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Distance education technology tools in interior design During COVID-19 Pandemic (UOP&UOG students as a case study)

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Abstract

During COVID-19 crisis, most of the affected countries forced the stay-home policy, which causes workers from many sectors to continue their work from home. Higher education institutions have transformed the educational process from f2f classroom learning to distance learning in Jordan and Kingdom of Bahrain. The online education used for many years to support the regular education. However, in this crisis, educational institutions are switched into 100% online teaching. There are many challenges associated with this transition, which makes us rethink about prioritizing education spending and put online education upfront. Also, it is time to rewrite the risk policies and consider biological threats as one of the possible risks that obstruct regular education in interior design departments. In this study, it was highlighted on the experience of two universities which are University of Petra-(Faculty of Architecture and design, Department of interior design), and Gulf university-Bahrain, (College of Engineering, Arch. & Interior Design Engineering) with this circumstance. We evaluated this experience from its beginning to the end of the second semester during the academic year 2019-2020). This study has used the descriptive analytical approach by analyzing the case study of distance education for both universities (UOG and UOP) experience during Covid-19. This study focuses on design studio courses which offered in spring semester 2020 (Basic Design, Principle of Interior Design, Design Studio 1, 2, 4 and Graduations Projects courses). Data was collected from articles, journal web site and final results from students and academic staff. It was used quantitative method which is (open-ended online questionnaire) with students and qualitative method by using online interviews with academic staff. The questionnaire has conducted online with students from two Countries-Kingdom of Bahrain (Gulf University) and Jordan (Petra University). The

questionnaire consisted of 18 questions. While the number of experts reached 7 in both universities. Output measures reported include student evaluations of these online courses, external juries, peer evaluations of student products, and final grades. learned from this experience how to mitigate the effect associated with the crisis.

1. Introduction

There are some circumstances when learners are pushed to the online option such as being in a war (Rajab, 2018), living in remote places (Chen & Koricich, 2014), being a worker, and do not have time to attend regular classrooms (Bourne et al., 2005), and biological crisis. Some of these occasions are happening in the middle of a school semester, which causes a sudden transition from regular teaching to online methods. Almost all countries experienced this circumstance when the world was hit with the coronavirus started in November 2019, and the virus is still hitting the world as of the time of writing this paper (WHO, 2020). The coronavirus COVID19 that out broke in Wuhan, China has caused death to several thousands of individuals worldwide (Hasan & Hossain, 2020; Chen et al., 2020; Ali et al., 2020). Also, it caused considerable economic disruptions due to the fast spread of the virus worldwide (Hasan & Hossain, 2020). All countries declared an emergency to control the spread of the virus and slow it down. Part of the emergency procedures is to shut down schools, closing shops down, force in-house quarantine. Eliminating physical interaction can help to reduce the number of people infected every day, which helps to gain more time to get a treatment that can fight the virus. Therefore, the world had no choice except to use what technology can offer to continue education.

This situation is defined by (Hodges et al., 2020) as an emergency remote teaching. The paper emphasized that there is a clear distinguishing between the e-learning model and its standards and of what is happening right now in continuing the learning experience during the closure of the educational institutions. The authors in (Hodges et al., 2020) believed that the two terms should not be confused since the current situation is a reaction to a temporary problem.

The governments suspended attending universities in March 2020. The Ministry of Education decided to continue with the distance education using all possible online platforms to continue the delivery of the education at levels. The countries experienced a similar situation during the wartime (Rajab, 2018). However, this time the problem is due to the health issue and across all the countries.

Education can still be delivered during a crisis (Nash, 2015). Online education has been evolved over many years with the development of modern applications and Internet speed (Al-Khalifa, 2009; Walabe, 2020). The form of online learning should consider the three major elements: Student-Content, Student-Student, and Educator-Student interactions (Anderson, 2008; Smith,

2020). However, this circumstance is unique as, in one night, teachers needed to conduct their lectures online. Besides posting course materials into the learning platforms (e.g., Learning Management System - Moodle), teachers need to use applications (e.g., Microsoft Teams, Zoom) to meet their students asynchronously. Furthermore, they need to meet at the same time that they used to meet in to avoid any disruptions to students' schedules. This circumstance has brought the online teaching from asynchronous format to the blended format, which is the mixture of both synchronous and asynchronous.

