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E-learning pattern between effectiveness and obstacles as viewed by secondary school students during the COVID-19 pandemic in Jordan

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ABSTRACT

The study aimed to evaluate E-learning pattern between effectiveness and obstacles as viewed by the secondary stage students during COVID-19 pandemic in Jordan. The study population consisted of 326 eleventh grade students from the private schools in Madaba, Jordan. A sample of 142 eleventh grade students was purposefully selected from Al-Rashad Schools in Madaba during the second semester of 2020/2021. The study used the descriptive methodology approach represented by a questionnaire that was developed to achieve the objectives of the study. The study concluded that the difficulties and barriers of e-learning were, in general, at a moderate level. Similarly, the usefulness of e-learning activities and the effectiveness of e-learning activities were at a moderate level. The study also concluded that there were no statistically significant differences in the level of evaluation e-learning activities as viewed by the secondary stage students during COVID-19 pandemic in Jordan.

Keywords: effectiveness, obstacles ,e-learning, Covid-19 pandemic

INTRODUCTION

Chapter 1:Background and significance of the study

E-learning is a type of learning that relies on electronic technologies and media to deliver and achieve the objectives of learning. (Wheeler, 2012). E-Learning is not confined to online learning; it includes any form of digital communication used to deliver information. E-learning takes place through two types; The asynchronous type which doesn't necessarily happen in the same place or at the same time for the instructor(s) and learner(s) in order for learning to take place. There are no geographical or temporal constraints. On the other hand, the synchronous type where learner(s) and instructor(s) can meet, collaborate and interact virtually at the same time in order for learning to take place (Merzouk, Kurosinski, Kostikas, 2014).

New questions are being raised concerning ways to develop effective teaching and learning methods. Other terms that may be used to refer to this modern type of learning include virtual learning, web-based learning and computer-based learning (Goyal, 2012). Distance education (DE) at the secondary (high school) level in Canada and the United States takes place in web-based learning programs organized into single entities or schools that provide supplemental or full-time online studies, often referred to as virtual schools (Powell & Patrick, 2006). Virtual schools rely on both asynchronous online teaching (AOT) or synchronous online teaching (SOT).

This study aimed to evaluate secondary grade students' perceptions regarding e-learning resources activities during the COVID-19 pandemic; identify relevant factors that influence high school students' subjective experience and quality expectations during distance education activities, in a form of quality of experience (QoE). It also highlighted the students' perception about the need of teachers' presence during the use of e-learning recourses.

Due to the government's effort to contain the COVID-19 Pandemic from infecting more people, certain operations had to be shut down throughout the Defense Orders by the Jordanian government. Among the sectors that are affected by the closure is educational sector. As a result, the management as well as the lecturers have to think of ways to continue the teaching and learning processes online synchronously and asynchronously using online learning tools such as Zoom Meeting, Moodle, and Microsoft Teams to name a few. Among the problems faced by educators in switching to online mode were a new type of teaching and interacting with students, ways to make the assessment online, conduct lab through synchronous learning and prepare for online final examination.

Besides, it is also important for the students to have a positive perception about e-learning activities to make it effective and all these factors will affect students' performance and acceptance of knowledge through online learning modes. Therefore, it is important to study students perception on e-learning activities, specifically during the pandemic as it has entailed psychological, financial and social issues. This study helps to fill this research gap.

This study presents an understanding of online learning experiences from students' perspectives. A study of students perception of e-learning activities formats is important for several reasons, the first of which is simply the growing number of virtual learning opportunities available to high school students. More importantly, Since the comprehensive curfew in Jordan has gone into effect, schools have implemented distance learning delivery models like asynchronous, synchronous, or a combination of both in a blended environment. Complaints were raised by parents and teachers; Parents were not satisfied with e-learning. They had doubts about the effectiveness of e-learning and expressed their concerns in this regard. Teachers were not sure about the appropriate method to follow in that situation.

The purposes of this study are as follows:

1. Identify e-learning effectiveness as viewed by the secondary stage students during COVID-19 pandemic in Madaba, Jordan.
2. Identify e-learning barriers & difficulties as viewed by the secondary stage students during COVID-19 pandemic in Madaba, Jordan.

