Distance Education amid the COVID-19 Pandemic from the Students' Point of View

Omar M. Mahasneh, Department of Basic and Applied Sciences, Faculty of Shobak University College, Al-Balqa Applied University, Jordan. P.O. Box: Al-Salt 19117.

Raed Ahmad Al-kreimeen [*], Department of Educational Sciences, Al Salt College for Social Science/ Al-Balqa Applied University, Jordan. P.O. Box: Al-Salt 19117.

Asre Ali Alrammana, Department of Educational Sciences, Al Salt College for Social Science/ Al-Balqa Applied University, Jordan. P.O. Box: Al-Salt 19117.

Odeh S. Murad, Department of Educational Sciences, Al Salt College for Social Science/ Al-Balqa Applied University, Jordan. P.O. Box: Al-Salt 19117.

Abstract

This study aims at exploring the forms, benefits and obstacles of distance education during COVID-19 pandemic. The study adopted the cross-sectional research approach. A sample of 377 university students were conveniently recruited during the second semester of the academic year 2020/2021. The researchers developed a valid and reliable questionnaire that consisted of three parts; they were investigating forms of distance education, benefits of distance education, and obstacles of distance education during COVID-19 pandemic. The results of the study indicated that synchronous e-learning and using social media channels were the mostly used means to deliver the educational material during the COVID-19 period. Reduction of the expenses and better academic performance were reported to be the most achieved benefits by the students from distance learning during COVID-19 pandemic. The study concluded that distance education during COVID-19 imposed different forms of education that in turn imposed various benefits and obstacles for the students

Keywords: COVID-19, distance education, Jordan, Cross-sectional, forms, benefits.

---

[*] ADDRESS FOR CORRESPONDENCE: Raed Ahmad, Al-kreimeen, Associate Professor, Department of Educational Sciences, Al Salt College for Social Science/ Al-Balqa Applied University, Jordan. P.O. Box: Al-Salt 19117.
E-mail: raedalk@bau.edu.jo

1. Introduction

The scholars specialised in education sciences have contributed, based on contemporary educational theories, by framing some educational concepts for their importance in achieving educational results in all stages of education (Bostrom et al., 2018). Among these concepts is the concept of distance education. Modern educational theories have focused on the importance of self-learning, considering the student as the centre of the educational learning process (Sadeghi, 2019; Bansak & Starr, 2021). Distance education is considered a modern phenomenon of education as a result of the rapid developments in information technology, both of which are computers and communications (Fedorenko et al., 2019; Elhadary et al., 2020).

Distance education includes a separation process between teachers and students and scientific courses in the educational environment (Harsasi & Sutawijaya, 2018). Distance education works to transfer the normal environment for education to multiple environments in time and space (Dhawan, 2020). Mahasneh (2020) defined distance education as the transfer of learning in various forms to the learner in his/her place of residence or work instead of the educational institution, and according to this concept, distance education has many forms that contribute to the achievement of educational outcomes (Mahasneh, 2020; Octaberlina & Muslimin, 2020).

As for UNESCO, it defines distance education as education that is provided in whole or in part by persons separated from the learners in time and space, as electronic or printed communications take place remotely between the parties to the educational process (Korolev, 2020). The American Association for Distance Education has defined distance learning as the process that aims to provide learners with educational products remotely electronically or through an intermediary (Simonson et al., 2019).

The first steps for distance education began in 1856 when the French scientist Charles Toussaint and the scientist Gustave established a school for distance learning under the name (Correspondence Language School) (Selivanov & Savchenko, 2019). In the 1920s of the 20th century, educational radio was licensed in the United States of America and television broadcasting began in 1950, and in 1971 Britain established the Open Universities (Pregowska et al., 2021). In the mid-80s in the United States, the use of computer networks started in learning, and then the use of computer media in pre-university education spread (Anderson & Simpson, 2012). The Arab countries were interested in establishing universities that deal with distance education, the most important of which is Al-Quds Open University (Zamel & Dweikat, 2017).