This situation is unique and happened so quickly, which we think is important to investigate the impacts caused by this crisis. In this work, we analyzed the impact on education that this crisis has caused. Some related works in education (e.g., Archambault & Borup, 2020; Bozkurt & Sharma, 2020; Schrading et al., 2020; McCartin, 2020) started this approach.

1.1 Research Significance

Given these impending changes during COVID 19, the time is right for interior design programs to consider the appropriateness and potential of distance education. Changing student profiles and economic realities of both students and universities support distance education as a method of sharing resources and providing professional education in a responsible and innovative way. Additionally, the technology required to support distance education is now available.

Since interior design programs vary, the needs assessment phase can be implemented in the sequence best suited to each institution's academic and political realities. Virtual Learning Environments (VLE) are the online version of traditional teaching and learning support. They do not typically offer virtual technologies, but are online platforms and use traditional GUIs and web technologies to support teaching and learning. The requirements of these are centered on traditional teaching and learning (Gordon, N., Brayshaw, M., 2015).

In education, LMS. [Moodle and Canvas] and Microsoft Teams, platforms are used to provide rapid feedback on progress and proficiency, the way that learners can reattempt an activity, or the competitive nature of an activity. In this paper, we present the experience of higher education institutes in Jordan and Kingdom of Bahrain during the time of Coronavirus and how the institutions, professors, and students reacted to the situation. It was assessed the transition from a regular meeting classroom into virtual classrooms and how smooth this transition was at a mid-sized institution.

The feedback was taken from academicians on how they found this experience working and studying remotely, especially when delivering specialized courses in teaching methods using computers in both interior design engineering, and interior design. Finally, it was produced some indications from this time concerning education and the necessity of the involvement of e-learning.

The rest of the paper is organized as follows. The case studies are explained in and we present facts about the colleges where we conducted the study, then the researchers analyzed the student's response to the Questioner, during the crisis, In the end, the paper is concluded the results and discussion the literatures.

1.2 The research Questions.

- What are the best technology tools and platforms for practical courses to facilitate distance education for interior design program during covid19 pandemic?
- How can we enhance assessment strategies for interior design programs like delivery options and interactivity?

1.3 The research objectives

- To propose the ideal usage of technology tools and learning platform for interior design educators and administrators to assess distance learning during Covide-1 9 pandemic.
- to provide assessment tools for interior design programs considering implementation of online learning like delivery technology tools, interactivity (students engagement) and faculty participation/development.

1.4 Distance Education in interior design during COVID19 pandemic

Distance education occurs when the educator and student are separated by distance, and often by time, while remaining interactively linked. There are three stages associated with the decision to implement distance education: needs assessment, delivery technology options and interactivity. This paper addresses all stages by discusses distance education's appropriateness to interior design education in COVID19.

Many in the education community treat COVID-19 as an opportunity to build back better—to re-imagine and re-design education for the future. For example, at UNESCO's Futures of Education Commissioners meeting on June 19, 2020 (Juneteenth, a US holiday commemorating the end of slavery), global education leaders discussed the growing role of digital technology, how to reach the most vulnerable students, and how to design a meaningful curriculum for the future, one grounded in global citizenship and sustainable development (UNESCO 2020). First, the Commissioners agreed that we have not utilized digital technology's full potential (UNESCO 2020). The Digital Divide is real, but digital technologies can be a great unifier if there is universal access to connectivity and digital tools.

That said, there is no education without human interaction. Teachers have been the frontline workers for education even before this pandemic, so we need blended learning environments for education. Teachers need to interface with their students, even if they are assisted by TVs, smartphones, feature phones, laptops, and tablets. Microsoft office 360 has developed a whole suite of integrated learning platforms [Microsoft Teams, Zoom, Moodle, Skype,

Creatrix system, Facebook, WhatsApp, Email, outlook and Email with one drive] that can be easily linked to YouTube, and other teaching aids. But each platform requires the teacher to create the right learning environment with best tool technology like [iPad tablet, Wacom, Sketch book, White board in Teams, Videos, Sher screen & control request]. This pandemic has taught us that each community has many experts who can teach.

