Factors Affecting in Achievement of Universal Courses Objective by Using Distance Education during COVID-19 Pandemic

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Abstract

The Coronavirus pandemic (COVID-19) has caused countries to resort to using distance education, as the study tried to uncover the factors that affect in the achievement of universal courses objective by using distance education during (COVID-19) pandemic. The researchers used the relational descriptive Methodology through the questionnaire Instrument. The questionnaire consisted of (24) items distributed on (6) factors (Effectiveness of Students, Effectiveness of faculty members, Methods of Distance Teaching, Motivation of Students, Availability of facilities and Achieving of course objectives). The study sample consisted of (1320) students from university colleges in Jordan, which were chosen by the Available sample method. The appropriate statistical analysis represented by the path analysis was found through the IBM SPSS Statistics. The results of the study showed the validity of the study hypotheses and that the specific factors (Effectiveness of Students, Effectiveness of faculty members, Methods of Distance Teaching, Motivation of Students and Availability of facilities) affect the Achieving of course objectives. According to the results of the research, the researchers recommended concerned universities in taking the factors found in the study to improve the effectiveness of distance education. Where the research contributes to supporting e-learning by developing it as a method of distance education and identifying the most important factors that affect its achievement of the objectives of the courses, especially in countries where the use of e-learning is considered a preliminary experience due to the Corona pandemic, which has not happened previously, and the state did not resort Jordanian to rely on him previously.

Keywords: universal courses, distance education, factors affecting, (Covaid-19) pandemic

1. Introudion

The spread of the Corona pandemic has led states to resort to fully using distance education in the stages of school and university education, The Hashemite Kingdom of Jordan among the countries that went to fully activate distance education. The full activation of distance education in the university education stage in Jordan is the first experiment, as it was partially dependent on it (Mahasneh, 2020a).

Distance education aims to provide an opportunity for students who cannot get face-to-face education in educational institutions. Where distance education works on separating the learner, teacher, and courses in the educational environment, and students learn in separate and multiple geographical environments (Al-Mahasneh, Ayasrah, Yahyaa, Al-Kriemeen, & Al-Swalha, 2020; Mahasneh, 2020d).

Distance education appeared in 1856 on the idea of the scientist Charles Toussaint when he established a school to learn languages by correspondence, and at the end of the nineteenth-century European and American universities began to use distance education by correspondence by sending educational materials to students via mail (books, cassette tapes, and video). Most universities require students to only attend the university on the date of their final exams. In the late eighties, communication between the teacher and students became through radio and television channels, and with the technological development the Internet appeared, which facilitated distance education, and communication between teachers and students became through e-mail, and many e-learning systems appeared that

facilitated the process of communication and learning, discussion sessions and direct communication provided through specialized websites and programs (Al-Dulaimi, 2018).

Mahasneh (2020b) emphasized that distance education achieves a set of goals as it contributes to raising the cultural, scientific, and intellectual level of members of society, providing education for individuals who cannot learn face-to-face, providing various educational resources that take into account the individual differences between learners, and helping to solve the problem of the lack of qualified personnel in the educational process, Encouraging self-learning and making the student the center of the educational process.

A survey of Ammon newspaper on 10/4/2020 confirmed that university students pointed out many advantages of distance education, which were represented by that distance education opened a space for learning and adaptation outside the university walls, and contributed to converging concepts, saving time lost in transportation and traffic congestion. An interactive tool and an opportunity to answer any questions at any time.

Distance education has greatly contributed to enriching and facilitating the educational process, opening new horizons and adding value for both the teacher and the student, and achieving optimal education outcomes through the use of technology and non-traditional methods that are commensurate with the time and current era, providing additional time for the student and providing rich content for him to communicate beyond the limits of time and space;distance education stimulates the use of new sources for learning, and highlights the creativity of students in virtual communication with an unlimited number of people in multiple places, and open use of learning resources. In addition, distance education has a significant positive effect in raising the productivity and output of students, as it is characterized by ease and flexibility in attaching scientific material, and explanation through e-learning systems. This has contributed to the interaction of students in a way that exceeds their interaction in the desks, and the student in distance education has multiple options for participation, whether in writing, audio, or video, which broke the barrier of shyness and fear for some students and provided them with more than one way to listen to the lesson, whether electronic or recorded lectures. Distance education also addresses the students of today's generation in their language, the language of technology that represents a large part of their daily lives and practices.

