

## An Empirical Study on the Factors Affecting Students' Motivation Toward Online Learning During Covid-19 Pandemic

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**Abstract.** The COVID-19 pandemic is a public health crisis of worldwide that announced by the World Health Organization (WHO) in January 2020. It has affect life aspects and all activities. One of the main sectors has affected education sector where students and educational institutions faced challenges to continue the learning process effectively. Therefore, many universities utilized the internet-based infrastructure to keep the learning process continuity but students' motivation becomes challenges to shift education through the online learning. This paper aims to examine the factors affecting students' motivation toward online learning during Covid-19 pandemic in Arab Open University in Saudi Arabia. The study framework introduced five factors are; self-regulation, dialogue with students, dialogue with instructors, instructors' activities, and course design that affect students' motivation toward online learning. This research applied quantitative approach b using a survey that includes items to measure the factors. There were 504 online survey collected from students which distributed by their emails. SPSS was used to analyze research data and examine its hypothesis. The main result found that all factors of the study are: self-regulation, dialogue with students, dialogue with instructors, instructors' activities, and course design have significant effect on students' motivation toward online learning during Covid-19 in Arab Open University in Saudi Arabia. The findings showed that student self-regulation and course design are more likely affect students' motivation followed by dialogue with their instructor and instructor's activities, whereas students' dialogue with their colleagues found the lower effect on their motivation toward online learning. The findings can be helpful to educational institutions that plan to adopt online learning as future activity to improve their learning process in successfully embracing the technology to deal with any crisis in the future. In addition, many studies have conducted research to address the Covid-19 problems faced by students related to online learning during COVID-19 in the world. This study

contributes knowledge by addressing the challenges faced instructors to motivate students during the online learning especially during Covid-19 pandemic by introducing factors affecting student's motivation toward online learning. Therefore, the current study contributes to replenishes the gap by contributing to the literature of online learning in Middle East especially in Saudi Arabia context during the pandemic situation.

**Keywords:** Motivation, Online Learning, Student-Regulation, Dialogue-Students, Instructors, Course Design

## **1. Introduction**

Organizations from all over the world were disrupted by the spread of the new pandemic which is Covid-19 that was announced by the World Health Organization in March 2020. The first confirmed COVID19 case in Saudi Arabia was found on March 2, 2020, and eventually the number of cases continued to increase which led the authorities to take extreme closure measures in order to protect the people living in Saudi Arabia. All organizations were forced to shut down their operations. The Saudi authorities closed all educational institutions and encouraged them to shift their programs into an online distance learning setting. This sudden shift from the traditional face to face classroom environment into online education was not an easy shift specially that many educational institutions as well as their students were not ready to accept this fast and sudden transformation. Several challenges and obstacles are associated with this fast educational transformation (Crawford et al. 2021). With their limited resources and all the uncertainties surrounding the COVID19 pandemic, educational institutions had to use their available resources wisely to create educational material for their students (Kaur, 2020).

E-Learning efficiency and effectiveness should be taken into consideration whenever we are discussing the concept of online education. Students engaged in online settings come from different backgrounds, have different learning objectives, and have different skills and experiences. All these factors can impact the learning effectiveness and the students' satisfaction in online education (Kauffman, 2015).

Due to sudden transformation from face-to-face learning approach to remotely digital learning, technological advancements have created many opportunities for students and their instructors to communicate and interact using the different platforms available over the internet (Belanger & Jordan, 2000). To ensure the effectiveness of online education, and in addition to using proper educational platforms, educational institutions should make sure that proper interaction between students and their peers as well as their instructors is being implemented (Lao & Gonzales, 2005; Swan et al., 2000; Young & Norgard, 2006).

Over the past decade, many educational institutions have been offering online courses, but the most important issues that should be considered in online setting included effectiveness and efficiency of online distance learning were not thoroughly

examined (McPherson & Bacow, 2015). Besides that, the ability to successfully teach students using distance learning methods since the learning objectives and guides will differ and students' motivation toward online learning (Liguori & Winkler, 2020)

Online education is still challenging and unfamiliar to both students and their instructors (Linh, 2020). Digitally advanced countries have higher effective online educational experiences (Basilaia & Kvavadze (2020). Limited internet access to reliable, affordable, and fast connection can influence the online learning experience and reduce its efficiency specially for students living in rural areas or those who are using their smartphones to access their online classes since a large amount of content cannot be obtained through these smartphones.

During COVID19, educational institutions reported several challenges. Since different online platforms were available, instructors were facing difficulties related to confidentiality. Uploading, educational material, loss of internet connection, monitoring exams and low quality of sound were additional challenges influencing the effectiveness and quality of learning (Lee, 2020). Several academic institutions were mainly focusing on shifting their regular educational content into a digital content. Instructors were also forced to transform their teaching habits and communication skills from the traditional face to face setting to meet the needs of online education.

Unlike normal online learning, the current situation is unique and can be considered as crisis learning (Pace, Pettit, & Barker, 2020). The sudden and fast transformation of education during COVID19 became a measure for institutional agility (Wu, 2020). The limited available resources in academic institutions and the insufficient internet access by both students and their instructors affected the educations institutions responsiveness to this major shift and the capacity of students to participate in the digital world (Zhong, 2020).

The challenges and opportunities of e-learning during pandemics have not been adequately examined (Mailizar et al., 2020). The current online educational initiatives should be well studied to explore the influence of online education on the different associated stakeholders. According to Mailizar et al., (2020), the students' voices are important and should be thoroughly studied.