2. Literature review

2.1 Exploring the effectiveness of blended learning in interior design education (2016)

This study explores how blended learning can contribute to interior design students' learning outcomes, their engagement with non-studio courses and affect their learning achievements. Within the framework of the study, a blended learning experience was carried out in 'IAED 342 Building Performance' module at Bilkent University, Turkey. A total of 120 interior architecture students were surveyed about their experiences on five fields of instruction: (1) course design, learning material and electronic course environment; (2) interaction between students and instructor; (3) interaction with peers; (4) individual learning process; and (5) course outcomes. The results showed that teaching both online and face-to-face can create an effective learning environment for non-studio classes, while contributing to a considerable value for the interior design education in terms of teaching process (Afacan 2016).

2.2 Flexible Virtual Environments: Gamifying Immersive Learning (2017)

This paper will describe what is needed to combine Virtual Learning Environments (VLE) technologies so they can be effectively utilised to support higher education teaching, where the computer based instruction is provided by a mix of suitable back-end intelligent and flexible learning system alongside the immersive front end provided by the Virtual technology. An effective way to assess such systems can be offered through heuristic evaluation, as previously explored by the authors. The paper concludes with a model for combining the computer-based instruction, gamification of the learning mechanics, along with the virtual environment itself to provide an engaging, practical and effective true virtual learning environment (Gordon and Brayshaw 2017).

2.3 Interior Design Teaching Methodology During the Global COVID-19 Pandemic (2020)

In March 2020, the World Health Organization officially announced the COVID-19 outbreak as a global Pandemic (WHO, 2020). During this time, teaching faculty at the College of Arts and Creative Enterprises (CACE) at Zayed University were suddenly facing the challenge of teaching design through a distance learning approach. As educators of interior design, the

authors were part of the team tasked to find ways to teach design without physical contact with the students nor access to campus facilities traditionally used to run the program and its associated courses.

This paper charts the pedagogy approach that the authors adopted as a response to the national lockdown. As design faculty, the authors felt that, despite the restrictions imposed on society because of COVID-19 pandemic, it was still possible to explore other alternatives for a particular course, the senior capstone project. The main intention was to successfully fulfil the course learning outcomes and provide students with a suitable pedagogy continuity to the learning process commenced prior to the lockdown Education as the path to a sustainable recovery from COVID-19 (2020)(Iyengar 2020).

2.4 Education as the path to a sustainable recovery from COVID-19 (2020)

The article argues that, post-COVID-19, education systems should recognize community-driven support systems, use technology to overcome the digital divide in learning, and focus more on SDG 4.7 and its links to climate crises(Iyengar 2020).

2.5 How the Regular Teaching Converted to Fully Online Teaching in Saudi Arabia during the Coronavirus COVID-19 (2020)

In this study, we highlighted the experience of a mid-size college in Saudi Arabia with this circumstance. We evaluated this experience from its beginning to the end of the semester. We summarized many lessons learned from this experience how to mitigate the effect associated with the crisis (Alshehri et al. 2020)

3. Methodology

During Covid-19 crisis, all educational institutions were switched into 100% online teaching in both countries Kingdom of Bahrain and Jordan. The first day of lockdown the universities UOG & UOP have offered workshops to train their staff and students to use online learning platform to deliver the lectures. The main platform used during distance learning was Microsoft Teams from the beginning of Covid-19 crisis to deliver the lectures, meet the students, conduct quiz and discuss design projects in UOG. As for UOP, they used Zoom in the beginning then they shifted to Microsoft Teams as it has many features, easy to use and more secure. In addition, LMS (Moodle & Creatrix) was used as an additional platform to grade the project and for submission the projects and assignments. The universities also used technology tools like [Wacom, iPad with pen, sketch book, white board,] to facilitate the learning activity for the students in design studio courses and they used for drawing, sketches and feedback.

3.1 Data collection:

This study has used the descriptive analytical approach by analyzing the case study of distance education for both universities (UOG and UOP) experience during Covid-19. This study focuses on design studio courses which offered in

spring semester 2020 (Basic Design, Principle of Interior Design, Design Studio 1, 2, 4 and Graduations Projects courses). Data was collected from articles, journal web site and final results from students and academic staff. It was used quantitative method which is (open-ended online questionnaire) with students and qualitative method by using online interviews with academic staff. The questionnaire has conducted online with students from two Countries-Kingdom of Bahrain (Gulf University) and Jordan (Petra University). The questionnaire consisted of 18 questions which covered 6 areas demographic information, learning delivery options, student's interactivity, assessment tools, feedback delivery and overall learning experience focusing on design studio courses and projects. The interview consisted of 12 questions which covered the lecture delivery, technology tools, and platforms used to deliver a lecture.