The philosophy of distance education and its objectives stems from encouraging self-learning for learners (Elfadni & Abdelrahman, 2020), and allowing workers who find it difficult to enrol in school as a result of work conditions to complete and pursue their education, benefit from the tremendous technological developments in the educational process (Simonson et al., 2019; Crawford et al., 2020) and overcome emergency conditions, such as the COVID-19 pandemic in which traditional education cannot be provided inside the educational institution (Mahasneh & Bani Taha, 2020).

At the end of the 20th century, Jordan paid attention to distance education by organising the legislation related to it (Lassoued et al., 2020), as it was partially concerned with it and was directing educational institutions to implement its principles and philosophy (Althunibat, 2015). With the emergence of the COVID-19 pandemic and after the announcement of the Jordanian Defence Law on 3/17/2020, due to the COVID-19 pandemic, the Ministry of Higher Education and Scientific Research in Jordan has resorted to fully using distance education as an alternative to traditional education in teaching students of public and private universities (Gazette, 2020).

The total reliance on distance education in Jordanian universities has been since the announcement of the Defence Law on 3/17/2020 and is still continuing until now. Therefore, the current study aims to reveal the Jordanian experience of distance education in universities from the students' point of view in terms of forms, benefits and obstacles (Mahasneh & Bani Taha, 2020).

1.1. Related research

After a thorough review of the literature and previous studies, the researchers were unable to identify any studies related to distance education within the Jordanian experience, which increased the significance of the topic of the present study. In other countries, Sari and Nayir (2020) conducted a study aimed at uncovering the perceptions of teachers, administrators and academics who continued distance education during the COVID-19 pandemic, about the problems they faced and strategies for dealing with challenges. The study sample consisted of 65 teachers and academics. Data were collected through semi-structured interviews with the study participants. The results of the study showed that teachers faced difficulties in accessing the Internet, lack of infrastructure, classroom management, human resources, teacher training and student behaviour. One of the most important strategies for dealing with these problems is knowing the new arrangements related to classroom management, getting help from colleagues, family members and experts and communicating with students and parents.

In addition, Amponsah (2017) conducted a study entitled 'Assessment of Challenges in Distance Education at the University of Ghana'. The study sample consisted of 49 teachers and 139 students. The main survey questions for teachers revolved around their educational backgrounds, the training they received, challenges they faced in teaching, courses taught and their interrelationships. Important survey questions for students focused on their demographic characteristics, challenges in the enrolment process, adequacy of the educational programmes, timeliness and prompt assessment and feedback on assignments. In addition, qualitative data were obtained from coordinators and organisers on the main challenges that hinder the implementation of the distance education programme, the most important of which were insufficient training, insufficient financial incentive, transfer of learners from one teacher to another, insufficient time allocated to the educational programme, late attendance of students, inappropriate public discourse regulations and late delivery of modules to students. The majority of students reported that the registration process at the beginning of the semester was too difficult, class periods were insufficient and they were not enthusiastic about the tasks given to them during the lessons. The coordinators reported that some of the implementation committee members were not experts in the field of distance learning.

In a study conducted by Chen et al. (2020), which aimed at exploring the perceptions of American undergraduate students about the adopted distance learning approaches and strategies amid COVID-19 pandemic, the researchers used the semi-structured interviews to identify the students' perceptions about the distance learning approaches during the COVID-19 period. The results of the study showed that undergraduate students had negative perceptions and these perceptions were represented by shifting to distance learning which had worsened the quality of the provided education, increased stress and pressure over the students, reduced the students' engagement and retention.

Ferraro et al. (2020) explored the perceptions and experiences of Italian students. The researchers adopted the descriptive cross-sectional approach that was applied on a sample of 83 undergraduate students in southern Italy. The data collection tool was a questionnaire that included 11 items focusing on the students' perceptions about distance learning during the COVID-19 pandemic. The results of the study showed that Google Meet and Zoom were the most used distance learning applications by the undergraduate students. In addition, the findings revealed that the average number of classes attended

by the students through distance learning was seven classes. Finally, the study reported that there was an increase in the levels of anxiety and stress among the students due to the distance learning adoption during the COVID-19 pandemic.