Questions of the Study

1. What are the e-learning effectiveness points as viewed by the secondary stage students during COVID-19 pandemic in Madaba, Jordan?

2. What are the e-learning barriers & difficulties as viewed by the first secondary stage students during COVID-19 pandemic in Madaba, Jordan?

Limitations of the Study

It is limited to the eleventh grade students in Alrashad Private High School in Madaba District Directorate of Education, Jordan during the second semester 2020-2021 . It is also limited to the instrument of the study that was distributed via online and Google Forms and its reliability and validity.

Chapter two: Theoretical Framework and Review of the Related Literature

Definition of Opera   tional Terms

E-learning activity

An educational process in order to achieve a learning objective. E-learning activities vary depending on medium, objective and content. For the purposes of this study, e-learning activities are referred to as educational processes that students go through while learning. This includes interactions with teachers, content, peers and web-based e-learning platforms.

Distance learning

Wheeler (2012) defines distance learning as the result of distance education. Learners and teachers are separated by space and time where learning is achieved using a combination of technologies. Distance learning can be differentiated from e-learning, which may be undertaken at a distance or contiguously, or as a combination of both. The researchers defines distance learning for the purposes of the study as the practice of teaching and learning at a distance where online environments are used as mediating delivery platforms. Moreover, distance learning is achieved synchronously and asynchronously or as a combination of both.

Private School

A school that is founded, conducted, and maintained by a private group rather than by the government, usually charging tuition and often following the same curricular as government schools. The vast majority of private schools in Jordan include an additional English Language curriculum besides the one issued by the government.

COVID-19 Pandemic

World Health Organization (2020) defines COVID-19 as an infectious disease caused by a newly discovered coronavirus. The research defines COVID-19 as a pandemic that affects the respiratory system and is a contagious disease. In order to prevent the spread of the virus, (WHO, 2020) highly recommends precautious measures like social distancing and using alcohol-based rub frequently.

E-Learning Trends in Education

Other than technology, e-learning as a concept entails learning methods, learning strategies and is more directed to vast possibilities in content connection and diffusion. Trends in this concept are no longer simply using computer as the artefact in teaching and learning processes. In an information-oriented society, one has to pay significant attention on developing lifelong education systems allowing for one to solve several problems linked with forming new information cultures, changing educational paradigms focusing on developing creative personalities and transitioning from assimilating the prepared knowledge and skills to search and design activities. Transitioning to an open and continuous education is among the techniques in resolving contradictions between traditional ways in human education and developing a new educational culture.

E-learning is also called EL, e-learning or electronic learning. It allows a learning institution meet the universal growing demand for quality educational services, making it a determined support system. According to Rossi (2009), e-learning is a concept covering a wide array of learning methods, processes and applications. Oblinger and Hawkins (2005) observed there was remodeling from online-based courses to use of technology in delivering part or an entire course independently. Recently, e-learning technology have become essential in the education process of institutions of higher learning such as colleges and universities, and are often used in various education forms and systems. Maltz et al. (2005) notes e-learning will often be applied in diverse perspectives including mobile and hybrid learning, online or digital distance learning and distributed learning. Well, e-learning is active among various ICT tools which play a key role in carrying out electronic and online interactions. Using e-learning platforms allow for the improvement of education quality by using rapidly replenishing universal educational resources. Using distance education technologies and e-learning components or elements result in increased share of individual students work as they master course materials. An important development in e-learning education was introduction of various educational standards in new generations and volume reduction in classroom work increased and expanded forms of individual student works, for which EL aimed at accomplishing in opening new opportunities or chances. Findings of O'Neill et al. (2011) revealed that learners undertaking EL had been more optimistic on their learning experiences. Introducing e-learning system to facilitate education in a classical higher institution is a complex and lengthy process where an organization will require systematic approaches entailing:

a. Infrastructure development
b. Creating and developing methodological, organizational, technical and technological conditions for e-learning introduction
c. Staffing the processes in the development, implementation and the co-conduction of automated training processes and management systems
d. Training and providing systematic support to instructors
e. Research works that aim at the exploration of possibilities in Its used in facilitating the educational processes, adoption of new technologies suiting conditions at the institution of higher learning, studying the educational, ergonomic, psychological and various other aspects in the introduction of EL; education technology and its introduction in the learning process and methodology development
f. Monitoring the process quality and learning outcomes
g. Having a motivation system for learners and instructors to look into e-learning
h. Developing electronic education resources & automated tools that support learning processes
i. Monitoring quality of the learning process and the outcomes.