3.2 Participants:

That target participants in this research was interior design students and academicians in UOG and UOP. The selection of research samples was based on the students who attended design studio courses and academic staff who taught design studio courses during Spring Semester 2019-2020. The total number of students who participated in the questionnaire were 93 mix students (male and female) who were between 18-29 years old from Interior Design Engineering program (UOG) and Interior design program (UOP) and from different levels. They were selected as they experienced design studio courses. The interview was conducted with 7 academic staff in UOG and UOP who are teaching in interior design and interior design engineering programs during spring semester 2020, 3 from UOG and 4 from UOP. The academic staff were interviewed through Microsoft Teams (online meeting) by authors.

4. Results

4.1 Results of Students' Questionnaire

Regarding gender results, 66 students were female while 27 students were male. The majority of students were 22 years old about 34.3%, 17.2% were 21 years old. An overview of the demographic questions response rate is given in Table 1.

Table 1: Data Summary of Demography Questions

Country/University	Total no. of respondents	% as total responses no.
Jordan (Petra University)	58	62.4%
Bahrain (Gulf University)	35	37.6%
Total	93	100%
Gender	Total no. of respondents	% as total responses no.
Male	27	29%
Female	66	71.%
Total	93	100%

Age	Total no. of respondents	% as total responses no.
18-22	63	67.7%
23-29	30	32.3%
Total	93	100%

Overall, the questionnaire results showed 52.7% of participants believed that online learning environment can facilitate and support delivering of design studio course effectively, while 47.3% of participants do not. All participants agreed that distance learning has weakness to study design studio course as the following, 60.2% of participants mentioned that the main problem was the internet issue, 41.9% for communication and laptop issues. 39.8% for feedback issue and 28% for engagement issue (Fig. 1).

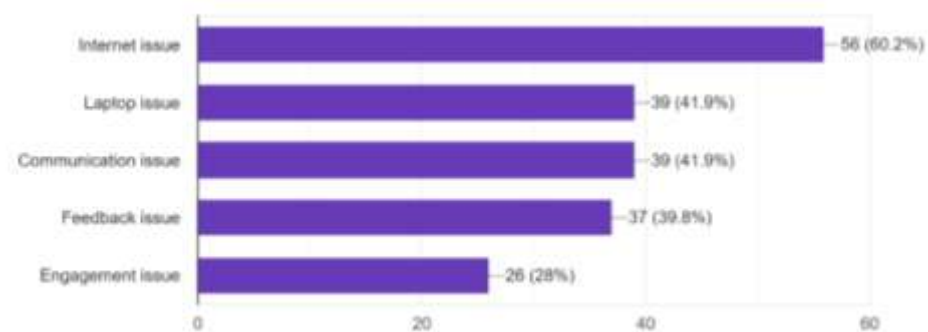


Fig. 1: The main challenges during distance learning

The respondents were asked about the platforms they used to meet and interact with their instructors. The results show that different learning platforms were used during distance learning to deliver the lectures. It was shown that most of participants (94.6%) were using Microsoft Teams to post course materials, assignments, quizzes, online assessments and meeting video conference. In addition, the faculty used other platforms as supplementary tools, it was noticed that Learning Management System LMS (Moodle, Creatrix) is heavily used by 59.2 of participants as it was the formal institutional LMS. Other participants 54.8% prefer to use WhatsApp, 39.8% for Zoom, 35.5% for Skype and 33.3% for Facebook as additional tools respectively. The students mentioned other platforms used during distance learning but with low percentage such as, email, Telegram and Instagram (Fig. 2). In regard the appropriate communication tools, the majority of participants 64.5% confirmed that the three communication tools (record lecture, upload file, interactive lecture) used during distance learning were appropriate to understand the requirements of project for Design Studio Course, while 17.2% of participants considered the interactive lecture is the best communication tool to understand the requirements of project for design studio course during distance learning (Fig. 3).