Distance education is considered one of the technological innovations that have proven important and effective in providing students with various knowledge, skills, and scientific trends, by increasing the possibility of communication between students among themselves, and between them and the university, through the ease of communication between these parties in several directions such as mail, Online forums, dialogue rooms, chatting and discussion boards, contribute to the exchange of views between different students. Real-time forums such as discussion boards, chat rooms, and dialogue provide opportunities for the exchange of views on various topics raised among students, which helps in forming students' strong and sound knowledge and opinions, a sense of equality between students. Different uses, which allows students to express an opinion without embarrassment, annoyance, shame, or other reasons, ease of communication with the professor and access to him in the fastest time and even outside official working hours, where the learner can send his advice to the professor at anytime and anywhere via e-mail. The student gets rid of the physical attendance because of his flexibility and availability, which helps the student to learn without being restricted by time and place. Facilitates and enumerates the methods of evaluating students, besides repetition that contributes to facilitating and merging understanding in the minds of students. It works to provide an interactive feature in the learning process, as the ability to interact goes beyond transferring one-way content to communication between the parties involved in the learning process. As it allows interaction between learners and between them and between content, electronic educational resources, and resources and with teachers, e-learning also helps to build curricula in the light of specific scientific standards, and it is concerned with cooperative and participatory learning besides its interest in individual learning, and this creates new patterns of education that encourage student turnout on the educational process (Hayat, 2019).

Distance education helps in a clear and significant way in raising the level of individuals and scientific communities. As it provides alternatives for people who cannot go to educational institutions under a circumstance that prevents them from doing so. This method works to employ the capabilities of people and develop them instead of wasting and losing them. It also helps to bridge the gaps that may result from the lack of teaching staff in educational institutions, that this method in the learning process helps to increase the student's self-reliance, which leads to an increase in his mastery of the information that he studies and accesses during his educational journey. It also helps in overcoming the problems and challenges that individuals may face during their studies in educational institutions, as the student may be exposed during the period of his studies to injustice or dismissal, or deprivation for any reason, which leads to his inability to continue his education and get the certificate that opens him prospects as distance education contributes to this.

Reliance on distance education in exceptional circumstances such as the Corona pandemic is extremely important, so attention must be paid to the factors that affect the achievement of distance education for the objectives of the courses, we want effective distance education not ineffective distance education. Therefore, the current study tried to uncover the factors that affect the achievement of distance education for the course objectives.

1.1 The Jordanian Experience of Distance Education in Universities according to the Corona Pandemic

Higher education in Jordan has witnessed remarkable progress to play a major role in the comprehensive development process at various levels and fields. The number of official governmental universities has reached ten universities, and the private and regional universities are 19 universities, and there are 51 community colleges, and the number of students enrolled in these universities is about 236,000 students. These students are 28 thousand students of Arab and foreign nationalities, and Jordan occupied a strategic position in the region concerning education and was known for the quality of higher education in it, which made it the focus of attention and admiration of many students in the region.

Before the Corona pandemic, education in Jordanian universities and colleges was 90% dependent on (traditional) face education, and there have been calls for introducing e-learning into university education since the beginning of the twenty-first century.

After announcing the implementation of the Jordanian Defense Law on 3/17/2020, because of the Corona pandemic in the Hashemite Kingdom of Jordan, the Ministry of Higher Education and Scientific Research resorted to using distance education as an alternative to traditional education in teaching university students (Prime Ministers official, 2022).

During the Corona pandemic, the Ministry of Higher Education and Scientific Research in the Hashemite Kingdom of Jordan instructed public and private universities the following instructions:

1. Directing universities to establish centers for learning and e-learning in each university.

2. Holding training courses for managers of learning and teaching centers in universities.

3. Facilitating contracting with institutions that support scientific content to give training courses to faculty members in universities.