The COVID19 pandemic has forced all educational institutions to shift their programs into an online setting even though most institutions were not ready or familiar with this shift (Henriksen, Creely, & Henderson, 2020). Previous studies defined this shift as a forceful one, but it was crucial for continuing the educational process (Bao, 2020; Halim, Hashim, & Yunus, 2020; Hodges, Moore, Lockee, Trust, & Bond, 2020; Yee, 2013; Zhu, Chen, Avadhanam, Shui, & Zhang, 2020). The quality of online education during COVID19 attracted the attention of many researchers. Since most students were not psychologically ready for this transformation, it is important to study their perceived learning outcome and how

satisfied are they with this educational transformation. This study contributes to examine factors affecting students' motivation as effective solutions to enhance students' motivation toward online learning during COVID19 in Arab Open University in Kingdom Saudi Arabia and other educational institutions. In addition, this study applied in Middle East that contribute knowledge in general and Arabic context particularly by including main factors that may influence students motivation toward online learning that help Arab Open University and other education institutions to improve the efficiency of learning process during Covid- 19 and after.

## **2. Literature Review**

In this section, the study introduces study framework and theoretical background about online learning and the factors that affect students' motivation. Five hypotheses were developed to achieve the study objectives.

### **2.1. Study Framework**

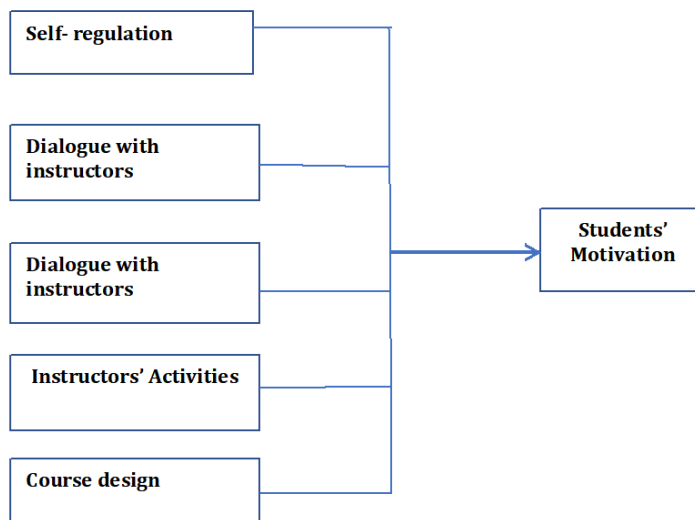


Fig. 1: study framework

### **2.2. Online Learning during Covid-19**

COVID19, which affects all sectors in the world including education sector, it landed the education system in the world and universities face challenges to cope with the pandemic. In KSA, Ministry of Education collaborating with universities provided an excellent overall rules and regulations in order to ensure the continuity of education process in the country (Belhaj, 2022). The effective technological infrastructure of the country plays an active role to facilitate the online learning process. In addition, AOU has advanced technological resources and internet access infrastructure that support online learning as a part of blended learning adopted by the universality to give valuable advantage to students to allow them to study anywhere (Belhaj, 2022).

Transferring the knowledge from one person to others whether via online or in-class has similar objectives, but the communication methods are different. Some of the respondents asserted an online learning rolled out by the university is very effective (Althubait, 2020 and Altwaijry et al., 2020).

### **2.3. Motivation**

Motivation has a direct positive impact on students' achievements (Castillo-Merino and Serradell-López, 2014). According to Bitzer & Janson, (2014), 31 students' attributes have a significant impact on learning outcomes. Out of these 31 attributes, are motivation, LMS, learning styles and learning engagement.

Intrinsic motivation makes individuals apply certain activities for fun, challenges, or its inherent satisfaction (Ryan and Deci, 2000). On the other hand, extrinsic motivation makes individuals take certain actions to attain rewards or recognition.

In their study, Eom et al., (2006) found positive impact between satisfaction and intrinsic motivation, student performance and motivation (Castillo-Merino & Serradell-López, 2014), intention to collaborative learning and both intrinsic and extrinsic motivation (Kong, Kwok, & Fang, 2015), motivational factors and social media engagement (Alt, 2015).

### **2.4. Self-regulation and student' motivation**

According to the constructivist learning model, when learners discover knowledge at their own convenient time, they tend to learn better. In other words, students are more successful when they are independent self-regulated learners. Self-regulated learners are behaviorally and motivationally active in their learning process (Zimmerman, 1989). Such students direct their own efforts for acquiring skills and knowledge instead of relying on their instructors. According to Zimmerman (1989), superior academic functioning was directly linked to self-regulated learning. Similar results were found by Richardson, Abraham, & Bond, (2012). In a traditional face to face learning, the use of self-regulated learning is linked to positive learning outcomes.

According to Pellas (2014), students' self-regulation in online courses is directly correlated with their emotional and cognitive engagement. Academic outcomes are directly correlated with critical thinking, time management and effort regulation (Broadbent & Poon, 2015). Thus study hypothesis is:

H1: There is an effect of students' self-regulation on students' motivation toward online learning during Covid-19 pandemic.