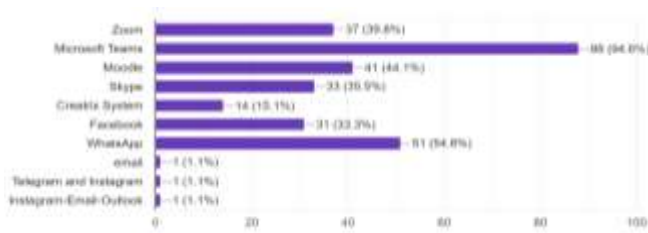


Fig. 2: The Platforms used during distance learning in UOP and UOG

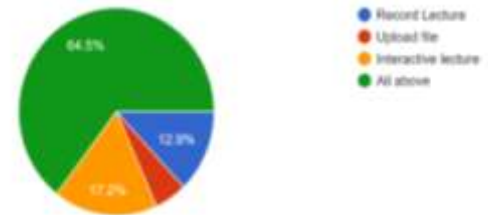


Fig. 3: The communication methods

The results indicated that the instructors used the various technology tools for design studio course to facilitate learning activity during distance learning and the high percentage was for share screen-control request 76.3% and the video was the second technology tool 62.4%. While other technology tools were used by the instructors for design studio course, white board (Microsoft Teams) 32.3%, Sketch Book (23.7%), IPAD tablet (16.1%), and 8.6% for Wacom (Fig. 4).

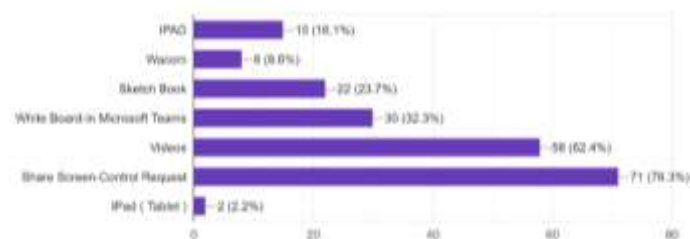


Fig. 4: Technology tools used during distance learning

Overall, the questionnaire results showed a high level of satisfaction with learning quality. As shown in Table 2, three areas showed that the total percentage of 'very good', 'good' and 'average' was greater than the total of 'poor' and 'very poor'. In terms of understanding of design studio courses during distance learning the total percentage of 'very good understanding', 'good understanding' and 'average understanding' was 79.6% while the total percentage of 'poor understanding' and 'very poor understanding' was 20.4%. As for the opportunity of interaction in design studio course during virtual learning, the total percentage of 'very good interaction', 'good interaction' and 'average interaction' was 79.5% whereas the total percentage of 'poor interaction' and 'very poor interaction' was 20.5%. In regard of the availability of technical support by IT team of your university, the total percentage of 'very good support', 'good support' and 'average support' was 80.7% while the total percentage of 'poor support' and 'very poor support' was 19.4%.

Table 2: Summary data of students' satisfaction on learning quality during distance learning

Questions	Very Poor	Poor	Average	Good	Very good
Understanding of design studio courses during distance learning	7.5%	12.9%	25.8%	30.1%	23.7%
The opportunity of interaction in design studio course during virtual learning	10.8%	9.7%	32.2%	24.7%	22.6%
Availability of technical support by IT team of your university	6.5%	12.9%	21.5%	23.7%	35.5%

In regard of students' development, the results revealed that 82.8% of participants confirmed the university provide training workshop for online courses for the students, whereas 17.2% of participants did not (Fig. 5). As for assessment tools, the results show that 92.5% of participants found that Microsoft Teams is the appropriate assessment tool during online learning for design studio course, while LMS systems were less preferable for the participants as the following 49.5% for Moodle and 21.5% for Creatrix system (Fig. 6).