Gok and Gokcen (2020) conducted a study entitled 'Regional Development and Distance Education: Evaluating the Performance of Distance Education Programmes in Turkey'. The Distance Education Service Quality Scale (DE-SERVQUAL) and proficiency analysis were used as measurement tools. The study sample consisted of students registered in the distance education programme and the universities they attended in Turkey. The results of the study showed that the performance of distance education programmes is generally low to average in Turkey.

Moreover, Gokbulut (2020) conducted a study aimed at determining the opinions of undergraduates and graduates about the distance education they received. The researcher used the phenomenology design, which is one of the qualitative research designs based on the data and information collection tool (the interview). Focus group interviews were conducted in three sessions with 27 students (14 postgraduates and 13 undergraduates). The results of the study showed that students prefer distance education because they work in a job. They consider distance education a great opportunity for those who cannot receive formal education. The students stated that the university's distance education infrastructure is very good from a technical point of view. They have almost no technical problems, but they do have problems when communicating via mobile applications. They stated that the contents of the courses related to informatics are old because they have received special education in the field of informatics and stressed the importance of innovation.

Fojtik (2018) carried out a study entitled 'Problems of Distance Education'. The study population consists of undergraduate students majoring in computer science at the University of Ostrava (Czech). The results of the study showed that the success rate of students in the regular class was 64%, while for distance it was 39%. The results of the distance learners are worse than those of the full-time students, and the remote students in the higher classes are more successful in studying and do better in terms of organisation and administration.

Through the review of studies, it was found that the researchers did not find studies about the Jordanian experience of distance education in universities, either before or after the COVID-19 pandemic, as the current study is considered one of the rare studies in the literature, and some studies that were found in other countries focused on education problems in the specialisations such as computer science majors (Fojtik, 2018), studies on students' opinions about distance education (Gokbulut, 2020) and studies on evaluating distance education programmes (Gok & Gokcen, 2020) and studies (Amponsah, 2017).

1.2. Research problem and questions

The COVID-19 pandemic and the announcement of the defence law on the date of 3/17/2020 caused the Ministry of Higher Education and Scientific Research to completely switch to distance education in Jordanian and private universities, as it is the first time that Jordanian public and private universities have experienced throughout history. The research gap that the present study is trying to bridge is represented by the lack of studies investigating the Jordanian undergraduates' perspectives regarding the forms, benefits and obstacles of distance education amid the COVID-19 pandemic, which requires extensive studies to bridge this gap in order to design and develop new methods and strategies to overcome this issue. Based on the researchers' experience in distance education, they tried to find out the Jordanian experience of distance education, as this study tried to answer the following questions:

The first question: What are the forms of distance education used by faculty members in Jordanian universities?

The second question: What are the benefits of distance education that Jordanian university students have achieved?

The third question: What are the obstacles to distance education facing Jordanian university students?

1.3. Significance and objectives of the study

The significance of the study stems from its achievement of the following objectives:

- Explaining the forms of distance education used by faculty members in Jordanian universities.
- Demonstrating the benefits that have been achieved among university students as a result of the total reliance on distance education.
- Explaining the obstacles faced by university students during distance education.

The results of this study are hoped to contribute in providing significant feedback for decision-makers in higher education institutions, to assess the experience of distance education in Jordanian universities and to improve the experience in the coming years.

1.4. Limitations of the study

- The study is confined to students enrolled in universities during the second semester of the academic year 2020/2021.
- The results of the study are determined by the validity and reliability of the study tool used.

2. Method

The researchers used the descriptive survey approach to answer the study questions through the data and information collection tool (questionnaire).