Definitions of E-Learning

E-learning as a concept has many definitions. Muhammad Rais and Yusup Hashim (2004) cite the works of Garrison and Anderson (2003) defining e-learning as online or network learning taking place in the formal setting or context, utilizing a wide collection of multimedia technology.

"E-learning entails using a computerized network technology, mainly through or over the internet in delivering instructions and information to people" (Wang et al., 2010: 167).

The e-learning process is the interactive teaching and learning system providing a learner using information and communication technologies depending on the integrated digitalized electronic environment displaying courses across an electronic network, providing guidance and organizing texts and also evaluating and managing process and resources. The researchers define e-learning as the process of delivering learning or instructional materials via the internet, computerized technologies, videos, audios, videoconferencing, TVs, or other multimedia objects either inside or outside the classrooms.

Advantages of E-learning

E-learning models meets the requirements of current-day learners at their own pace and needs. Thus, e-learning has proven fruitful for several reasons. According to Colchester et al. (2017), it allows the accessibility for students, at their own convenience, to educational content and different learning platforms at any given time and from far and wide. It offers and shares learning-teaching content materials in different formats like videos, e-mails, audios, PDFs, word documents, slideshows and others. Direct communications and webinars with instructors using different messaging or chat forums is an option in e-learning. The e-learning models offer learners free and unlimited access to different e-manuals such as PDFs. Thus, it provides easy, gradual and clear instructions for learners. It's often noted to be the suitable way in self-learning. Bajaj and Sharma (2018) note e-learning offers a wide array of learning content covering almost all fields and subjects. E-learning isn't time-bound to a given timetable. Therefore, many students can access it from anywhere and at any time. Chu and Chan (1998) states that instructors might oversee and improve educational content when they want to. Goldsworthy, Lawrence, Goodman (2006) observe this feature is supplemented by content availability using mobile devices.

E-learning engages students during the program while decreasing time required to take part in a program. After preparing the learning material, it can be re-examined several times. The time saved in the making of materials can be employed by an instructor to improve and advance their intellectual level through e-learning models (Dhir et al, 2017).

Disadvantages of e-learning

Some of the disadvantages of the e-learning include:

The e-learning technique makes students undergo remoteness, contemplation, lack of relation or interaction. Therefore, it requires time management and strong motivation skills in reducing different impacts. Concerning interpretations, explanations and clarifications, e-learning techniques might be seen as less effective in comparison to traditional learning methods. In person interactive learning with teachers or instructors is way easier than e-learning. It negatively impacts socialization skills, limiting the role instructors play as the directors in the education process. On improving a student's communication skills, the e-learning technique might have negative effects. A student will have excellent and commendable academic knowledge but poor skills needed in delivering and transmitting the knowledge they acquired. E-learning or EL is subject to cheating, plagiarism, piracy, misuse of the copy & paste and inadequate content skills. Moreover, assessments and tests are supervised frequently by proxy, making it challenging to regulate or control activities like cheating. Not all education disciplines effectively utilize e-learning. For example, some scientific fields require practical experiences which studying through e-learning will be challenging. Many researches argue e-learning platforms are appropriate in the humanities and social sciences compared to fields like engineering and medical sciences which require development of practical skills. E-learning might lead to heavy utilization of websites or congestion. This might end in unanticipated costs in money and time (2003; Hameed et al, 2008).

Perceptions on E-Learning

Implementing an e-learning program relies on the involvement of a community, especially parents. According to Kong (2018), a learner's performance in the utilization of various e-learning platforms improves through their parents' involvement. Eysenck (2014) observes a parents' control when their child uses technology is very crucial, thus, a parents' role in supporting a child's utilization of an e-learning program is a bolster for the learner. Therefore, a parent's perception on e-learning utilization is essential for a successful program (Abdallah, 2018).