4. Supporting initiatives that aim to provide students who are incapable of using smart devices.

5. Providing support to universities in improving the infrastructure for e-learning.

6. Universities actively follow up on the success of e-learning.

7. Providing facilities for universities by providing free internet packages for students and faculty members.

8. Forming specialized committees to follow-up e-learning remotely in universities.

9. Preparing reports and brochures on remote e-learning in universities.

10. Directing the concerned institutions to change legislation and regulations related to electronic and traditional education in universities.

11. Forming specialized committees to integrate remote e-learning into university teaching for the coming years.

12. Directing universities to provide facilities related to postponing the payment of fees and reducing them.

Based on the above, public and private universities in the Hashemite Kingdom of Jordan took the following measures during the Corona pandemic:

1. Establishing centers for learning and e-learning in every university.

2. Holding training courses for faculty members and technicians on the use of Moodle's e-learning systems.

3. Holding training courses for faculty members and technicians on the use of technological applications for holding virtual meetings and lectures, such as the Teams and Zoom application.

4. Providing free internet packages for students and faculty members.

5. Issuing procedures for implementing remote e-learning.

6. Forming committees to follow up implementing electronic learning procedures remotely.

7. Providing technical facilities and additional support for electronic devices and e-learning management systems.

8. Providing electronic resources and references related to science courses.

As for the methods of distance education during the Corona pandemic, which are used in public and private universities, they focus on:

1. Simultaneous electronic distance learning.

2. Asynchronous remote electronic learning.

3. Correspondence using social media.

4. Conferences and virtual lectures.

As for the devices used in distance education during the Corona pandemic in public and private universities, desktop and personal computers, smart devices such as phones, tablets, and iPads, and multiple internet devices were used.

The obstacles faced by students and faculty members during distance education were:

1. Weak internet network in some areas far from the center.

2. The lack of modern personal and smart computers for some students.

3. Weak skills of some students and faculty members in using modern applications in remote e-learning.

4. Students' help from others in solving assignments and tests that are conducted remotely.

5. The lack of capabilities available to some students would help them effectively engage in e-learning.

6. Lack of complete intellectual awareness among some students for using electronic education remotely.

1.2 Theoretical Framework

The study attempted to know the most important factors that affect the achievement of distance education for the course objectives. Through the proposed model based on previous models as shown in Figure 1. Research model.
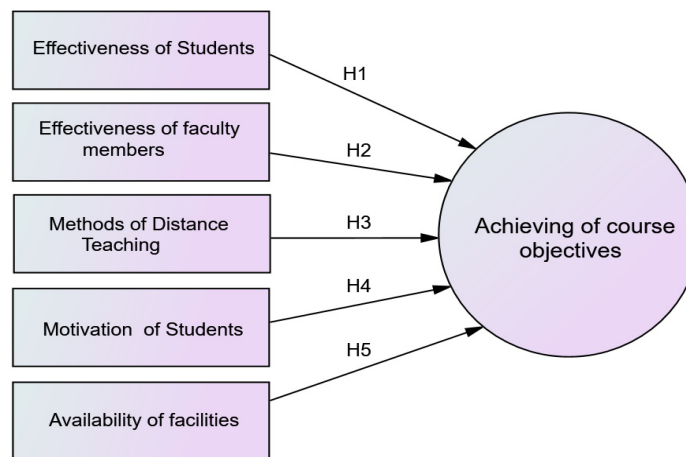
Figure 1. Research Model

1.2.1. Model Factors

1.2.1.1 Effectiveness of Students (ES)

We define effectiveness of Students as the level of student activity and enthusiasm in the distance education process. Mahasneh, Al-Tawarah & Al-Hawartheh (2017) study confirms that student activity and enthusiasm are important factors in achieving educational outcomes. The current study assumes that students' effectiveness in distance education plays a major role in achieving course objectives (ACO). The researchers assume the following hypothesis: H1.ES positively and significantly influences ACO.

1.2.1.2 Effectiveness of Faculty Members (EFM)

We define effectiveness of faculty members as interest and effort of the faculty member in providing distance education to the fullest and making use of all available capabilities. Mahasneh, Al-Tawarah & Al-Msadeen (2013) study confirms that implementing a faculty member to complete distance education is one of the important factors in

achieving educational outcomes. The current study assumes that the effectiveness of faculty members in distance education plays a major role in achieving the course objectives. The researchers assume the following hypothesis: H2. EFM positively and significantly influences ACO.