2.1. Research population and sample

The study population consisted of undergraduate students of Jordanian universities, and the study sample consisted of 377 male and female undergraduate students who were selected conveniently from the study population. Table 1 shows the demographic characteristics of the study sample:

Table 1. Demographic characteristics of the study sample

N	Variable	Level	n
1	Gender	Male	63
		Female	314
	Total		377
2	Academic year	First	106
		Second	94
		Third	99

	Fourth	76
	Total	377

2.2. Data collection tools

To answer the study questions, the researchers used the questionnaire tool, which was designed electronically through the services provided by Google Forms. The final version comprised five parts, as follows:

- The first part included demographic information (gender and academic level).
- The second part is related to the forms of distance education and the devices used by students (7 items).
- The third part is related to the benefits of distance education in a restricted manner (18 items).
- The fourth part is related to the obstacles to distance education in a restricted manner (10 items).
- The fifth part is related to the devices mostly used in distance education (3 items).

2.3. Validity of the data collection tool

To verify the construct and apparent validity of the study questionnaire, it was presented to five referees from the faculty who are specialise in curricula and teaching methods, and they were asked kindly to express their opinions about the appropriateness of the questionnaire items for the objectives of the study, the linguistic wording and add any notes they deem appropriate. The final form of the questionnaire was produced that was designed electronically. It consists of five parts.

2.4. Reliability of the data collection tool

The reliability coefficient of Cronbach's alpha was extracted for the study tool and it scored 0.89. This indicates that the study tool has high stability and is suitable for conducting the study and answering its questions.

2.5. Statistical processing

The study used the Statistical Package of the Social Sciences (v. 26) (IBM Corp.) to analyse and process the data of the study. Descriptive studies such as frequencies, percentages, means and standard deviations were used to analyse the responses of the study participants. In addition, a statistical significance level of 0.05 was used as a threshold of statistical significance.

3. Results

To answer the first question, which states: What are the forms of distance education used by faculty members in Jordanian universities?, the frequencies and percentages for the participants' responses were calculated for the questionnaire items (Table 2).

Table 2. Frequencies and percentages for the participants' responses related to the forms of distance education used by the Jordanian faculty members

N	Forms of distance education	Frequency	Percentage	Rank
1	Synchronous face-to-face e-learning through one of the Zoom, Microsoft Teams, Google Meet or other applications.	301	80	1
2	Synchronous face-to-face e-learning through e-learning management systems such as Moodle, Big Blue Button or other systems.	66	24	2
3	Communication through social media such as WhatsApp or Facebook	66	18	3
4	Pre-recorded audio and video clips by the teacher	44	12	6
5	The use of multiple forms of distance education, including synchronous and asynchronous e-learning, social media, recordings and video clips	61	16	4
6	Uploading files in PDF and Word extensions through the e-learning system and conducting exams only	55	15	5
7	Voice recordings and video clips recorded by others	21	6	7

The second question: What are the benefits of distance education that Jordanian university students have achieved? To answer this question, the frequencies and percentages were calculated (Table 3).

Table 3. Frequencies and percentages of the participants' responses are the benefits of distance education that Jordanian university students have achieved

N	The benefits of distance education that Jordanian university students have achieved	Frequency	Percentage	Rank
1	High GPA	113	30	3
2	Financial savings through saving personal expenses that were specified for traditional education	183	49	1
3	Using others to attend lectures	21	6	17
4	Using others to take the exams	22	6	16
5	Distance education contributes to restudying the material and refer to it electronically when needed	162	43	2
6	I register more hours in the semester remotely compared to the regular semester (inside the university)	82	22	4
7	Forming teams of colleagues to share information and understand courses during the semester	59	16	10
8	Forming teams of colleagues during exam times to answer questions	20	5	18
9	Distance education makes it easy for me to work and study together	77	20	6

10	Reducing the consumption of paper and stationery supplies	79	21	5
11	Ease of communication with the teacher and asking questions compared to traditional education	63	17	8
12	The informative content is presented in a neat, simple and logical format that is easy to understand	53	14	12
13	Participate in multiple activities and do assignments remotely and follow-up with teachers	62	16	9
14	Distance education uses different methods that are more accurate and fair in my assessment	29	8	15
15	Distance education matches the theoretical and practical side of the courses	29	8	14
16	Distance education helped me ask questions freely to the teacher compared to traditional education	38	10	13
17	Distance education makes it easier for me to schedule my working hours	63	17	7
18	Easily absent from lectures compared to traditional education (on campus)	51	14	11

The third question: What are the obstacles to distance education that Jordanian university students face? To answer this question, the frequencies and percentages were calculated (Table 4).