Additionally, Abdallah (2018) discovered parents' perceptions on e-learning are broadly classified into six dimensions; instructor computer competence, learner computer competence, learner's personal development,

curriculum, the quality of learning and teaching and the school environment. Abel-Maksoud (2019) notes e-learning perceptions are determined using three factors referred to as type of barriers that occurred during the implementation phase, user satisfaction in using the program and the motivation or driving factors to a user utilizing the platforms. Driver factors in e-learning often arises from how technology benefits and improves a student's learning process. Satisfaction in utilization of e-learning can be described in line with the user's positive attitudes on technology. Abdel-Maksoud (2019) notes barriers to e-learning utilization is linked to practical and technical issues.

Different studies showed that parents acknowledge the value and effect of digital communication and its devices when they play a role in educating young learners at home via e-learning platforms. (Mikelic Preradovic, Lesin, Sagud, 2016). Parents have positive attitudes and beliefs on how young children use computers and they believe a child gains valuable and essential skill and knowledge on utilization of computers enhances the academic developments and accomplishments and various opportunities in the future like career development (Abdel-Maksoud ,2019)).

Related Studies

Andre and Zulkarnain (2020) discussed the perception of parents on EL amid the coronavirus pandemic contains meaningful insights. The study took place in Indonesia with 257 respondents. The study used the quantitative approach and the instrument was a questionnaire that was distributed online. It dissects parent perceptions on EL through barrier factors, drivers and satisfaction. Parents are a key influential support system for learners. However, they are rigid to utilization of technologies in learning for various reasons. Findings from their study showed study participants weren't satisfied with how EL was implemented during the coronavirus pandemic. Many parents preferred traditional learning in comparison to e-learning. They also claim poor infrastructure in terms of electricity, digital devices and internet, and inadequate skills on using technology were barriers to the children using e-learning.

Bhamani et al., (2020) conducted a study on learning from home during the coronavirus pandemic, laying emphasis on parents' experiences. This qualitative study took a purposeful sample, which consisted of 35 parents from urban areas of Pakistan. The used instrument consisted of three open-ended questions and sent to respondents online via Google Docs forms. The results of the study showed that parents have quickly adapted and are taking part in addressing learning gaps in children's learning that emerged during the covid-19 challenging times. They study recommended measures for adoption to provide important learning skills and knowledge to children learning from home. Having a centralized

Table 1: Means and standard deviation of the items of the Effectiveness factor arranged descendingly

No.	Items	Rank	Mean	Std. D.	Level
1	E-learning meets the educational needs.	10	3.25	1.20	Moderate
2	I believe that e-learning platforms help in assessing learning outcomes.	17	3.23	1.23	Moderate
3	Having all educational contents like recorded lessons, materials and worksheets on the e-learning platform, enhances more concentration on learning.	14	3.12	1.30	Moderate
4	Students get easily distracted when they use e-learning platforms.	2	3.10	1.28	Moderate
5	Time and place flexibility leads to better learning.	8	3.10	1.21	Moderate
6	I believe that live-streaming lessons are better than recorded lessons.	7	3.10	1.24	Moderate
7	I believe that e-learning platforms are valid for all subjects.	12	3.04	1.17	Moderate
8	E-learning motivates active participation in synchronous sessions.	6	2.99	1.26	Moderate
9	E-learning employs various teaching methods.	13	2.95	1.25	Moderate
10	E-learning encourages students to take more online courses.	1	2.90	1.28	Moderate
11	I believe that sharing ideas and information through e-learning is easier than the traditional ways.	9	2.88	1.36	Moderate
12	Technological tools used in e-learning presents more innovative means for better learning.	15	2.87	1.26	Moderate
13	I am able to easily interact with teachers and classmates through e-learning.	5	2.79	1.28	Moderate
14	I believe that e-learning platforms diversifies teaching methods.	18	2.75	1.22	Moderate
15	I believe that e-learning platforms are exciting.	19	2.70	1.29	Moderate
16	A complete course could be conducted via e-learning with no difficulties.	3	2.67	1.21	Moderate
17	E-learning takes individual differences into account.	4	2.63	1.17	Moderate
18	I believe that obtaining the desired educational outcomes through e-learning is achievable.	16	2.62	1.16	Moderate
19	I believe that recording live-streaming sessions enables a more effective revision.	11	2.51	1.29	Moderate
Total			2.90	0.67	Moderate

educational technology and data dashboards can be utilized in keeping learning institutions, students and parents updated.

