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# Quality Assessment of Online Design Studio Courses

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*Abstract*

A design school's core curriculum includes a physical design studio class in all design disciplines. The COVID-19 pandemic led to a switch from physical to online education. Students and instructors had no prior experience with online courses when the shift occurred in February 2020. There have been concerns raised about the quality of online education. Students' evaluations of online design studios were used as a basis for assessing their efficiency, and then factors affecting their satisfaction were examined. An online survey was filled out by 228 students in four academic institutions in the kingdom of Bahrain via Google Forms for different interior and architectural schools using MS Teams and Zoom platforms in the academic year 2021/2022. There were significant influences on respondents' satisfaction with the online design studio course by online learning systems, classroom presence, stability of the online learning system, feedback from studio instructors, demonstrations, and course content designed for online delivery. Based on the findings, developing a replacement design studio model that enhances learning and supports design practice is recommended.

Keywords: Design Studio, interior design, architecture, online teaching and learning, blended education, COVID-19, virtual technology, virtual design studio.

## INTRODUCTION

There had been a boom in distance learning since the mid-1990s, which is considered a new paradigm for teaching that has attracted many students because of the positive impact it can have on their future careers, but little is known about how high quality these online courses really are (Al Maani, Alnusairat & Al-Jokhadar, 2021). With the development of ICT and social media, the educational system has been radically altered around the world and provides lifelong learning opportunities through resilience in education. In order to reshape design studio teaching, virtual shared spaces are created that simulate traditional studios in which coursework is delivered (Bangert, 2004; Fotaris et al.,2015; & Lee & Lee, 2020). Because of COVID-19, e-learning platforms have changed the nature of education around the world, and

online instruction has replaced face-to-face instruction. In addition, pedagogy and course design have changed significantly, requiring all parties to interact online (Hart, 2012; Peimani & Kamalipour, 2022; Saleem et al. 2022). In this case, the question is how e-learning can produce better results as well as academic achievements. Students' performance and satisfaction can only be analyzed to uncover the answer. According to Bangert (2004), authentic examples, feedback, and cooperative group work are effective in online teaching practices that promote durable learning, and students' evaluation of teaching has been shown to be an effective method of assessing teaching effectiveness. In addition, increasing the quality of feedback by allowing international members to serve on design project jury committees. Through problem-solving exercises requiring students to apply new skills to new problems, students can gain insight into concepts through discussion, listening, and reflection with peers. Martín-Gutiérrez et al. (2017) argued that students' academic performance improved using virtual technology as they become active learners with this new experience. In addition to being able to watch instructor comments and discussions at any time, online studio learning has the advantage of allowing students to listen to them at their convenience (Saleh, Abdelkader & Hosny, 2022). Furthermore, students with disability can participate easily in this virtual technology. However, different studies focus on the benefits of the online pedagogical teaching approach due to the COVID-19 pandemic such as the flexibility of time and place (Dammaj, 2018). Conversely, limited scholarly pointed to the challenges such as low internet quality in some areas, reduced learning from peers, and the lack of students' social interaction which may hamper online learning (Saleem et al. 2022; Izadpanah, Şekerci & Özkul, 2022; Peimani & Kamalipour, 2022). They added that ICT technology facilitates efficient and effective online education, therefore, it requires both students and faculty to be familiar with the rapid advancement in this technology. In the absence of research on online design studios and different experiences in transferring from face-to-face to online or hybrid delivery systems due to COVID-19, there have been few research studies on online design studio courses. Ondrejka (2000) discussed that visual demonstration is core for design programs, therefore, it is essential to observe the design work of buildings and objects on a shared platform that allow the discussion and development of design concept.

Using evidence from delivering different design studios in Ahlia University's interior design department and adopting online studio classes in 2021–2022, this study examines student satisfaction and potential areas of improvement for online studio classes in the future.

## Traditional Studio Environment

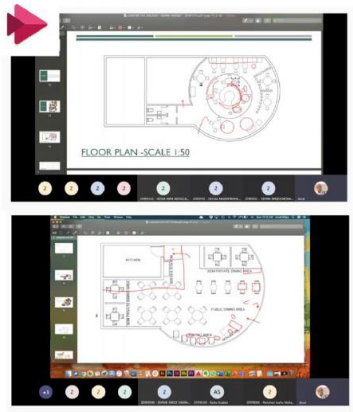
According to Dutton (1987), design studios are reactive learning environments that integrate knowledge and skills from theoretical

courses. Students participate in a variety of activities, such as drawing and building models, and alternate between analytical, synthetic, and evaluative thinking styles.