Table 4. Frequencies, percentages and ranks of the participants' responses to the obstacles of distance education that Jordanian university students face

N	The obstacles of distance education that Jordanian university students face	Frequency	Percentage	Rank
1	Low GPA	79	21	9
2	The high financial cost of buying smart devices and subscribing to monthly Internet packages	136	36	2
3	Internet weakness	255	77	1
4	The low level of the devices that I used in distance education	119	32	4
5	Difficulty understanding practical courses taught through distance education	127	34	3
6	My inability to provide a place dedicated to distance education at home	117	31	5
7	My understanding of the courses I've taken has decreased	98	26	7
8	The low level of my participation in the lectures	98	26	8
9	The absence of collegiality and teamwork	116	31	6
10	Not allowing me to participate and interact in the virtual lecture	71	19	10

The fourth question: What devices do students use in distance education? To answer this question, the frequencies and percentages were calculated (Table 5).

Table 5. Frequencies, percentages and ranks of the participants' responses related to the devices used in distance education

N	Devices used in distance education	Frequency	Percentage	Rank
1	Personal computer or a laptop	84	23	2
2	Mobile device/smartphone	328	89	1
3	Tablet/iPad	15	4	3

4. Discussion

The present study aimed at exploring the forms of distance education used by faculty members in the Jordanian universities, identifying the benefits of distance education that Jordanian students have achieved and the obstacles to distance education facing Jordanian university students. The results of the present study revealed that synchronous face-to-face e-learning through one of the applications, Zoom, Microsoft Teams and Google Meet, and through e-learning management systems, such as Moodle, Big Blue Button or other systems, were the most prevalent forms of distance education used by the Jordanian faculty members during the COVID-19 period. In addition, communication through social media such as WhatsApp or Facebook was ranked third among the forms of distance education used by the Jordanian faculty members as perceived by the undergraduate students. These results might be attributed to the ease of access, availability and low cost of using these platforms in the educational process. The absence of a unified national platform specialised in distance education pushed the higher education institutions to adopt the internationally used platforms such as Zoom, Microsoft Teams and Google Meet in the educational process (Mathivanan et al., 2021). This result might be referred as well to the lack of the strategic planning process in the Ministry of Higher Education and Research Development, as there is no specific educational platform for the higher education institutions. The only available and released platform was (Darsak) platform that was directed towards school education and was used to provide distance education for primary, intermediate and secondary stages. Moreover, the use of social media to communicate with students might be attributed to the ease of use and accessibility of these means by both the students and faculty members. These forms might be used only for communication and reminders because the laws and regulations organising the distance learning during the COVID-19 in Jordan recognises the communication through the distance learning platforms. However, these communication channels (social media) might be adopted to enhance the educational process and overcome the barriers imposed by the distance learning platforms. These results were consistent with the findings reported by Azlan et al. (2020). However, the context of the studies is different as the latter one was conducted over medical physics students in Malaysia.

On the other hand, voice recordings, video clips and videos produced by other parties were the lesser common forms of distance education used by the faculty members in Jordan. This might be referred to that faculty members and students are required to meet on an educational online platform in order to be involved in the educational process. Recordings are not allowed based on the regulations imposed by the Ministry of Higher Education and Research Development.

The results related to the benefits of distance education that Jordanian university students have achieved indicated that reduction in costs and personal expenses, ability to review and the study material when needed, higher GPA and enrolling in more courses were the major benefits achieved by the Jordanian students from distance learning during the COVID-19 pandemic. These results might be attributed to the fact that distance learning does not require the physical attendance of the students in the university campus, which significantly reduces the transportation costs and other costs related to meals and educational material. In addition, the ability to review the study material more than one time might be referred to that in distance learning the educational material is uploaded by the instructor to the platform and kept online until the end of the semester, which enables the students to download it at any time and more than once. Thus, they can review it many times. In addition, the lectures on the platforms are recorded either by the students or the faculty members, and this allows the students to review it again at any time they would like to do so.