Milena (2020) investigated the impact of the coronavirus pandemic looked at evaluating effective online and digital distance learning. 73 teachers from the National Sports Academy "Vassil Levski" (NSA) in Bulgaria were asked and gave their opinions. She noted that her study can be summarized on the basis of several factors influencing effective evaluation are all essential and important in regards to the learning process. Much work has to be carried out for improved communication in e-learning platforms, more so, when a video conference has many participants. The platforms may be integrated for convenience, easy plus multi-functional chances or possibilities for study and work in virtual environments.

Mohammad (2020) conducted EL research in Saudi Arabia during coronavirus pandemic. A questionnaire was used to verify the opinions of 33 male faculty members in MIT department of Jubail Industrial College (JIC) of Kingdom of Saudi Arabia (K.S.A.). His study commences with e-learning notions, talking about its span and need in education. Special emphasis is on the role of EL in solving disruptions experienced in the Kingdom's education sector. The survey conducted aimed at verifying educator's preference to diverse e-learning features. Research finding indicate many educators had positive opinions on e-learning.

Al-khataybeh (2021) investigated the impact of the sudden shift to online teaching on the written production of the curriculum and instruction postgraduate students' writing researches at Mutah University, which occurred in 2020 due to

COVID-19 pandemic. Instrument of the study was Five Likert scale questionnaire and was distributed to (53) PhD students in the curriculum and instructions department in the faculty of Educational Sciences at Mut'ah University in Jordan. The findings of the study showed that students were able to rapidly adopt to the sudden switch and they showed positive attitude towards online writing activities. Results, also, showed that students found online writing researches were motivating, enjoyable and boosted independent learning.

Previous studies, as evidenced above, the exploration focus was on student and parent practices and perspectives with regards to children's utilization of online and digital platforms. Literature review reveals most researches conducted aimed at identifying student perceptions of EL. Studies focusing on students and parents' perspectives on e-learning during the corona virus pandemic are scarce to the best of the researchers knowledge. Particularly, during the Covid-19 pandemic, there was a sudden unexpected shift to the online and e-learning which opened doors for new possibilities and unforeseen challenges that affected parents and young children. Given such circumstances, previous studies point to the need for examining parental attitudes and beliefs on online learning, its effectiveness, and their readiness and acceptance at making drastic shifts and changes. Additionally, many existing research studies are centered on the Western countries, and might not necessarily be representative of views in Middle-Eastern countries who might have diverse educational philosophies and cultures. Indeed, beliefs of a parent on digital media and technologies aren't vacuum formed, but are shaped through cultural norms and beliefs (Mansour, 2008). Therefore, it will be an important theoretical contribution on understanding evaluation of EL activities first from the learners then their parents in wake of the coronavirus pandemic and subsequent lockdown. This is an exclusive study standing out in context of place and time.

Chapter Three: Design and Methodology

This chapter encompasses a detailed description of the population of the study and its sample. Furthermore, the instrument that was used to collect the data and the procedures to ascertain its reliability and validity. Finally, the statistical analyses.

Population of the Study

The population of the study consisted of (326) eleventh grade male and female students. These students attend six private high schools in Madaba Directorate of Education during the second semester of the 2020/2021 academic year.

Sample of the Study

The sample of the study consisted of (142) eleventh grade male and female students. Due to the curfew that was implemented

during the time of conducting this study and the available communication methods between the researchers and his students, the sample was purposefully selected. It was selected from Alrashad Model School in Madaba Directorate of Education during the second semester of the 2020/2021 academic year.

Instrument of the Study

The researchers constructed a questionnaire consisted of two parts; the first asks about personal information and the second part consisted of (40) Five-Likert type items distributed over (3) domains related to e-learning and distance learning as the latter is the umbrella under which e-learning exists. Three domains explored e-learning as viewed by students. Domain of barriers incorporates (10) items, domain of usefulness incorporates (11) items and effectiveness domain incorporates (19) items .