### **2.5. Instructor-Student Dialogue and student' motivation**

Interaction plays a very important role in online learning and stimulates positive online learning (Boling, Hough, Krinsky, Saleem, & Stevens, 2012). In their study, Boling et al. (2012) found out that courses with little interaction with students were less helpful and the students felt that they were disconnected from both their peers and instructors.

Interaction and dialogue encourage cognitive engagement and active participation for developing better knowledge (Moore, 1997; Muirhead & Juwah, 2004). Over the past decade, researchers studied the relationship between satisfaction, interaction and learning outcomes.

Empirical research on e-learning and its impact on learning outcomes and interaction have generated conflicting results because different measures for both dependent and independent variables were applied, some methodological issues and the unavailability of a common conceptual model (Arbaugh & Rau, 2007; Eom et al., 2006; Kuo, Walker, Schroder, & Belland, 2014; Wilson, 2007). In general, learning outcomes are measured by perceived learning outcomes or grades.

Many studies failed in finding a relationship between interaction and student satisfaction and between interaction and learning outcomes when it is measured by course grades (Ekwunife-Orakwue & Teng, 2014; Kellogg & Smith, 2009; Wilson, 2007). Students' grades depend not only on class interaction but also on the students' IQ level and their efforts. For this reason, this study aims at studying the impact of meaningful interaction (dialogue) on perceived learning outcomes.

Student - instructor interaction is an indicator for student satisfaction Kuo et al. (2014). Similar results were reported by Arbaugh et al. (2007). According to Arbaugh and Benbunan-Fich (2007), student - instructor interaction is associated with better perceived learning.

Not all interactions lead to positive learning outcomes (Grandzol & Grandzol, 2010; Wan, Wang, & Haggerty, 2008). According to these studies, increase levels of interaction may affect the program reputation negatively.

Meaningful interaction between instructors and their student is the key in this case. It can directly affect the students' intellectual growth and help them engage in constructive learning activities. Therefore, influencing positively learning outcomes (Hirumi, 2002; Moore, 1997; Vrasidas & McIsaac, 1999; Woo & Reeves, 2007).

In his study, Safi (2020) found that online education during the pandemic was the most effective method of communication used at Larbi Tebessi University in Algeria.

Instructors' availability and response time is one of the instructors' performance indicators (DeBourgh, 1999). Through their continuous feedback, instructors can motivate their students and affect their satisfaction (Finaly-Neumann, 1994; Smith & Dillon, 1999; Hara & Kling, 2003).

Students' satisfaction during online learning is influenced by the interaction factor. Interaction between instructors and their students on one hand and interaction between students and their colleagues on the other hand (Ku et al., 2013; Moore, 2014; Sebastianelli et al., 2015; Alqurashi, 2019; Baber, 2020). Therefore the study proposed the following hypotheses:

H2: There is an effect of instructor – student dialogue on students' motivation

toward online learning during Covid-19 pandemic

H3: There is an effect of student – student dialogue and students’ motivation toward online learning during Covid-19 pandemic

## **2.6. Instructors’ activities and student’ motivation**

In the traditional face to face classes, the instructors usually utilize lectures, on the other hand, in the online setting, instructors’ main role is to support and guide the students in their active learning experience (Collison, Elbaum, Haavind, & Tinker, 2000; Heuer & King, 2004).

The social collaborative learning model states that through the shared understanding of a group of learners, students learn. In this case, instructors become discussion leaders.

According to Arbaugh, (2010), the role of instructors in online learning has been neglected in previous research. Arbaugh, (2010) stated that instructors play two major roles, teaching and immediacy behaviors. He found out that both instructors’ roles had a positive relationship with perceived learning outcomes and student satisfaction. Instructors’ formal role includes course design, facilitator, and instruction to produce meaningful learning outcomes (Anderson, Rourke, Garrison, & Archer, 2001). On the other hand, the informal refers to communication behaviors that minimizes the distance between instructors and their students.

In their study, Hung & Chou (2015) distinguished between five online instructor roles including assessment designer, technology facilitator, course designer, discussion facilitator and organizer. Student who received direct feedback from their instructors perceived their online learning experience as more useful (Kleij, Eggen, Timmers, & Veldkamp, 2012).

According to Eom et al. (2006), the instructor construct included some indicators that represents their roles as facilitators, their knowledge, and their roles as an intellectual stimulator. This study does not include knowledge as an indicator. Although it is a desirable attribute, but other roles are apparently more important in the online setting specially those related to course facilitation.

Instructors’ formal roles include course facilitation, monitoring, providing on time feedback on assessments. On the other hand, the instructors’ informal roles include being a supporter and expressing a caring attitude towards their students (Bailey & Card, 2009; Hung & Chou, 2015), showing immediacy behavior (Arbaugh, 2010), and creating a trustful learning environment (Wilson, Ludwig-Hardman, Thornam, & Dunlap, 2004). Thus the study supposed the below hypothesis:

H4: There is an effect of instructors’ activities on students’ motivation toward online learning during Covid-19 pandemic

## **2.7. Course Design and student’ motivation**

Course design is part of the formal role of the instructor to motivate students, where

course structure expresses the rigidity or flexibility of the program's educational objectives, teaching strategies, and evaluation methods, and describes the extent to which an education program can accommodate or be responsive to each learner's individual needs. Course design is concerned with the planning and designs of the course structure and with the process, engagement, interaction, and evaluation aspects of the course Moore (1997). In addition, course design can affect students' learning process and outcomes (Swan, 2017). When characterized by a community of inquiry, online classes are more successful in supporting deep learning (Rubin & Fernandes, 2013). Therefore, study hypothesis has developed as the following;

H5: There is an effect of course design on students' motivation toward online learning during Covid-19 pandemic

### **3. Methodology**

The aim of this study was to examine factors that affect students' motivation toward online learning during Covid-19 pandemic. This study employed the quantitative approach by using a survey that distributed by students emails at Arab Open University (AOU) in Saudi Arabia, Spring semester 2020-2021 with a population of 17172 students according to the registration department.