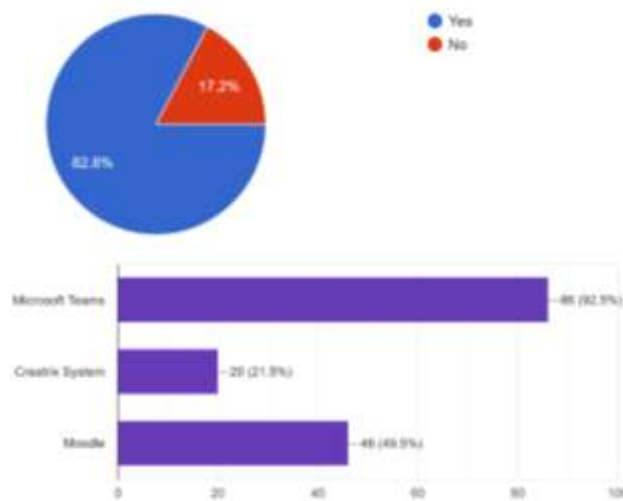


Fig. 5: Training workshop Fig. 6: Assessment Tools

The students were asked about the suitable delivery options to submit their projects during distance learning for design studio course. The results show that 50.5% of participants prefer all delivery options (We Transfer, Online Drive and Email). While 35.5% of participants prefer used email to submit the project during online learning (Fig. 7). In regard the appropriate feedback type, 78.5% of participants found that oral and written feedback are suitable during online learning for design studio course, while a few number of participants 7.5% prefer oral feedback (Fig. 8). As for the mode of design studio course, 65.6% of participants prefer to study design studio course physically while

34.4% of participants prefer online learning for design studio course (Fig. 9). The results show that there are many reasons to take the design studio course in classroom, 67.7% of participants mentioned the social activity is the main reason then environment atmosphere, communication skills, reality experience. While the instructor support physically was less important 54.8% (Fig. 10).

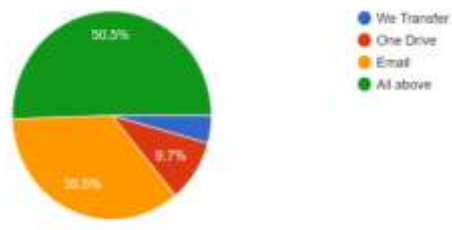


Fig. 7: Suitability of delivery options

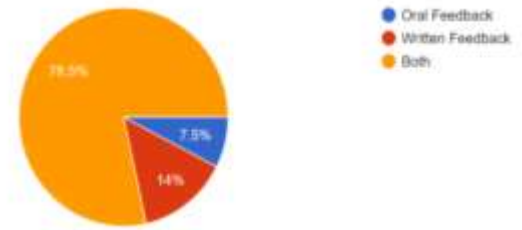


Fig. 8: Feedback



Fig. 9: Learning Mode

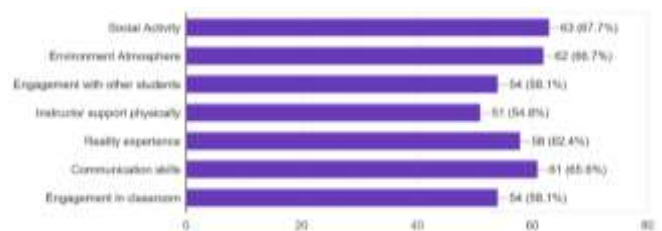


Fig. 10: Main reasons for preferring attending lecture physically

4.2 Results of Academic Staff Interviews:

As mentioned above, the interview was conducted with 7 academic staff in UOG and UOP who are teaching in interior design and interior design engineering program during spring semester 2020, 3 from UOG and 4 from UOP. The interviews were conducted through Microsoft Teams (online meeting) by authors, the interview consisted of 12 questions which covered the same area in questionnaire. The findings from the interviews:

4.2.1 Online Learning:

In terms of the effectiveness of online learning for design studio course, the majority (57%) of academic staff believed that online learning was partially supported and facilitated design studio courses because it has some challenges such as missing real life experience. One participant believed that online

learning could support design studio course by using new technology tools to facilitate learning in design studio courses. The participants made the following comments regarding online learning:

“In my opinion, its partially working but it has many challenges when work on practical project because the students will lose real life experience such as feeling the materials or attending labs to conduct experiments” (Participant 5)

“Online learning environment can partially support the transfer of message between instructor and learners in design studio courses, because the dominant weight for practical part in these courses is major which plays a significant role in the evaluation or judging of how much far instructor can use such a virtual environment to deliver his/her practical contents successfully to make it work for all learners” (Participant 6)

The main challenges of online learning were mentioned by the participants were internet signal, engagement, feedback, communication, and laptop issues.