Validity

The researchers reviewed the related literature in an attempt to design and build the instrument under the guidance and support of his supervisor. However, post the first drafting phase , the Instrument of the study was presented to a committee consisted of 10 members who are experts and specialized in the field of the study; professors of the subject area, academic supervisors and teachers . Their insightful comments were addressed and taken into account. All items that were recommended to be modified to suit the study by 80% of committee members were amended as suggested. the Instrument of the study in its initial draft consisted of 44 items. After modification and validation, it consisted of 40 items.

Pilot Study

The questionnaire was distributed to a pilot sample to ensure its validity. The pilot sample was excluded from the final sample size of the study. The piloting process enabled the researchers to determine the right question in the most effective way and whether the participants were able to answer the questions properly or not. The questionnaire was sent to 20 students. The questionnaire was piloted with 20 students to ensure clarity of the questionnaire content.

The Reliability of the Questionnaire

Reliability refers to the consistency of a test, survey, or other measuring device. To extract the reliability coefficient, distributions were allocated two weeks between the first and second distribution. The coded questionnaires were distributed to a pilot sample that was later on excluded from the final study sample size. Reliability analysis of the study instrument showed the following; the overall result of the reliability coefficient of the study instrument was

(0.84), which indicates the level of reliability the instrument attained by the study sample. Barriers & Difficulties domain obtained a reliability coefficient of (0.71), while effectiveness coefficient was (0.88). The aforementioned values indicate the reliability of the study instrument. The researchers followed the following criterion for discussing the results of the study;the mean scores of less than 2.33 were considered low value, mean scores of equal to 2.34 up to 3.67 were considered moderate value and mean scores equal to 3.68 up to 5 were considered high.

Respondents' Profile

A description has been provided in the respondents' profile. Table (2) shows the profile of the respondents. for statistical purposes, just 126 questionnaire respondents were usable. (11) missing responses (5) missing. Therefore, a total of 16 questionnaires were excluded from this study 142 - 16 = 126 who were distributed as follows;66 male students that forms 52.4 % and 60 female students which forms 47.6 %.

Procedures of the Study

The following procedures were followed to conduct the study:

1. The researchers reviewed the related literature to e-learning and studies that addressed perceptions of e-learning.

2. Due to the circumstances that emerged with COVID-19 pandemic , when which this study was conducted, the researchers decided to purposefully select Alrashad Model School students to be the sample of the study..

3. The questionnaire was drafted and prepared in its initial form by the researchers to be presented to jury members (Appendix 4) for face validity. Afterwards, the researchers received their insightful comments and made necessary modifications that 80 percent of jury members recommended to be modified.

4. To ensure questionnaire validity, it was distributed to a pilot sample, which was excluded from the study sample size. The questionnaire was sent to 20 students.

5. Two weeks later, responses were collected. Afterwards, the researchers started analyzing responses using (SPSS) software.

6. To answer this study's questions, different statistical analyses

7. Finally, discussion and recommendations were stated in the light of the results of the study.

Chapter Four: Results and Discussion of the Findings and Recommendations

Results Related to the First Question:What are the e-learning effectiveness points as viewed by the secondary stage students during COVID-19 pandemic in Madaba, Jordan?

To answer this question, means and standard deviations were used to be investigated at Effectiveness factor, table (1) shows the results:

The results showed that all items were Moderate level. Item No. (10), which states (E-learning meets the educational needs), obtained the first rank with an arithmetic mean of (3.25) and a standard deviation of (1.20) and of a Moderate level. This shows that there is a positive attitude among students for this type of learning as it contributed to the continuity of the educational process in the light of the Corona pandemic. Additionally, this type of education was flexible and met the primary needs of the educational process at the time of the pandemic. While item No. (11), which states (I believe that recording live-streaming sessions enables a more effective revision), obtained the last rank with an arithmetic mean of (2.51) and a standard deviation of (1.29) and of a Moderate level. This indicates that students do not consider recorded lessons enjoy the ability to fulfill the desired purpose in terms of revision. They believe that direct instruction by a teacher is the appropriate means by which students benefit the most from when revising previous lessons.

Overall, the mean for e-learning usefulness as viewed by the secondary stage students during COVID-19 pandemic in Madaba was (2.90) and the SD was (0.67) which is Moderate level. The researchers attributes this result to the fact that e-learning is not widely accepted by students

Results Related to the Second Question:What are the e-learning barriers & difficulties as viewed by the secondary stage students during COVID-19 pandemic in Madaba, Jordan?