The questionnaire comprised two parts, the first part consisted of questions of demographic variable (gender, age, and university level), the second part included 28 items which are 6 items that measure students' motivation and 22 items that measure the of factors the affecting factors on students' motivation are: dialogue with students (4 items), dialogue with instructors (4 items), Instructor activities (5 items), course design (5 items) and self- regulation (4 items) that affecting students' motivation. The five Likert scale which ranged from Strongly agree, Agree, Neutral, Disagree, to Strongly Disagree was used. It is one of the most widely used techniques in descriptive survey studies (Ary, Jacobs and Razavieh, 2002).

#### **3.1. Sampling and Data Collection**

The study was conducted among the students studying at AOU in KSA. Random sample was used. The responses of students were collected by email and the total sample size was 504 respondents who represented of the total population of 17172.

#### **3.2. Statistical Technique**

In order to analyze the study data, SPSS used to test the reliability, analyze the frequency and percentage of demographic variables and correlation to test the hypotheses that examine the factors affecting students' motivation toward online learning during covid-19 in Arab Open University in KSA.

#### **3.3. Reliability Test**

Table (1) showed Cronbach's alpha technique that used to test the reliability of the internal consistency of the constructs. Scale with Cronbach's Alpha greater than 0.7



are satisfactory. The results showed in Table (1) that all scales and their observed variables achieved the reliability values with values greater than 0.70. In addition, the total correlation coefficient of the questionnaire was more than 0.88. Hence, internal consistency method was engaged in assessing the reliability of the survey instruments in this study.

Table (1): Reliability Analysis

Factor	Cronbach's Alpha	Items No.
Student Motivation	0.76	6
Instructor Activities	0.90	5
Dialogue With Students	0.92	4
Dialogue With Instructors	0.93	4
Course Design	0.93	5
Self-Regulation	0.85	4
<b>Total</b>	<b>88.1</b>	<b>28</b>

## 4. Findings and discussion

### 4.1. Demographic information

The results in Table (2) indicates that more than half the sample represented by female (57.1%) and the rest (42.9%) were male. This is due to the majority of students in the Arab Open University-KSA are female. In terms of age, the age group of 18-23 years represented (42.9%), followed by students whose ages from 29 years and above (31%), and 34-28 years (26.1%). The result showed that most of students were youth category, this mentioned to the most students graduated from secondary schools and other educational institutions in the same level. These results supported by Belhaj (2022).

Additionally, Table (1) indicates that around half of the sample from senior students (46.4%) followed by fresh students (30%), and (23.6%) of the respondents represented the graduate students.

Table 2: Demographic Information

Item	Category	Frequency	Percentage
Gender	Male	216	42.9%
	Female	288	57.1%

Age	18-23 years	216	42.9%
	24-28 years	132	26.1%
	29- and above	156	31%
University level	Fresh-student	151	30%
	Senior	234	46.4%
	Graduate	119	23.6%

## 4.2. Test the study hypotheses

Correlation analysis used to test the study hypotheses by examine the effect student self-regulation, dialogue with instructors, dialogue with students, instructors' activities and course design on students' motivation toward online learning during Covid-19 pandemic in Arab Open University in KSA as showed in Table (3) below:

Table 3: correlation of factors with students' Motivation

Factors	R <sup>2</sup>	Sig.
Self-Regulation	0.68	0.00
Dialogue With Instructors	0.61	0.00
Dialogue With Students	0.56	0.00
Instructor Activities	0.58	0.00
Course Design	0.64	0.00

The results in Table (3) above, that showed R<sup>2</sup> value and significant of the correlation for factors affecting students' motivation toward online learning during Covid-19 pandemic in Arab Open University in KSA. The acceptable R<sup>2</sup> rule is 0.75, 0.50 and 0.25, respectively, which are described as significant, moderate, and weak (Henseler et al., 2009).

The findings in Table (3) indicated, that self-regulation has significant positive effect on students' motivation toward online learning during Covid-19 (R<sup>2</sup>= 0.68, P=0.00) in Arab Open University in KSA. The result showed that student self-regulation appears the major factor affect their motivation toward learning when they discover things themselves at their own will be more successful in their learning process. Such students personally initiate and direct their own efforts to acquire knowledge and skill rather than relying on instructor, parents, colleagues, or other assistants. These results are confirming the findings of Pellas (2014); Broadbent & Poon (2015). Thus, the first hypothesis of the study which is: There is an effect of

students' self-regulation on students' motivation toward online learning during the Covid-19 pandemic is accepted. In addition, the result in Table (3) found that dialogue with instructors has a significant effect on students' motivation toward online learning during Covid-19 ( $R^2= 0.61$ ,  $P=0.00$ ) in Arab Open University in KSA. This result clarified the important role of instructors to increasing students' motivation and in fostering a learning atmosphere for students. So, instructors' role to encourage their students by giving them constructive feedback, and should be more careful especially through online communication. This result consists with results of Neumann (1994); Smith & Dillon (1999); Hara & Kling (2003). Thus, the second hypothesis of the study which is: There is an effect of dialogue with instructors on students' motivation toward online learning during the Covid-19 pandemic is accepted.