However, 28% of the responses did not believe online learning could support design studio courses as it has disadvantages to achieve the learning outcome of the course:

“I don’t fully agree. I think virtual learning environment can be highly effective if it is applied to theoretical courses only along with good planning. On the contrary, practical courses can face so many difficulties” (Participant 4)

4.2.2 Communication tools:

As for the appropriate communication tools for the project requirements, about 71% of participants indicated that recorded lecture, uploading files and interactive lecture are the most suitable communication tools with learners and lead to better learning outcomes:

“Record lecture, upload file and interactive lecture, all the previous options are used in distance learning to communicate with learners, record is important for students who missed attendance, upload files to send supporting documents, and interactive lecture to obtain high level of engagement in class” (Participant 7)

4.2. 3 Platform and Technology Tools

There are five phases of interior design studio used in distance education (for two universities, UOG & UOP) during COVID-19 which are interior design studio phases, programming (case study and site analysis), schematic design, design development, and final project (presentation). UOG and UOP have used different platforms and technology tools to facilitate learning for design studio courses.

It was found that LMS (Moodle, Creatrix) was used by both universities before Covid-19 crisis to post course materials, homework, quizzes, online assessment, assignments, work submission and grading. However, this tool does not incorporate video conference rooms that allow for real-time meetings with students. Therefore, faculty are using other tools, the results of UOP academic staff indicated that it was used Zoom platform to deliver lectures in the beginning of Covid-19 crisis, and they transferred to Microsoft Teams due to features limitation and Zoom was not secured. In addition, Facebook, Skype and WhatsApp were used as supplementary tools to communicate with students easily and simply, however, these tools has some disadvantages as they are informal tools, and very basic. As for technology tools the UOP staff have used White Board, Share Screen-Control Request to deliver practical part of design studio courses.

As for UOG, they main platforms were Microsoft Teams and LMS (Creatrix) to deliver the lecture. The academic staff of UOG have used various technology tools to facilitate practical part of design studio courses such as Wacom, IPAD tablet, Sketch Book software, White Board, Share Screen-Control Request and Videos. Table 1 shows the details of using platforms and technology tools for both universities.

Table 1. shows the details of using platforms and technology tools for both universities

Design Phases	Platforms									Technology tools					
Interior design studio phases	Zoom	Microsoft Teams	Moodle	Skype	Creatrix	Facebook	WhatsApp	Email, outlook	Email with one drive	iPad tablet	Wacom	Sketch book	White board in Teams	Videos	Sher screen & control
Programing case study site analyses	UOP.	UOP. & UOG	UOP.	UOP.	UOG	UOP.		UOP. & UOG	UOP. & UOG					UOP. & UOG	UOP. & UOG
Schematic design	UOP.	UOP. & UOG		UOP.		UOP.	UOP.	UOP. & UOG	UOP. & UOG	UOG	UOG	UOG	UOP. & UOG	UOP. & UOG	UOP. & UOG
Design development	UOP	UOP. & UOG	UOP.	UOP.	UOG	UOP.	UOP.	UOP. & UOG	UOP. & UOG	UOG	UOG	UOG	UOP. & UOG	UOP. & UOG	UOP. & UOG
Final project (delivery and presentation)		UOP. & UOG	UOP.	UOP.	UOG.			UOP. & UOG	UOP. & UOG					UOP. & UOG	UOP. & UOG

4.2.4 The effectiveness of educational factors while using distance education during Covid-19

Table 2 shows the summary results of effectiveness of educational factors during distance learning (advantages, and disadvantages)

Educational Factors	Online Course
Engagement	Partially work , some students cannot be engaged, students were shy to interact
Social Activity	Totally work, such community service workshop can be delivered successfully using virtual environment
Environment atmosphere	Partially work, some learners or instructors' atmosphere not appropriate for taking or giving online lecture
Instructor support physically	One of the disadvantages of distance learning is the absence of instructor physically.
Reality Experience	Regarding the covid19 crisis, using distance learning is the only solution to face it, it was very excited experiment gave the instructor and learners good experience by using simulation experiment, on the other hand, site visit was missing, using university workshop and labs to do experiment
Communication Skills	Verbal communication skills can be delivered using virtual environment, but body language discussion face to face were missing

5. Discussion

The main goals of the present research were to propose the ideal usage of technology tools and platform for interior design educators and administrators to assess distance learning during Covid-19 pandemic. And also, to provide assessment tools for interior design programs considering implementation of online learning like delivery technology tools, interactivity (student's engagement) and faculty participation/development. These goals were achieved by using mixed methods qualitative (academicians' interviews) and quantitative methods (students' questionnaires) to gain students and instructors perceptions and experience about online learning for design studio courses. This research used two case studies to answer the research question based on the interior design program at UOP in Jordan and interior design engineering program at UOG in Bahrain.