1.2.1.3 Methods of Distance Teaching (MDT)

We know methods of Distance Teaching as effective distance education methods that contribute to achieving distance education for the objectives of the courses. The current study assumes that the distance learning methods used have a major role in achieving the course objectives. The researchers assume the following hypothesis: H3. MDT positively and significantly influences ACO.

1.2.1.4 The Motivation of Students (MS)

We define motivation of students as the extent of students' interest, desire, and enthusiasm in distance education. The current study assumes that student motivation plays a major role in achieving course objectives. The researchers assume the following hypothesis: H4.MS positively and significantly influences ACO.

1.2.1.5 Availability of Facilities (AF)

We define availability of facilities as the capabilities, materials, and equipment available to students that contribute to achieving distance education for the objectives of the courses. The current study assumes that the availability of facilities and capabilities play a major role in achieving the course objectives. The researchers assume the following hypothesis:

H5.AF positively and significantly influences ACO.

1.2.2 Research Hypotheses

The research model aims to test the following hypotheses:

1. H1.ES positively and significantly influences ACO.

2. H2. EFM positively and significantly influences ACO.

3. H3. MDT positively and significantly influences ACO.

4. H4.MS positively and significantly influences ACO.

5. H5.AF positively and significantly influences ACO.

2. Previous Studies

After the researcher's Perusal the theoretical literature and previous studies, he found studies related to the subject of study as Koçoğlu & Tekdal (2020) conducted a study on the analysis of distance education activities during the Corona pandemic, as the study aimed to analyze the educational activities that were conducted in Turkey during the epidemic. The results of the study showed that teachers from various disciplines expressed remarkable views about distance education that took place during the Corona pandemic, including ease of access and flexibility.

Al-Fadhli (2009) conducted a study aimed at knowing the "Factors Influencing the Acceptance of Distance Learning: A Case Study of Arab Open University in Kuwait" The researchers used the descriptive approach to examine the following factors: computer self-efficacy, technological factors, instructional design, and instructor characteristics. The results of the study showed that there are four factors that contribute to students' acceptance of distance learning (computer self-efficacy, technological factors, instructional design, and instructor characteristics).

Lui and Zheng (2004) conducted a study aimed at knowing "Factors Influencing Distance-Education Graduate Students' Use of Information Sources: A User Study". The results of the study showed a preference for postgraduate students to get information easily and quickly, besides a significant correlation between the motives for use and the field of study.

Forsyth, Yovkova, & Aleksieva (2018) conducted a study aimed at knowing "Factors Affecting Students' Attitudes towards Online Learning - The Case of Sofia University". The results of the study showed positive trends towards Distance Education Students prefer to submit their homework and activities over the Internet and one of the most important factors affecting students' attitudes toward education through the Internet is their skills and experience in using technology.

Çiftcia, Güne, & Üstünda (2010) conducted a study aimed at "Investigating Attitudes of distance education students towards web-based learning – "a case study". The results of the study showed students' resistance to distance

education according to the variables of sex, age, and grade.

Through the review of previous studies, we found that some studies focused on studying the factors affecting the acceptance of distance education as a study (Al-Fadhli, 2009; Lui and Zheng, 2004). Other studies focused on studying the trend towards education via the Internet as studies (Forsyth, Yovkova and Aleksieva, 2018; Çiftcia, Güne, & Üstünda, 2010). The current study is one of the rare and recent studies that tried to uncover the factors affecting the achievement of distance education for the objectives of the courses according to the Corona pandemic (COVID-19).

3. Methodology

The researchers used the relational descriptive methodology through the questionnaire instrument (Appendix), to test the relationships between the variables in the model.

3.1 Sample

The study sample consisted of 1320 male and female university students in Jordan, and they were chosen from the sample, and they learned through distance education during the Corona pandemic (COVID-19).

3.2 Instrument

The study Instrument consisted of (24) items distributed on (6) factors (Effectiveness of Students, Effectiveness of faculty members, Methods of Distance Teaching, Motivation of Students, Availability of facilities, and achieving of course objectives). The four factors, Effectiveness of faculty members, Methods of Distance Teaching, Motivation of Students, availability of facilities were measured using four items. Effectiveness of Students used five items while achieving of course objectives used three items. The factors Effectiveness of Students, Effectiveness of faculty members, Methods of Distance Teaching, Motivation of Students, Availability of facilities and achieving of course objectives used a 7-point Likert scale from strongly disagree (1) to strongly agree (7).