Moreover, the result in Table (3) regarding hypothesis three that indicated students' dialogue with their colleagues has significant and positive effect on students' motivation toward online learning during Covid-19 pandemic ( $R^2= 0.56$ ,  $P=0.00$ ) in Arab Open University in KSA. This result confirmed the students' role to motivate their colleagues in learning process where they communicate and discuss online during the class or out the class about courses, work as team. This is good that urge students to attend and participate their colleague' discussion and assignments by getting feedback. Instant feedback and interactions with classmates and tend to improve students' motivation in online classes. Interaction with their colleagues daily may result in higher levels of students' learning. This result supported with results of previous studies of Ku et al. (2013); Moore (2014); Sebastianelli et al. (2015); Alqurashi (2019); Baber (2020). Thus hypothesis three which is: There is an effect of student – student dialogue on students' motivation toward online Learning during the Covid-19 pandemic is accepted.

The findings in Table (3) also found that Instructors' activities have significant positive effect on students' motivation toward online learning during Covid-19 pandemic ( $R^2= 0.58$ ,  $P=0.00$ ) in Arab Open University in KSA. This finding explained that motivate students to be participated and be proactive with instructor activities during online classes and that post on learning management system encourage students and enhance their performance. This needs to give students flexibility to study anywhere and at any time to enhance their knowledge related to courses. Therefore, instructors should encourage the students to participate by providing prompt feedback regularly in order to mitigate the difficulties faced by the students in online learning. Besides that, when there is active participation with instructor activities in online learning can increase students' motivation and ameliorates retention rates students are more likely to undertake challenging activities, and exhibit enhanced performance, persistence, and creativity. This result aligned with results of Ryan and Deci (2000). Therefore, the fourth hypothesis of study which is: There is an effect of instructors' activities on students' motivation toward online

Learning during the Covid-19 pandemic is accepted.

Finally, the result in Table (3) showed that course design has significant and positive effect on students' motivation toward online learning during Covid-19 pandemic ( $R^2= 0.64$ ,  $P=0.00$ ) in Arab Open University in KSA. The result noted that course design is important in increasing students' motivation toward online learning during Covid-19 pandemic. Students need to carefully facilitate the content that compliments the learning in online class. Therefore, a good course design will attract and facilitate students to learn through online classes by introducing beneficial course content, designed according to student's competence and level of understanding, and appropriate in terms of time and space to promote and support the self-study process. These results match those of Collison, Elbaum, Haavind, & Tinker (2000); Heuer & King (2004); Arbaugh (2010)). Thus, the fifth hypothesis of study which is: There is an effect of course design on students' motivation toward online learning during the Covid-19 pandemic is accepted.

## **5. Conclusion**

Given the importance of online learning during Covid-19 pandemic, the major factors that affecting students' motivation should be addressed to improve learning process in educational institutions. In this regard, five significant factors have been identified that affect students' motivation in Arab Open University- KSA including student self-regulation, dialogue with instructors, dialogue with students, instructors' activities and course design. To enhance students' motivation, the findings of these factors that applied in Saudi context at Arab Open University have shown significant effect of all five factors on students' motivation toward online learning during Covid-19 pandemic, where self-regulation and course design have greater effect on students' motivation than other factors. Hence, the proposed framework predictability indices the importance of factors. Therefore, these factors can be used in all educational institutions not only in Arab Open University- KSA to motivate students toward online learning. To apply the presented factors for different educational institutions, the values of presented this framework should be clarifying for every university and examine all factors effect independently and collectively on students' motivations in different contexts.

## **6. Limitations and Recommendations**

The study has some limitations; it focused on students in Arab Open University, and to identify students' motivation in Saudi universities toward online learning during the COVID 19 pandemic. Future researchers may conduct research in other universities in KSA and different contexts as well to discover more insights on online learning during COVID19. Furthermore, students' performance was not covered; this

could be exposed in future to examine the system effectiveness by comparing students' performance and motivation regarding face to face and online learning.

In fact, online assessments in most universities are major challenges to motivate students comparing with in-class assessments and activities, therefore, universities are highly encouraged to innovate new ways aligned with online learning environment, to assess their students' knowledge, keeping in consideration the technology limitations.

Finally, the findings can be helpful to educational institutions that plan to adopt online learning as future activity to improve their learning process in successfully embracing the technology to deal with any crisis in the future. Blended learning is one of the effective learning approaches with many advantages during and before the pandemic which is adopted by AOU. It is highly recommended for universities in the KSA to shift from traditional in classroom learning to blended learning that combines in-class and online learning to match students' preferences to address benefits and challenges of other learning during a pandemic and in future.

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## **References**

Alhouti, I. (2020). Education during the pandemic: the case of Kuwait. *Journal of Professional Capital and Community*, 5(3/4), 213-225.