Meanwhile, this traditional design studios experienced many changes because of the new technology and digital media. Iavarone (2021) stated that the world changed, therefore, education systems must adapt to these changes. Moreover, traditional design studios need to be improved to align with contemporary educational models. A design studio is crucial to the teaching of design pedagogy for buildings that impact people's quality of life. This educational environment educates students 'theoretical knowledge and activates the dialogue between studio lecturers and students. In addition, the design process that involves creating ideas is iterative, students get feedback and critiques from their instructors and peers, the main mode of studio-based learning for different design programs whether in interior design, architecture, or industrial design (Shao, 2007; Broadfoot, 2003; Tumusiimeyste, 2013).

Online Design Studio at Ahlia University

The BSc in interior design at Ahlia University is a 4-year program, with two design courses per semester along with other theoretical courses. A virtual design course was conducted at Ahlia University during the lockdown on February 2020 for five design courses (INTD 212, 216, 311, 404 & 417) using Moodle and MS Teams (Fig.1). These platforms provide a social space that offers a potential that allows the exchange of ideas, tutorials, organize meetings, and provide communication with their peers and lecturers to upload sketches, pictures, videos, etc.

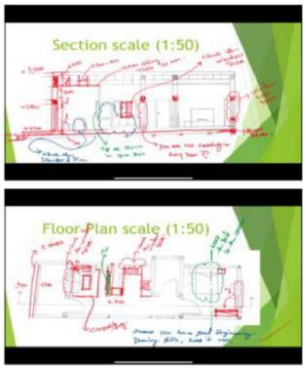



Sample of feedback given to the students

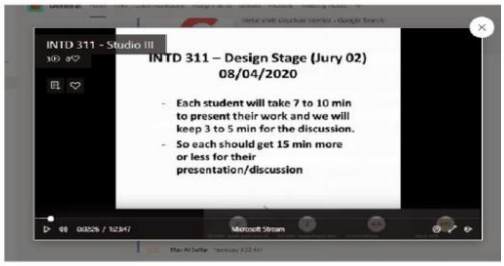
Screenshots from Microsoft Teams


INTD216: Mid-Jury - Online Discussion
Direct link to the discussion:
https://web.microsoftstream.com/video/35034cc3-dc90-43a8-b912-6df71c3aa82e

Source: Different courses
Date: -
Content: Screenshot from different sources




INTD 212
Witten feedback to student
(210819972)




INTD 311
Type: Mid term Jury – Online discussion
https://web.microsoftstream.com/video/5cde2d07-27c1-4993-bb33-b0a024e5fe33

## LITERATURE REVIEW

The environment of traditional design studios has changed from physical education system to online learning system due to the spread of coronavirus in 2019. The growth of digital technology, as shown in computer programs like AutoCAD, Photoshop, and 3D Max Studio, had a significant influence on teaching methods in the mid-1990s, during which Online Design Studio thrived (Shao, 2007 & Izadpanah, 2022). In addition, the online studio system simulates the traditional studio as it is flexible in time and space and facilitates one-to-one communication between parties allowing the lecturer to check students' progression by tracking their records (Hart, 2012). This integration of traditional studio skills with digital media give rise to new design pedagogy. Iavarone (2021) claims that traditional design studios should be adapted to the new technology and nowadays digital tools which as a result remodel face-to-face design studios into online, hybrid, and blended learning. Dammaj (2018) & Ismail (2012) discussed that there are different deficiencies in traditional design studios as they reduce the development and motivation of students' creativity as more time had been given to produce drawings using traditional media that lack the effect of light, color, and finishing materials in space. According to different researchers (Salama and Wilkinson, 2017; Alnusairat et al., 2020; and AlMaani, Alnusairat & AL-Jokhadar, 2021), certain types of programs, including design programs and some engineering disciplines, have pedagogical deficiencies if delivered entirely online, particularly for programs requiring studios and labs that require face-to-face interaction, so a blended mode is the best way to deliver such programs. According to Saleh, Abdelkader & Hosny (2022), online design studios do not foster competition between students because students cannot

interact directly with one another. Nowadays, the visual platforms with the new visualization technologies that use simulations to display buildings in the real world not only facilitate interaction with various parties, particularly in architecture and interior design practice, but also shift different computer software from drawing to designing a three-dimensional environment that provides a sense of the designed space. Students' performance and satisfaction during the COVID-19 epidemic have been largely unknown. Many architecture schools across the world are interested in offering online design studios and prefer blended learning that combines learning online with face-to-face instruction (Schnabel,2001; Izadpanah,2022). In blended learning, various types of activities, such as lectures, self-study, and the use of digital material are combined to meet learning objectives and enhance student performance. Design education is elevated by this hybrid approach that combines face-to-face interaction and online learning with digital technology. Peimani (2022) argued that blended learning has the potential of supporting learning and teaching using digital technology and on-campus student lectures that facilitate interaction with faculty and peers. A study by Lee& Lee (2020) found that blended learning is preferred as it is more effective than face-to-face classes by students who study design. Using Teams and Moodle as an online learning platform can adversely affect some students when trying to access courses, according to Bangert (2004). As a result, students and instructors cannot only communicate through Teams and noodles, but also through a blended online and face-to-face method. Both teaching systems have their pros and cons threatening design education. Although the online system has the problem of unstable internet access due to the increase of online classes, the lack of skills in digital technology, and learning content as design programs need considerable practical instruction all influenced students' satisfaction with the online learning system and lead to a motivational problem. To measure educational success, academic satisfaction can be used, which is an accurate measurement of learning outcomes. In this study, the results indicate that learning outcomes and student satisfaction in online courses are significantly influenced by the course design, instructor competence, prompt feedback, and students' expectations.