3.3 Data analysis

The researchers used IBM's SPSS and AMOS to test the study hypotheses and evaluate the research model.

3.4 Confirmatory factor analysis

"Assessment of goodness-of-fit indices and construct validity test is used in Confirmatory factor analysis. There are some indices commonly used to assess a model's goodness-of-fit (Hair, Black, Babin, & Anderson, 2010)". As shown in Table 2.

Table 2. Model Fit Measure

Measure	Estimate (model)	Threshold	Interpretation
CMIN/DF	1.982	Between 1 and 3	Excellent
CFI	0.968	>0.95	Excellent
SRMR	0.043	<0.08	Excellent
RMSEA	0.472	<0.06	Excellent
Pclose	0.791	>0.05	Excellent

According to Table 2, the model is reliable and falls within the approved scientific indicators.

3.5 Validity and Reliability of the Model

Table 3. Validity and Reliability of the Model

Items	ES	EFM	MDT	MS	AF	ACO
ES1	0.92					
ES2	0.93					
ES3	0.89					
ES4	0.90					
ES5	0.88					
EFM1		0.84				
EFM2		0.91				
EFM3		0.90				

Table 3. Validity and Reliability of the Model(Continued)

Items	ES	EFM	MDT	MS	AF	ACO
EFM4		0.83				
MDT1			0.94			
MDT2			0.93			
MDT3			0.87			
MDT4			0.88			
MS1				0.94		
MS2				0.89		
MS3				0.91		
MS4				0.92		
AF1					0.86	
AF2					0.89	
AF3					0.86	
AF4					0.84	
ACO1						0.95
ACO2						0.94
ACO3						0.92

According to Table 3, the model has a higher validity and reliability rate of greater than 0.5. As confirmed by researchers (Hair, Black, Babin, and Anderson, 2010). Correlation coefficients between the items are high.

4. Result

To verify the study hypotheses, Structural Equation Modeling (SEM) was used, Figure 2 is shown the path Model.
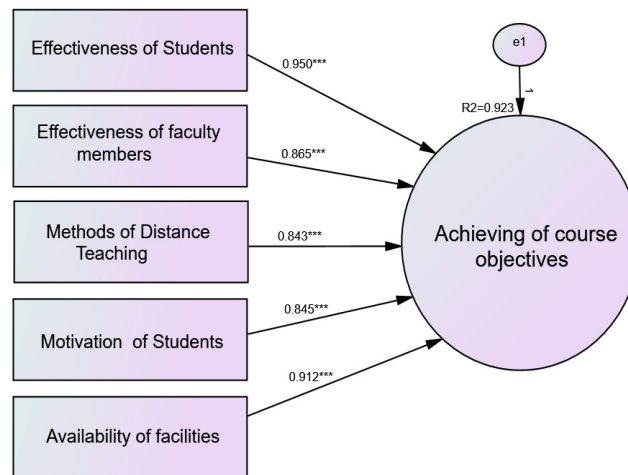

Figure 2. the results of the path Model

Figure 2. The Results of the Path Model

According to Figure 2, all the Hypotheses made by the researchers are correct. Table 4 illustrates standardized regression weights for the proposed model.

According to table 4, Test the proposed hypotheses the researchers used path estimation t-values and p-values. Based on the statistical tables, if the value of (t) is higher than 1.96 and the values of (p) are less than 0.05, then the relationships between the variables are statistically significant and important. According to Table 4, all the hypotheses of the study are statistically significant. The results of the study showed that the following factors (Effectiveness of Students, Effectiveness of faculty members, Methods of Distance Teaching, Motivation of Students and Availability of facilities) effect of achieving distance education for the objectives of the courses.