Alqurashi, E. (2019). Predicting student satisfaction and perceived learning within online learning environments. *Distance Education*, 40(1), 133-148. <https://doi.org/10.1080/01587919.2018.1553562>

Alt, D. (2015). College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior*, 49, 111-119. <https://doi.org/10.1016/j.chb.2015.02.057>

Altwaijry, N., Ibrahim, A., Binsuwaidan, R., Alnajjar, L., Alsouk, B., & Almutair. R (2021). Distance Education During COVID-19 Pandemic: A College of Pharmacy Experience. *Risk Management and Healthcare Policy*, 14, 2099-2110

Anderson, Terry & Rourke, Liam & Garrison, D. & Archer, Walter. (2001). Assessing Teaching Presence in a Computer Conferencing Context. *Journal of Asynchronous Learning Networks*. 5. 10.24059/olj.v5i2.1875.

Arbaugh, J.B. & Rau, Barbara. (2007). A Study of Disciplinary, Structural, and Behavioral Effects on Course Outcomes in Online MBA Courses. *Decision Sciences Journal of Innovative Education*. 5. 65 - 95. 10.1111/j.1540-4609.2007.00128.x.

Arbaugh, J.B. & Benbunan-Fich, Raquel. (2007). The importance of participant interaction in online environments. *Decision Support Systems*. 43. 853-865. 10.1016/j.dss.2006.12.013.

Arbaugh, J.B.. (2010). Online and Blended Business Education for the 21st Century: Current Research and Future Directions. *Online and Blended Business Education for the 21st Century: Current Research and Future Directions*. 1-204.

Ary, D., Jacobs, L., & Razavieh, A. (2002). *Introduction to Research* (6th ed.). Wadsworth.

Baber, H. (2020). Determinants of Students' Perceived Learning Outcome and Satisfaction in Online Learning during the Pandemic of COVID19. *Journal of Education and E-Learning Research*, 7(3), 285–292. <https://doi.org/10.20448/journal.509.2020.73.285.292>

Bailey, Craig & Card, Karen. (2009). Effective pedagogical practices for online teaching: Perception of experienced instructors. *Internet and Higher Education - INTERNET HIGH EDUC*. 12. 152-155. 10.1016/j.iheduc.2009.08.002.

Bao, W. (2020). COVID - 19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, 2(2), 113 - 115. <https://doi.org/10.1002/hbe2.191>

Basilaia, G., & Kvavadze, D. (2020). Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia. *Pedagogical Research*, 5(4). <https://doi.org/10.29333/pr/7937>

Belhaj, F.A. (2022). Arab Open University students' perceptions and experiences regarding an online learning during covid-19 pandemic in Saudi Arabia. *Journal of Management Information and Decision Sciences*, 25(3), 1-11.

Bitzer, P. and Janson, A. (2014). Towards a Holistic Understanding of Technology-Mediated Learning Services – a State-of-the-Art Analysis, *ECIS 2014 Proceedings*.

Boling, Erica & Hough, Mary & Krinsky, H. & Saleem, Hafiz & Stevens, M.. (2012). Cutting the distance in distance education: Perspectives on what promotes positive, online learning experiences. *The Internet and Higher Education*. 15. 118–126. 10.1016/j.iheduc.2011.11.006.

Broadbent, J., & Poon, W. L. (2015). Self-Regulated Learning Strategies & Academic Achievement in Online Higher Education Learning Environments: A Systematic Review. *The Internet and Higher Education*, 27, 1-13.

<http://dx.doi.org/10.1016/j.iheduc.2015.04.007>

Castillo-Merino, D. & Serradell-Lopez, E. (2014). An analysis of the determinants of students' performance in e-learning. *Computers in Human Behavior*, 30, 476-484. DOI: 10.1016/j.chb.2013.06.020.

Charalambos, Vrasidas & Mcisaac, Marina. (2009). Factors Influencing Interaction in an Online Course. *American Journal of Distance Education*. 13. 22-36. 10.1080/08923649909527033.

Crawford, J., Andrew, M., Rudolph, J., Lalani, K., & Butler-Henderson, K. (2021). Editorial: The cross-cultural effects of COVID-19 on higher education learning and teaching practice. *Journal of University Teaching and Learning Practice*, 18(5). <https://doi.org/10.53761/1.18.5.01>

Creely, E., Henriksen, D., & Henderson, M. (2020). Three Modes of Creativity. *The Journal of Creative Behavior*, 55(2), 306–318. <https://doi.org/10.1002/jocb.452>

Collison, G., Elbaum, B., Haavind, S., & Tinker, R. (2000). *Facilitating online learning: Effective strategies for moderators*. Madison, WI: Atwood Publishing.

DeBourgh, G.A. (1999). Technology Is The Tool, Teaching Is The Task: Student Satisfaction In Distance Learning. In J. Price, J. Willis, D. Willis, M. Jost & S. Boger-Mehall (Eds.), *Proceedings of SITE 1999--Society for Information Technology & Teacher Education International Conference* (pp. 131-137). Waynesville, NC USA: Association for the Advancement of Computing in Education (AACE). Retrieved June 12, 2022 from <https://www.learntechlib.org/primary/p/7521/>.

Ekwunife-Orakwue, K. C. V., & Teng, T. L. (2014). The Impact of Transactional Distance Dialogic Interactions on Student Learning Outcomes in Online and Blended Environments. *Computers & Education*, 78, 414-427. <https://doi.org/10.1016/j.compedu.2014.06.011>

Eom, Sean & Wen, Joseph & Ashill, Nicholas. (2006). The Determinants of Students' Perceived Learning Outcomes and Satisfaction in University Online Education: An Empirical Investigation. *Decision Sciences Journal of Innovative Education*. 4. 215-235. 10.1111/j.1540-4609.2006.00114.x.