COVID-19 pandemic is making the pedagogy profession rethink education, not only through implementing the known, but also discovering new potentials within the interior design education. This study opened-up and moved through exploring a very critical area in the interior design education and its efficiency. Furthermore, it has shown how a challenge was turned into an opportunity. This research provides an important window for instructors and learners on the better platforms and technology tools to deliver online learning for design studio courses.

The data shows that online learning has partially facilitated design studio courses, and this was agreed by students and instructor. It was clear that the students faced some challenges during distance learning such as internet issues, and feedback for their projects. The nature design studio courses are

very critical as it needs f2f feedback. It is obvious from data that Microsoft Teams is considered an appropriate platform to deliver online learning. It has suitable features to support teaching design studio courses by using White Board Tool Shared screen to show the students technical drawing and sketches.

It is noticed from results that students in both universities valued the social interaction in distance learning. The feedbacks between groups and sharing the opinions in class and online discussions helped the students in constructing new meanings and juxtaposition different points of view. Educational practice, and consequently – educational technology – is always context dependent. The LDS approach places an emphasis on documenting and articulating the context in which the pedagogical challenge is situated, and carefully referring to that context in the design of the solution. This research found that it is important for interior design education to adapt the students-center learning method: the focus of efforts shifted from the design instructor to the students. Additionally, it was found that using the competences-based student-centered approach and constructive alignment in interior design courses increases the effectiveness of teaching and learning methods enhances the design studio virtual environment and focuses on students' engagement in their design process.

It is interesting to note that the findings indicate that UOP and UOG using different technology tools for assessment methods for design studio courses help students to develop their learning outcomes; and informs instructors about the effectiveness of their teaching. The instructors and professors are required to develop and use different assessment methods and link them with the intended learning outcomes to give students feedback in order to develop their work. Furthermore, the students should know the purpose of assessment, the intended learning outcomes of each design phase, the degree of quality and performance of their design, and the criteria of the judgment and evaluation before the assessment take place. The involvement of students in assessment produces effective learning and enhances their design motivation. Self and peer assessment play important role in learning and teaching methods. They encourage students to become independent learners; increase their self-esteem and develop the negotiation skills and help them to engage actively in learning process.

Therefore, using appropriate platforms and technology tools help to use different design assessment methods. These assessment methods increase the objectivity and decrease the subjectivity of design assessment because it is the affective way to measure fairly the students learning outcomes. The LMS (learning management system) in these two cases approach place an emphasis on documenting and articulating the context in which the pedagogical challenge is situated, and carefully referring to that context in the design of the solution.

6. Conclusions

- The paper demonstrated through the case study how the crisis was managed in terms of the syllabus delivery and assessments and to be able to complete the second half of the semester (Spring 2020).

- The paper highlighted some challenges associated with these transitions and highlighted some lessons learned from this crisis.
- The results of this study encompass important considerations for the distance education in studio of interior design programs.
- instructors who plan to teach online face more challenges and difficulties than in traditional classroom teaching.
- Use the technology to expand the Distance education process, such as collaborating with other international firms in an online learning environment, accessing a wealth of information and increasing interaction. because the learning does not happen in isolation specially in practical courses.

7. Recommendation

- The application for this method at the first time needs intensive internet recourses, more time for learning and training to the new plat forms and technology tools, good cooperation between different instructors and subject coordinators. However, within the time this method will be more useful in future.
- the development of academic staff is needed to increase awareness of learning needs of all interior designer students. They require redesigning and aligning their curriculum and courses syllabus according to the requirements of new methods. in distance education During COVID-19 Pandemic
- Future work may involve analysis of different experiences of colleges across the globe and how they handled the crisis.
- This may enrich the overall experience of managing this crisis in the future.
- Also, we may need to explore reviewing policies and education risk plans to see how they can be changed to cover such risks.
- We may need to explore methods incorporate with online teaching to enhance students' engagement.
- We need more empirical studies to explore if the course outcomes have no significant difference when students are taught online versus students had regular education. Acknowledgements
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