Nations (2020). Schools and institutions are closed; professors and students have little chance to continue with their studies. E-learning makes student learning very important, especially during the Covid-19 epidemic, when local authorities stated that schools would be closing down immediately (Almajali et al., 2021). More than 2 billion students globally suffer becauseof the closure of educational establishments. However, institutional closure was a successful

approach to mitigating the spread of Covid-19 among children and young people (United Nations, 2020). The rush to distance and online education looked to be the only option to ease educational problems amid the Covid-19 pandemic. Both rich and developing countries have used every available opportunity to use technology to continue the education process. The educational setting has been digitized by governments and teachers have taken e-learning to offer current informationand to build new training courses when appropriate (UNESCO, 2020). When students had no previous experience with online education, they had somewhat favorable opinions, but those withprevious experiences with online learning in Saudi Arabia had fewer positive perceptions of the e-learning system (Almekhlafy, 2020). Some obstacles found in online classrooms; students cannotuse headphones which complicates communication. At that time, conversing in the chat box isthe sole means of contact. Another factor for the unfavorable image of e-learning in students is low Internet speed and lack of technological expertise. Some students stated in their learning diaries that studying at home didn't work well for them. The distractions at home were responsiblefor this. Another problem with relation to the impression of online learning is the lack of physicalinteraction. Online education offered shy pupils an opportunity to voice their views more easily (Al-Nofaie, 2020).

E-learning is highly competitive and sometimes an improved replacement for classical ways of learning. Pakistan is a developing country, in which the educational system depends heavily on the conventional way of learning in classrooms (Khalid & Ali, 2020). With little technical access and less technological understanding among teachers, traditional learning patterns have created numerous issues with online education systems in Pakistan (Adnan & Anwar, 2020). When compared to college and university students, school-aged youngsters are apathetic to eLearning, indicating a significant worry regarding technology uptake (International Rescue Committee [IRC], 2020). In terms of eLearning in higher education, institutions in Pakistan do not have a standardized Learning Management System in place to meet the present difficulties. However, influential policies and improved administrative processes aided Pakistan's Federal Ministry of Education in dealing withsignificant difficulties. The Pakistani Ministry of Education heavily emphasizes eLearning as part of education, although technical acceptability is found sluggish (Shahid & Ahmad 2018). Teachers can nonetheless play a key role in convincing students to integrate and use e-learning amid the Covid-19 epidemic.

The integration and acceptability of E-learning are largely dependent on several social and behavioral aspects, and these characteristics determine technological recognition. Especially today, instructors and students choose E-learning to continue their path in education, in which communication, education, entertainment, and information depend heavily on online based systems (Vululleh, 2018). In emergencies, integrating technology delivers beneficial outcomes and teachers are responsible for using technology as an effective learning method.

Certain problems are difficult in the perceptions of students and faculties such as technical and financial assistance, training, better working circumstances, technological background, skills, protection of copyrights, and professional growth. Students feel that e-learning adds to their education based on the results of the review research. However, it decreases teacher burden and raises students' workloads. Low-quality internet connectivity in Libya during the epidemic is found the key barrier to e-learning. Faculty members feel that e-learning is helpful in the development of the computer abilities of students, however, considerable financial resources will be required (Maatuk et al., 2021).

The university should be sensitive and should not promote disparities between students from different backgrounds (World Bank, 2020). In addition, the proper equipment should also be usedto facilitate eLearning by academic personnel. Class sizes should also be taken into account in addition to technology and infrastructure since research elsewhere shows that online class discussions are easily managed for smaller courses (Conceição, 2006) rather than big ones (Arbaugh & Duray, 2002).

Some universities have large classrooms; therefore, managing eLearning activities might be a difficulty. To ensure consistent usage of eLearning technologies a particular institutional policyis needed to support online instruction (Dadzie, 2009). This would give guidance and guidelines for online instruction. Institutional assistance should also be provided by supplying information, software, and information content resources (Vershitskaya et al., 2020). It can be proposed that the institutions should have an eLearning budget. Finally, the online learning opportunities to address are the obstacles that Zamani and Esfijani (2016) pointed out to personal issues, relational inhibitors, and contextual inhibitors. Personal issues are personal features and behavior, whereas the inhibitor of relationships is internal variables such as the attitudes and opinions of eLearners users (Zamani & Esfijani, 2016).

Estimated procedures are necessary to build a good e-learning platform. First, the creation of successfule-learning courses is as important to teaching and quality of education as they are for one-on-onelessons. The second is that e-learning trainees should not just employ instructional materials previously used in face-to-face classrooms to preserve the quality of education and learning throughout the COVID-19 epidemic. One of the most frequent errors made by university lecturers was that they could not change or revise the teaching materials they frequently use to better respondto the demands of e-learning. Finally, Universities should give sufficient assistance not only to students but also to professors, who are not familiar with e-learning platforms in the form of eLearning management and technical provision. The capacity of trainers and students to use e-learning techniques may be hindered without proper technical assistance for both hardware and software. Instant technological support, such as 24/7 contact centers, should be provided to guarantee students always obtain assistance and free access to the Internet, both for teachers and students. E-learning was a vital technique for lowering the danger of COVID-19 transfer throughout all nations and proved important during the COVID-19 epidemic. But all institutions face substantial challenges when they suddenly move from offline to online learning. For educational policymakers, institutes, and educators the sustaining quality of learning at least like that which preceded the COVID-19 epidemic is nearly impossible. Another e-learning technique that is lacking in Jordan is a significant barrier to keeping pace withthe growing educational problems.

Similarly, Jordan needs stronger methods and facilities to pursue education even during a future crisis. E-learning is also vital for the management of knowledge (KM) business since they assist all knowledge management phases socialization, outsourcing, gathering, and assimilation. The usage of e-learning and its success can enhance organizational capacity (Hammouri et al., 2021). The review may also demonstrate that if e-learning is easy for students to utilize, it will also be ofgreat benefit to their use and acceptance. To be rational, the two constructions are reasonable, sinceit is important to make use of e-learning not complex and beneficial to students and learners (Martin et, 2020). If students believe or view the usage of new technologies such as e-learning as uncomplicated and easy, they are eager and willing to devote greater effort and time tolearning how to do so,

which will certainly increase their performance. On the contrary, students would not want to attempt using e-learning if it is hard to work and utilize. Similarly, the perceived benefit has a substantial influence on e-learning intention.

4. Conclusion

The results of this review study showed that online learning is currently the only effective form ofeducation in the globe during this pandemic time. The perceptions of university students and professors vary according to the benefits and denominations of e-learning. Although students in the online educational system could continue their academic development, they can study from home, and their computer skills develop with the academic skills but found very challenging for smallinternet facilities, lack of standard classification systems, a low wireless internet network, and a shortfall of final resources students. If the university and the administration concentrate on the difficult e-learning element, efficiency will grow enormously in the world. The university and government must reform the policies of the online education system by taking into account all student levels. For an acceptable system of education, the factors underlying the unfavorable impression of e-learning among instructors and students throughout the globe should be reconsidered. The outcome of this study revealed the global picture of e-learning and the multicultural perception regarding the online education system during the Covid pandemic. More specifically review identified the perceptual difference in e-learning during the Covid-19 pandemic across the globe. Besides that, the reason behind the perception of online-basedlearning during the Covid -19 pandemic is also explored in this study. Thus, the findings would help teachers, students, policymakers, and other stakeholders on the various ways to harness e-learning platforms for effective instructional content delivery during a pandemic in the future.

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