E-learning systems are more likely to be accepted by students and perform better when they are designed well. In addition, the well-designed course lays out the curriculum, goals, organization, and structure of the program (Gopal, Singh, & Aggarwal, 2021).

- According to Bangert (2004) & Grammatikopoulos et al. (2014) the quality of an instructor's teaching effectiveness can be assessed by the feedback provided by students.

- The feedback instructors provide students about their performance is crucial to finding out their performance and improving their learning outcomes.

- The expectation of students affects their performance and enhances their learning satisfaction.

The following research question was formulated based on the literature:

- What was students' experience of online design studio classes?

- How do students prefer to take online studio classes?

- Is there a need to improve online studio classes in any area?

## METHODS

In order to gather information, a range of relevant literature sources were reviewed, including peer-reviewed journals that discussed the difficulties and changes brought on by hybrid learning. Using the evidence provided by the students, we can design a design studio model that meets the market's competence criteria. Therefore, 228 students studying BSc in interior design and architecture and taking several online studio courses were briefed on research purposes and confidentiality. Sixty-two students were in their fourth year, 72 in their third year, 58 in their second year, and 38 in their first year. There were 167 female students and 61 male students in the sample. Two sections of the study are discussed, the first is about demographic factors, such as field of study (interior design or architecture), gender, and education level (undergraduate level). The second phase involves assessing students' expectations and satisfaction using a Likert scale from 1 (totally disagree) to 6 (Totally agree).

Data collection was done through Google Forms, 250 questionnaires were distributed, and 228 of them were returned. According to the sample, 73.8% of the students studied interior design, while the remaining percentage studied architecture, with 81.2% females and 18.8% males.

## RESULTS

An analysis of data was conducted using SPSS on a sample of 228 students to measure instructor quality, communication skills, and enthusiasm regarding online courses that help the students to feel comfortable. The Microsoft Teams software provides personal communication between instructors and students, allowing announcements, clarifications, and general course information to be sent. There were 25 questionnaires completed by study participants to

analyze how the first four variables impacted their performance and satisfaction. As shown in Table 1, the reliability was 0.94.

During the semester, MS Teams and Moodle were used for personal communication with students, distributing announcements, uploading assignments, and providing information about the course assignments. Additionally, during regular instructor office hours, students and instructors had the opportunity to interact. It was rated by 94% of students as effective at communicating with students, 93% as providing personalized interactions, and 95% as being accessible (95%). Additionally, 98% of students rated their instructors as caring for them (98%), respected for their learning (100%), and enthusiastic about online teaching (92%). The course was also perceived as being designed so that students would be able to interact with each other and discuss assignments. Moreover, many students said the course empowered them to take responsibility for their education and that the assignments motivated them to learn.

It has been shown that feedback can enhance student performance according to Bangert (2004). Moodle and MS Teams provide feedback by correcting different assignments, and approximately 87% of students surveyed agreed that feedback supports their learning.

During the survey, students' high expectations and performance revealed that good examples and demonstrations by the instructor helped them submit their assignments. It was reported that 87% of respondents were satisfied with the instructional materials and projects briefs in design studio courses and the projects were challenging. Despite this, most students (83%) found the instructor flexible regarding assignment completion.

Student responses frequency

TA= Totally agree (6); A=agree (5); MA= Moderately Agree (4); MD= Moderately disagree (3); D=disagree (2); TD=Totally disagree (1).