Table 4. Standardized Regression Weights for the Proposed Model

Hypotheses	Relationship	Estimate	t-values	p-values	Results
H1	ES ➤ ACO	0.722	5.932	***	supported
H2	EFM ➤ A CO	0.545	7.423	***	supported
H3	MD2 ➤ ACO	0.613	8.921	***	supported
H4	MS ➤ ACO	0.602	9.754	***	supported
H5	AF ➤ ACO	0.795	7.785	***	supported

5. Discussions

The current study aimed to know the factors that affect in the achievement of universal courses objective by using distance education during (COVID-19) pandemic, and to discover the relationships between these factors. The model consisted of (5) factors, as shown in Figure 2. All factors affected of Achieving Dstance Education for the Objectives of the Courses. According to this study, the Availability of facilities was the most influencing determinant for Achieving distance education for the objectives of the courses. The results of the study show that providing the student with the capabilities and facilities increases Achieving distance education for the objectives of the courses.

The effectiveness of students (ES) is one factor affecting the achievement of distance education for the objectives of the courses, and this factor shows that the level of student activity and enthusiasm for learning has a great impact on the achievement of distance education for the objectives of the courses. Where there is self-motivation and strong enthusiasm for learning among students, the more effective the achievement of course objectives, and great responsibility falls on the family and faculty members in developing motivation and enthusiasm among students in the learning process. This finding agrees with previous findings learning studies (Mahasneh, 2020a).

One of the factors affecting distance education in achieving the goals of the courses, which the results of the current study showed, is the effectiveness of faculty members. Whereas one of the main and effective roles of faculty members in their roles as director and model of the lecture, and the researchers emphasize the interest of faculty members in carrying out their roles effectively, especially broadcasting lectures and providing students with all sources, references, and information related to the courses.

In addition to the above, the results of the study revealed a set of factors that affect the achievement of distance education for the objectives of the courses (Methods of Distance Teaching, Motivation of Students, and Availability of facilities). The researchers confirm that distance education has many effective methods that faculty members must use, the most famous of which is simultaneous electronic education, and this contributes to achieving distance education for the objective of the courses. Also, the student's desire and motivation in distance learning and the availability of facilities and capabilities have a major role in achieving the course objectives.

The results of the study indicate that the effectiveness of students and faculty members, methods of distance education, motivation and desire of students, and the availability of capabilities and facilities for them are among the factors that affect the achievement of distance education for the objectives of the courses. We confirmed this with what has been stated in the theoretical literature and previous studies of the importance of making the student the focus of the educational process. Distance education is considered one type of education that encourage self-learning among students (Mahasneh, 2020b; Tawarah & Mahasneh, 2020; Mahasneh, 2020c; Almseidein & Mahasneh, 2020; Al-Mahasneh, Ayasrah, Yahyaa, Al-Kriemeen & Al-Swalha, 2020).

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Appendix

N	parameter	Scale (1-7) 1,2,3,4,5,6,7 Strongly Disagree =1…..Strongly agree =7
		Effectiveness of Students
1.	I attend lectures on distance education	
2.	I interact with the teachers during the distance education lectures	
3.	I listen and understand the distance education lectures	
4.	Be careful not to miss the distance education lectures	
5.	I attend lectures and take exams myself during distance education	
	Effectiveness of faculty members	
6.	Faculty members are keen to broadcast lectures on time	
7.	Faculty members are keen on students' participation in distance education lectures	
8.	Faculty members are keen to clarify and achieve course objectives	
9.	Faculty members are keen to diversify teaching methods and evaluation during distance education	
	Methods of Distance Teaching	
10.	Faculty members are keen to use simultaneous e-learning	
11.	Faculty members are keen to record lectures and send them to students	
12.	Faculty members are keen to use e-learning systems effectively	
13.	Faculty members are keen to provide students with the scientific material, activities, and files related to the courses	
	Motivation of Students	
14.	I am interested in distance education lectures	
15.	I prefer distance education to traditional education	
16.	My achievement is higher in distance education	
17.	I am passionate about distance education	
	Availability of facilities	
18.	I have smart devices (phones, computers, and printer)	
19.	I have an internet subscription	
20.	The university provided me with free internet	
21.	We have allocated a special room in my house for distance education	
	Achieving course objectives	
22.	Distance education achieved the objectives of the courses	
23.	Distance education has achieved the goals of humanitarian courses better than traditional education	
24.	Distance education has somewhat failed to achieve the objectives of the scientific courses	