To answer this question, means and standard deviations were used to be investigated at Barriers & Difficulties factor, table (2) shows the results:

The results show that the items averages were moderate level. Item No. (7), which states (Cheating through e-learning / online exams reduces the level of competition between students), obtained the first rank with an arithmetic mean of (3.68) and a standard deviation of (1.40) and of a High Level. This result confirms that e-learning promotes cheating among students as there is no presence of invigilators when an exam is held. As a consequence, honest competition methods are not adhered to. While item No. (5), which states (Interacting with e-learning platforms is difficult), obtained the last rank with an arithmetic mean of (2.80) and a standard deviation of (1.27) and categorized as a Moderate level.

As a result of Corona virus crisis, which imposed e-learning on students and teachers, and lack of adequate awareness and specialized training had negative results in some situations. In particular, those negative results were obvious among students who hadn't previously received a formal training to employ e-learning academically and in a scientific manner in order to reflect on the learning process.

Table 2: Means and standard deviation of the items of the Barriers & Difficulties factor arranged descendingly

No.	Items	Rank	Mean	Std. D.	Level
1	Cheating through e-learning / online exams reduces the level of competition between students.	7	3.68	1.40	High
2	Internet connection speed is inappropriate for online / e-learning.	3	3.66	1.26	Moderate
3	Motivation towards e-learning is inadequate.	6	3.49	1.17	Moderate
4	Distance learning reduces social interaction.	8	3.35	1.36	Moderate
5	Internet connection is not always available.	1	3.21	1.25	Moderate
6	Course materials (books, worksheets, lessons, etc.) are difficult to find on e-learning platforms.	9	3.15	1.24	Moderate
7	Electronic devices (i.e.: Laptops, smartphones, PCs, etc.) are not always available to learning.	2	3.07	1.27	Moderate
8	Electronic communication with instructors and classmates is not comfortable and easy.	10	3.05	1.21	Moderate
9	Lack of experience in dealing with computers and the internet for the purpose of online / e-learning.	4	2.96	1.24	Moderate
10	Interacting with e-learning platforms is difficult.	5	2.80	1.27	Moderate
Total			3.23	0.73	Moderate

Overall, the mean of e-learning Barriers & Difficulties as viewed by the secondary stage students during COVID-19 pandemic in Madaba was (3.23) and its obtained SD was (0.73) of a Moderate level. The researchers attributes this result to the fact that implementing e-learning without the necessary expertise, knowledge and skills open doors to several problems during the actual implementation process and may lead to disruption of learning and education processes for students, because they are not accustomed to this type of learning. One of the main obstacles in applying e-learning is the lack of awareness and specialized and focused training on how to employ these technologies directly by students.

RECOMMENDATIONS

In light of the results of the study, the researchers present the following recommendations.

8. Addressing all issues related to e-learning in terms of providing specialized training for students and teachers is recommended.
9. Holding workshops is recommended to raise parents' awareness of the importance of e-learning during pandemics.
10. Addressing the technical gap between students is recommended, which could be by providing students with information using the appropriate methods on how to employ e-learning in the learning process.
11. Further studies in the field of electronic learning and its importance toward the continuity of the educational process are recommended.

REFERENCES

Abdallah, A. (2018). Parents perception of e-learning in Abu Dhabi schools in United Arab Emirates. International E-Journal of Advances in Social Sciences, 4(10), 30–41.

Abdel-Maksoud, N. (2019). Factors Affecting MOOCs' Adoption in the Arab World: Exploring Learners' Perceptions on MOOCs' Drivers and Barriers. Higher Education Studies, 12(11), 164–177.

Al-khataybeh, M. (2021). The Effect of Using Online Learning on Jordanian Postgraduate Students Writing Researches During Covid-19 Pandemic at Mutah University. TESOL International Journal 16 (63).

Andre, H. & Zulkarnain L. (2020). Parent's Perceptions On E-Learning During Covid-19 Pandemic in Indonesia. Journal of Critical Reviews 7(18): 3599 -3607.