M=mean; SD=standard deviation.

| **Questions** | **Percentage** | | | | | | **M** | **M2** | **SD** |
|---|---|---|---|---|---|---|---|---|---|
| | **TA** | **A** | **MA** | **MD** | **D** | **TD** | | | |
| **Relationship between students and educators** | | | | | | | | | |
| Effective communication was made by the instructor. | 107 | 107 | | 7 | 7 | | 5.3 | 29 | 4.9 |
| The instructor was excited about teaching | 74 | 107 | 33 | 7 | 7 | | 5 | 26.1 | 4.6 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| online. | | | | | | | | | |
| Concerned about the students' education was the lecturer. | 164 | 47 | 10 | 7 | | | 5.6 | 32 | 5.1 |
| General regard for student learning showed by the instructor. | 157 | 71 | | | | | 5.6 | 32.6 | 5.2 |
| I could contact the instructor out of the online course. | 130 | 50 | 40 | 8 | | | 5.3 | 29.1 | 4.9 |
| A comfortable learning environment was created by the instructor, who used a wide range of social media. | 50 | 137 | 28 | 10 | | 3 | 4.6 | 25.3 | 5 |
| **Design of the course** | | | | | | | | | |
| The course was properly structured. | 125 | 69 | 22 | 12 | | | 5.3 | 29.3 | 4.9 |
| Students may complete tasks wherever they are thanks to the course's flexible design. | 52 | 119 | 16 | 7 | 7 | 17 | 4.5 | 22.8 | 4.2 |
| It was impressive how well the instructor facilitated the course. | 91 | 108 | 21 | 4 | 4 | | 5.2 | 27.9 | 4.8 |
| I was supposed to be able to be in charge of my own education thanks to the way the course was created. | 202 | 26 | | | | | 5.9 | 34.7 | 5.4 |
| **Prompt feedback** | | | | | | | | | |
| My inquiries regarding using MS Teams received timely answers from the teacher. | 176 | 52 | | | | | 5.8 | 33.5 | 5.3 |
| My inquiries concerning the general course requirements received timely responses from the instructor. | 178 | 50 | | | | | 5.8 | 33.6 | 5.3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| My inquiries on the course assignments received fast responses from the instructor. | 204 | 24 | | | | | 5.9 | 34.8 | 5.4 |
| My motivation to do well came from the instructor. | 118 | 62 | 17 | 25 | | 6 | 5.1 | 27.6 | 4.7 |
| **Students' expectations** | | | | | | | | | |
| Assignments could be done in a variety of learning environments due to way the course was designed. | 147 | 49 | 14 | 7 | 8 | 3 | 5.4 | 30.2 | 5 |
| The difficulty level of the design studio tasks was acceptable. | 112 | 86 | 30 | | | | 5.4 | 29.2 | 4.9 |
| We receive excellent explanations from our lecturers | 154 | 53 | 10 | | 6 | 5 | 5.5 | 30.9 | 5.1 |
| **Students' satisfaction** | | | | | | | | | |
| There were many benefits to taking online classes. | 107 | 91 | 10 | 15 | | 5 | 5.2 | 28.1 | 4.8 |
| Online classes made me more interested in interior/architecture education. | 64 | 101 | 20 | 18 | 17 | 8 | 4.6 | 23.6 | 4.3 |
| My overall impression of the design studio classes is positive. | 95 | 107 | 26 | | | | 5.3 | 28.6 | 5.3 |
| Overall, online learning is my most valuable learning experience. | 91 | 109 | 16 | 12 | | | 5.2 | 27.9 | 4.8 |
| Others' ideas and views were tolerantly accepted by the instructor. | 86 | 31 | 44 | | | 67 | 4 | 20.4 | 4 |
| Regarding assignment submission, the instructor was flexible. | 161 | 62 | 5 | | | | 5.6 | 32.5 | 5.7 |
| **Students' performance** | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Online design studio courses strive to get the best results from their students. | 19 | 55 | 72 | 59 | 7 | 16 | 3.8 | 16.6 | 4.1 |
| The experience of taking online design studio courses gives one a better sense of confidence when addressing unfamiliar situations. | 85 | 72 | 71 | | | | 5.1 | 25 | 5 |

## CONCLUSIONS

This study's results have significant practical implications for different academic institutions to improve their online teaching in the future in case something like COVID-19 occurs in the future. There has been no research on how online learning during the epidemic affected students' satisfaction with learning objectives, the caliber of instructors, feedback from classmates, and their expectations. A survey designed to gauge student satisfaction revealed that almost all students (89%) felt that the course was worthwhile and helped them understand design education better. Also, results revealed that instructor quality plays a prominent role in student's satisfaction during online courses, leading to the conclusion that students' satisfaction is most affected by their instructors' quality. Furthermore, this study indicates that course design must allow students to acquire essential skills to meet their employment expectations (Gopal, Singh & Aggarwal, 2021). In addition, it has been reported that the different MS Teams meetings throughout the semester with the instructor as well as the group discussion through WhatsApp have enabled students to receive greater detail about their design projects. Some students expressed concern about the amount of time required to complete assignments and said that a real classroom setting would help them better understand their assignments. Bangert (2004) suggested to reduce student frustration, it is recommended that students who encounter difficulties contact their instructors to resolve any difficulty they are experiencing. As a final point, integrating (ICT) in blended learning has numerous potentials for improving design studios, incorporating AR and VR and developing the necessary skills for professional practice.

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