Finaly-Neumann, E. (1994). Course work characteristics and students' satisfaction with instructions. *Journal of Instructional Psychology*, 21(2), 14-19

Gillett-Swan, Jenna. (2017). The Challenges of Online Learning: Supporting and Engaging the Isolated Learner. *Journal of Learning Design*. 10. 20. 10.5204/jld.v9i3.293.

Grandzol , C. J., & Grandzol , J. R. (2010). Interaction in online courses: More is not always better. *Online Journal of Distance Learning Administration*, 13( 2).

Halim, M. S. A. A., Hashim, H., & Yunus, M. M. (2020). Pupils' Motivation and Perceptions on ESL Lessons through Online Quiz-Games. *Journal of Education and*

E-Learning Research, 7(3), 229–234.  
<https://doi.org/10.20448/journal.509.2020.73.229.234>

Hara, N., & Kling, R. (2003). Students' distress with a Web-based distance education course: An ethno- graphic study of participants' experiences. *Turkish Online Journal of Distance Education-TOJDE*, 4(1), 1-30

Heuer, B.P., & King, K.P. (2004). Leading the Band: The Role of the Instructor in Online Learning for Educators. *Journal of Interactive Online Learning*, 3.

Hirumi, Atsusi. (2002). The Design and Sequencing of eLearning Interactions: A Grounded Approach. *International Journal on E-Learning*. 1.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The Difference between Emergency Remote Teaching and Online Learning. *EDUCAUSE Review*.

<https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>

Hung, M.L. & Chou, C. (2015). Students' perceptions of instructors' roles in blended and online learning environments: A comparative study. *Computers & Education*, 81(1), 315-325. Elsevier Ltd. Retrieved June 12, 2022 from <https://www.learntechlib.org/p/200497/>.

Kaur, M., Kaur, S., & Kaur, K. (2020). Evaluation and impact assessment of training programmes. *AGRICULTURE UPDATE*, 15(3), 258–264.  
<https://doi.org/10.15740/has/au/15.3/258-264>

KauffmanH. (2015). A review of predictive factors of student success in and satisfaction with online learning. *Research in Learning Technology*, 23.  
<https://doi.org/10.3402/rlt.v23.26507>

Kellogg, D.L. & Smith, M.A. (2009). Student-to-Student Interaction Revisited: A Case Study of Working Adult Business Students in Online Courses. *Decision Sciences Journal of Innovative Education*, 7(2), 433-456. Retrieved June 12, 2022 from <https://www.learntechlib.org/p/157684/>.

Kong, Joseph & Kwok, Ron & Fang, Yulin. (2012). The effects of peer intrinsic and extrinsic motivation on MMOG game-based collaborative learning. *Information & Management*. 49. 1-9. 10.1016/j.im.2011.10.004.

Kreszock, M. H. (2000). *Belanger, France, and Dianne H. Jordan. Evaluation and Implementation of Distance Learning: Technologies, Tools and Techniques*. Hershey, Pa.: Idea Group Pub., 2000. 246p. \$69.95 (ISBN 1–878289-63-2). LC 99–47580. *College & Research Libraries*, 61(5), 465–466.  
<https://doi.org/10.5860/crl.61.5.465>



Ku, H.-Y., Tseng, H. W., & Akarasriworn, C. (2013). Collaboration factors, teamwork satisfaction, and student attitudes toward online collaborative learning. *Computers in Human Behavior*, 29(3), 922-929. <https://doi.org/10.1016/j.chb.2012.12.019>

Kuo, Yu-Chun & Walker, Andrew & Schroder, Kerstin & Belland, Brian. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *The Internet and Higher Education*. 20. 35-50. 10.1016/j.iheduc.2013.10.001.

Lao, T. & Gonzales, C. (2005). Understanding Online Learning Through a Qualitative Description of Professors and Students' Experiences. *Journal of Technology and Teacher Education*, 13(3), 459-474. Norfolk, VA: Society for Information Technology & Teacher Education. Retrieved June 11, 2022 from <https://www.learntechlib.org/primary/p/4692/>.

Lee, J. (2020). Mental health effects of school closures during COVID-19. *The Lancet Child & Adolescent Health*, 4(6), 421. [https://doi.org/10.1016/s2352-4642\(20\)30109-7](https://doi.org/10.1016/s2352-4642(20)30109-7)

Liguori, E., & Winkler, C. (2020). From Offline to Online: Challenges and Opportunities for Entrepreneurship Education Following the COVID-19 Pandemic. *Entrepreneurship Education and Pedagogy*, 3(4), 346-351. <https://doi.org/10.1177/2515127420916738>

Linh P. Dinh & Trang T. Nguyen (2020) Pandemic, social distancing, and social work education: students' satisfaction with online education in Vietnam, *Social Work Education*, 39:8, 1074-1083, DOI: 10.1080/02615479.2020.1823365

Mailizar, Almanthari, A., Maulina, S., & Bruce, S. (2020). Secondary School Mathematics Teachers' Views on E-learning Implementation Barriers during the COVID-19 Pandemic: The Case of Indonesia. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(7), em1860. <https://doi.org/10.29333/ejmste/8240>

McPherson, Michael S., and Lawrence S. Bacow. 2015. "Online Higher Education: Beyond the Hype Cycle." *Journal of Economic Perspectives*, 29 (4): 135-54.