Bajaj, R. & Sharma, V. (2018). Smart Education with artificial intelligence based determinat ion of learning styles. Procedia Computer Science,

Bhamani, S., Makhdoom, A., Bharuchi, V., Ali, N., Kaleem, S., & Ahmed, D. (2020). Home Learning in Times of COVID: Experiences of Parents. Journal of Education and Educational Development 7(1), 09-26, 2020.

Chu, L & Chan, B. (1998). Evolution of web site design: implications for medical education on the Internet. Computer Bio. Med. 28: 459-72.

Colchester, K., Hagras, H., Alghazzawi, D. & Aldabbagh, G. (2017). A Survey of Artificial Intelligence Techniques Employed for Adaptive Educational Systems within E-Learning Platforms. Journal of Artificial Intelligence and Soft Computing Research, 7, 47 - 64.

Dhir, S., Verma, D.; Batta, M. & Mishra, D. (2017). E-Learning in Medical Education in India. Indian Pediatrics. Volume 54 October 15..

Fletcher, J. & Rockaway, M. (1986). Military Contributions to Instructional Technology. New York, NY: Praeger.

Garrison, R. & Anderson, T. (2003). E-learning in the 21st Century: A Framework for Research and Practice. London: RoutledgeFalmer.

Goldsworthy S, Lawrence N, Goodman W. (2006). The use of personal digital assistants at the point of care in an undergraduate nursing program. Computer Inform Nurs 24: 138-143.

Goyal, Sumit. (2012). E-Learning: Future of Education. Journal of Education and Learning (EduLearn). 6. 239.

Hameed, S. Badii, A. & Cullen, A. (2008). Effective e-learning integration with traditional learning in a blended learning environment. European and Mediterranean conference on information system, (25-26).

Horton, W. (2001). Leading E-Learning. Alexandria, VA: ASTD.

Klein, D. & Ware, M. (2003). E-learning: new opportunities in continuing professional development. Learned publishing, 16 (1) 34-46.

Kong, S. (2018). Parents' perceptions of e-learning in school education: Implications for the partnership between schools and parents. Technology, Pedagogy and Education, 27(1), 15–31.

Kukulska-Hulme, A. (2005). Mobile Learning: A Handbook for Educators and Trainers. London &Newyork: Routledge.

Livingstone, S., Mascheroni, G., & Dreier, M. (2015). How parents of young children manage digital devices at home: The role of income, education and parental style. Retrieved from London, LSE.

Maltz, L., Deblois, P. and the EDUCAUSE Current Issues Committee. (2005). Top Ten IT Issues. EDUCAUSE Review, 40(1), 15-28.

Marc, J. (2002). Book review: e-learning strategies for delivering knowledge in the digital age. Internet and Higher Education, 5, 185-188.

Merzouk A, Kurosinski, K. & Kostikas, A. (2014), e-Learning for the medical team: the present and future of ERS Learning Resources, Breathe 10 (4) 296–304,

Mikelic, P., Lesin, G., & Sagud, M. (2016). Investigating parents' attitudes towards digital technology use in early childhood: A case study from Croatia. Informatics in Education, 15(1), 127–146.

Milena K. (2020). The Impact of Covid-19 Pandemic on The Evaluation of e Eectiveness of Online Distance Learning. Journal of Pedagogy, 92, (7), 74 – 83.

Mohammad, Z. (2020). "E-Learning during the Period of Pandemic (COVID-19) in the Kingdom of Saudi Arabia: An Empirical Study." American Journal of Educational Research, 8(7) (2020): 457-464.

Oblinger, D. & Hawkins, B. (2005). e Myth about E-learning. Educause review, 40(3), 56-59.

Powell, A. & Patrick, S. (2006). An international perspective of K-12 online learning: a summary of the 2006 NACOL international e-learning survey. Vienna, VA: North American Council for Online Learning. Retrieved November 20, 2009, from http://www.inacol.org/research/docs/.pdf..

Rossi. P. (2009). Learning Environment with Artiicial Intelligence Elements. Journal of E-Learning and Knowledge Society, 5(1), 67-75.

Wang, M., Ran W, & Liao, J. (2010) A performance-oriented approach to e-learning in the workplace. Journal of Educational Technology & Society 13(4), 167–179.

Wheeler, S. (2012). e-Learning and digital learning. In Encyclopedia of the sciences of learning (pp. 1109-1111). Springer.