The least reported benefits of distance learning achieved by the students were forming teams of colleagues during exam times to answer questions using others to attend lectures or take exams. This might be referred to the strict rules and regulations of the higher education institutions in Jordan that prohibits commissioned works in the educational context and the penalties that might be reaching the exclusion from the university if this was proved to occur. In addition, the students reported that collaborative work is not a benefit, which might be reported to that online learning, in general, does not promote collaborative work among students. These findings are consistent with the findings reported by Adnan and Anwar (2020) who reported that improving academic performance and reducing the costs were the most achieved benefits of distance education by university students during the COVID-19 pandemic.

Moreover, the results showed that Internet network weakness, the high financial cost of buying smart devices and subscribing to monthly Internet packages, and difficulty understanding practical courses taught through distance education were the most reported obstacles encountered by university students in distance learning during the COVID-19 pandemic. This might be due to the lack of technical infrastructure and high costs of Internet services in Jordan, which makes it inaccessible to a wide category of students. Moreover, practical courses, especially in the clinical and medical specialisations, require clinical practice in different settings, a thing that is not supported by distance learning platforms. On the other hand, participation and interaction in the virtual lecture, low GPA and decrease in understanding the provided material were the least encountered barriers. This might be referred to that online platforms used in distance education provide equal opportunities for the students to participate in the lectures, even for the students who were not participating in the traditional teaching classes, online platforms provided them with the chance of participating effectively. This was considered by many scholars as an advantage of online learning, which is removing the barriers between the instructor and the students and increasing the students' engagement and active participation in the class. These results are consistent with the results reported by Baticulon et al. (2021), who reported that lack of Internet access and low-level infrastructure were the most encountered distance learning obstacles during the COVID-19 pandemic.

Finally, the results showed that mobile devices or smartphones were the most used devices in distance education during the COVID-19 pandemic. This result might be referred to the availability and widespread of smartphones among the university students, and that the online educational platforms are supported by most of the operating systems of the smartphones.

Despite the significant results of the present study, still there are specific limitations that might limit the generalisability of the study findings. These include the psychometric properties of the data collection

instrument, the restriction of the study sample in term of the geographical zone and the explored educational institutions and the lack of valid and reliable data collection instrument.

5. Conclusion

The present study sought to explore the perceptions and experiences of the Jordanian undergraduate students about the forms, benefits and obstacles of distance education during the COVID-19 period. The study found that synchronous e-learning and using social media channels were the mostly used means to deliver the educational material during the COVID-19 period. In addition, the study found that better GPA, reduced costs and ability to review the study material were the most achieved benefits through distance learning during the COVID-19 period. Finally, the study found that weak Internet connection, high cost Internet services and difficulty in following-up the practical courses were the most reported distance education obstacles encountered by the students during the COVID-19 pandemic.

Based on the previous results, the study recommends the policymakers in the Jordanian Ministry of Higher Education to conduct a thorough review of the strategic plan concerned with distance education during crises events, improve the technical infrastructure of distance and online education in the Jordanian higher educational institutions and facilitate the Internet access for the university students during the COVID-19 pandemic.

References

Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Online Submission, 2*(1), 45–51. https://doi.org/10.33902/JPSP.2020261309

Althunibat, A. (2015). Determining the factors influencing students' intention to use m-learning in Jordan higher education. *Computers in Human Behavior, 52*, 65–71. https://doi.org/10.1016/j.chb.2015.05.046

Amponsah, S. (2017). Assessment of challenges in distance education at University of Ghana. *Open Learning, 25*(2), 87–104. http://ugspace.ug.edu.gh/handle/123456789/24330

Anderson, B., & Simpson, M. (2012). History and heritage in distance education. *Journal of Open, Flexible and Distance Learning, 16*(2), 1–10. https://files.eric.ed.gov/fulltext/EJ1080085.pdf