Moore, M. G. (1997). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education*, (pp. 22-38). NY: Routledge

Studies in Distance Education.

Moore, J. (2014). Effects of online interaction and instructor presence on students' satisfaction and success with online undergraduate public relations course. *Journalism & Mass Communication Educator*, 69(3), 271-288

Muirhead, Brent & Juwah, Charles. (2004). Interactivity in computer-mediated college and university education: A recent review of the literature. *Educational Technology & Society*. 7. 12-20.

Pace, C., Pettit, S., & Barker, K. (2020). Best Practices in Middle Level Quaranteaching: Strategies, Tips and Resources Amidst COVID-19. *Becoming: Journal of the Georgia Middle School Association*, 31(1). <https://doi.org/10.20429/becoming.2020.310102>

Pellas, N. (2014). The influence of computer self-efficacy, metacognitive self-regulation and self-esteem on student engagement in online learning programs: Evidence from the virtual world of second life. *Computers in Human Behavior*, 35,157–170. <https://doi.org/10.1016/j.chb.2014.02.048>

Richardson, Michelle & Abraham, Charles & Bond, Rod. (2012). Psychological Correlates of University Students' Academic Performance: A Systematic Review and Meta-Analysis. *Psychological bulletin*. 138. 353-87. [10.1037/a0026838](https://doi.org/10.1037/a0026838)

Rubin, B., Fernandes, R., & Avgerinou, M. D. (2013). The effects of technology on the Community of Inquiry and satisfaction with online courses. *Internet and Higher Education*, 17, 48-57. <http://dx.doi.org/10.1016/j.iheduc.2012.09.006>

Ryan, Richard & Deci, Edward. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *The American psychologist*. 55. 68-78. [10.1037/0003-066X.55.1.68](https://doi.org/10.1037/0003-066X.55.1.68).

Safi, F., Wenzel, T., & Spalding, L. A. T. (2020). Remote learning community: supporting teacher educators during unprecedented times. *Journal of Technology and Teacher Education*, 28(2), 211–222

Sebastianelli, R., Swift, C., & Tamimi, N. (2015). Factors Affecting Perceived Learning, Satisfaction, and Quality in the Online MBA: A Structural Equation Modeling Approach. *Journal of Education for Business*, 90(6), 296–305. <https://doi.org/10.1080/08832323.2015.1038979>

Smith, P. L., & Dillon, C. L. (1999). Comparing distance learning and classroom learning: Conceptual considerations. *The American Journal of Distance Education*, 13(2), 6-23.

Swan, Karen. (2002). Building Learning Communities in Online Courses: The Importance of Interaction. *Education, Communication & Information*. 2. 23-49. [10.1080/1463631022000005016](https://doi.org/10.1080/1463631022000005016).

Van der Kleij, F., Eggen, T. J. H. M., Timmers, C. F., & Veldkamp, B. P. (2012). Effects of feedback in a computer-based assessment for learning. *Computers & education*, 58(1), 263-272. <https://doi.org/10.1016/j.compedu.2011.07.020>

Wan, Zeying & Wang, Yinglei & Haggerty, Nicole. (2008). Why people benefit from e-learning differently: The effects of psychological processes on e-learning outcomes. *Information & Management*. 45. 513-521. 10.1016/j.im.2008.08.003.

Wilson, Brent & Stacey, Ludwig-Hardman & Thornam, Christine & Dunlap, Joanna. (2004). Bounded Community: Designing and Facilitating Learning Communities in Formal Courses. *International Review of Research in Open and Distance Learning*. 5. 10.19173/irrodl.v5i3.204.

Wilson G. Knowledge, innovation and re-inventing technical assistance for development. *Progress in Development Studies*. 2007;7(3):183-199. doi:10.1177/146499340700700301

Woo, Younghee & Reeves, T.. (2007). Meaningful interaction in Web-based learning: A social constructivist interpretation. *The Internet and Higher Education*. 10. 15-25. 10.1016/j.iheduc.2006.10.005

Wu, Z. (2020). How a top Chinese university is responding to coronavirus? Retrieved from *World Economic Forum*: <https://www.weforum.org/agenda/2020/03/coronavirus-china-the-challenges-of-online-learning-for-universities/>

Yee, R.C. (2013). Perceptions of Online Learning in an Australian University: An International Students' (Asian Region) Perspective – Quality of Learning. *International Journal of e-Education, e-Business, e-Management and e-Learning*.

Young, A., & Norgard, C. (2006). Assessing the quality of online courses from the students' perspective. *The Internet and Higher Education*, 9(2), 107–115. <https://doi.org/10.1016/j.iheduc.2006.03.001>

Zhong, Keding (2020) "A Research on the Effect of Learner attribution on Performance under the mediation of online learning environment," *Journal of Educational Technology Development and Exchange (JETDE)*: Vol. 13: Iss. 1, Article 2.

Zimmerman, Barry. (1989). A Social Cognitive View of Self-Regulated Academic Learning. *Journal of Educational Psychology*. 81. 329-339. 10.1037/0022-0663.81.3.329.

Zhu, X., Chen, B., Avadhanam, R. M., Shui, H., & Zhang, R. Z. (2020). Reading and connecting: using social annotation in online classes. *Information and Learning Science*, 121(5-6), 261-271. <https://doi.org/10.1108/ILS-04-2020-0117>