Azlan, C. A., Wong, J. H., Tan, L. K., Huri, M. S., Ung, N. M., Pallath, V., Tan, C. P., Yeong, C. H., & Ng, K. H. (2020). Teaching and learning of postgraduate medical physics using Internet-based e-learning during the COVID-19 pandemic – A case study from Malaysia. *Physica Medica, 80*, 10–16. https://doi.org/10.1016/j.ejmp.2020.10.002

Bansak, C., & Starr, M. (2021). Covid-19 shocks to education supply: How 200,000 US households dealt with the sudden shift to distance learning. *Review of Economics of the Household, 19*(1), 63–90. https://doi.org/10.1007/s11150-020-09540-9

Baticulon, R. E., Sy, J. J., Alberto, N. R., Baron, M. B., Mabulay, R. E., Rizada, L. G., Tiu, C. J., Clarion, C. A., & Reyes, J. C. (2021). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Medical Science Educator,* 1–12. https://doi.org/10.1007/s40670-021-01231-z

Bostrom, M., Andersson, E., Berg, M., Gustafsson, K., Gustavsson, E., Hysing, E., Lidskog, R., Lofmarck, E., Ojala, M., Olsson, J., Singleton, B.E., Svenberg, S., Uggla, Y., & Ohman, J. (2018). Conditions for transformative learning for sustainable development: A theoretical review and approach. *Sustainability, 10*(12), 4479. https://doi.org/10.3390/su10124479

Mahasneh, O. M., Al-kreimeen, R. A., Alrammana, A. A., & Murad O. S. (2021). Distance Education amid the COVID-19 Pandemic from the Students' Point of View**.** *World Journal on Educational Technology: Current Issues*. *13*(4), 589-601. https://doi.org/10.18844/wjet.v13i4.6229

Chen, E., Kaczmarek, K., & Ohyama, H. (2020). Student perceptions of distance learning strategies during COVID-19. *Journal of Dental Education, 85*, 1190–1. https://doi.org/10.1002/jdd.12339

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, P., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching, 3*(1), 1–20. https://doi.org/10.37074/jalt.2020.3.1.7

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems, 49*(1), 5–22. https://doi.org/10.1177%2F0047239520934018

Elfadni, M. A., & Abdelrahman, M. K. (2020). The positive impact of corona pandemic on lifelong learning. *Asian Journal of Research in Education and Social Sciences, 2*(3), 117–124. http://myjms.mohe.gov.my/index.php/ajress/article/view/10684

Elhadary, T., Elhaty, I. A., Mohamed, A. A., & Alawna, M. (2020). Evaluation of academic performance of science and social science students in Turkish Universities during COVID-19 crisis. *Journal of Critical Reviews, 7*(11), 1740–1751. https://doi.org/10.31838/jcr.07.11.280

Fedorenko, O., Velichko, V., Stopkin, A., Chorna, A. V., & Solovyov, V. (2019). Informatization of education as a pledge of the existence and development of a modern higher education. *Pedagogy of the Middle School: zb. Sciences. prats,* (52), 5–21. http://ceur-ws.org/Vol-2433/paper01.pdf

Ferraro, F. V., Ambra, F. I., Aruta, L., & Iavarone, M. L. (2020). Distance learning in the COVID-19 era: Perceptions in southern Italy. *Education Sciences, 10*(12), 355. https://doi.org/10.3390/educsci10120355

Fojtik, R. (2018). Problems of distance education. *ICTE Journal, 7*(1), 14–23. https://doi.org/10.2478/ijicte-2018-0002

Gazette, O. (2020). *Defense orders*. http://pm.gov.jo/newspaper

Gok, B., & Gokcen, H. (2020). *Regional development and distance Eeducation: Performance evaluation of university distance education programs. USA: Local Governance and Regional Development: Current perspectives*. Peter Lang GmbH. https://doi.org/10.3726/b17917

Gokbulut, B. (2020). *Distance education students' opinions on distance education. Enriching teaching and learning environments with contemporary technologies*. IGI Global, pp. 138–152. https://doi.org/10.4018/978-1-7998-3383-3.ch008

Harsasi, M., & Sutawijaya, A. (2018). Determinants of student satisfaction in online tutorial: A study of a distance education institution. *Turkish Online Journal of Distance Education, 19*(1), 89–99. https://doi.org/10.17718/tojde.382732

Korolev, A. (2020). Pedagogical possibilities of distance learning in the educational process of the School. *ARPHA Proceedings, 3*, 1203. https://ap.pensoft.net/article/22379/

Lassoued, Z., Alhendawi, M., & Bashitialshaaer, R. (2020). An exploratory study of the obstacles for achieving quality in distance learning during the COVID-19 pandemic. *Education Sciences, 10*(9), 232. https://doi.org/10.3390/educsci10090232

Mahasneh, O. (2020). The effectiveness of flipped learning strategy in the development of scientific research skills in procedural research course among higher education diploma students. *Research in Learning Technology, 28*, 1–17. https://journal.alt.ac.uk/index.php/rlt/article/view/2327

Mahasneh, O., & Bani Taha, O. (2020). The extent to which private schools in the Shafa Badran area of the capital Amman implement their educational and legal obligations to implement remote education in light of Corona. *Arab Journal of Science and Research Publishing, 4*(6), 120–134. https://doi.org/10.26389/AJSRP.R220820

Mahasneh, O. M., Al-kreimeen, R. A., Alrammana, A. A., & Murad O. S. (2021). Distance Education amid the COVID-19 Pandemic from the Students' Point of View**. *World Journal on Educational Technology: Current Issues*. *13*(4), 589-601. https://doi.org/10.18844/wjet.v13i4.6229

Mathivanan, S. K., Jayagopal, P., Ahmed, S., Manivannan, S. S., Kumar, P. J., Raja, K. T., Dharinya, S. S., & Prasad, R. G. (2021). Adoption of e-learning during lockdown in India. *International Journal of System Assurance Engineering and Management*, 1–10. https://doi.org/10.1007/s13198-021-01072-4

Octaberlina, L. R., & Muslimin, A. I. (2020). EFL students' perspective towards online learning barriers and alternatives using moodle/google classroom during covid-19 pandemic. *International Journal of Higher Education, 9*(6), 1–9. https://doi.org/10.5430/ijhe.v9n6p1

Pregowska, A., Masztalerz, K., Garlińska, M., & Osial, M. (2021). A worldwide journey through distance education—From the post office to virtual, augmented and mixed realities, and education during the COVID-19 pandemic. *Education Sciences, 11*(3), 118. https://doi.org/10.3390/educsci11030118

Sadeghi, M. (2019). A shift from classroom to distance learning: Advantages and limitations. *International Journal of Research in English Education, 4*(1), 80–88. http://dx.doi.org/10.29252/ijree.4.1.80

Sari, T., & Nayir, F. (2020) Challenges in distance education during the (COVID-19) pandemic period. *Qualitative Research in Education, 9*(3), 328–360. https://doi.org/10.17583/qre.2020.5872

Selivanov, V. V., & Savchenko, O. Y. (2019*). Investigation of some aspects of the history of distance learning*. In ISTMC 2019 Information Systems and Technologies in Modeling and Control 2019. Selected Papers of the IV All-Russian scientific and practical conference with international participation' Information Systems and Technologies in Modeling and Control'(ISTMC'2019) May, 2019 (No. 21–23, p. 276). https://www.mdpi.com/2071-1050/13/9/4751/pdf

Simonson, M., Zvacek, S. M., & Smaldino, S. (2019). *Teaching and learning at a distance: Foundations of distance education 7th Edition*. Information Age Publishing. https://www.infoagepub.com/products/Teaching-and-Learning-at-a-Distance-7th-edition

Weller, M., Jordan, K., DeVries, I., & Rolfe, V. (2018). Mapping the open education landscape: Citation network analysis of historical open and distance education research. *Open Praxis, 10*(2), 109–126. https://doi.org/10.5944/openpraxis.10.2.822

Zamel, M. A., & Dweikat, K. A. J. (2017). Assisting students of Al-Quds Open University to design computerized lessons according to ADDIE. *Journal Of Educational and Psychological Researches, 14*(53), 294–318. https://www.iasj.net/iasj/article/128075