Covide-19 & Shifting from Traditional Teaching to E-learning; Design Courses in University of Technology and Applied Sciences

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Abstract

E-learning is taking a significate role to make education door opens for everyone in many higher education institutions around the world. In the Sultanate of Oman e-learning is applied in most universities and colleges, but, at the same time, the traditional method of teaching is preferred more. Sudden shutdown responding to government decision to fight Covide-19 pandemic on March 2020, University of Technology and Applied Sciences in Nizwa shifted from face to face teaching to learning from distance to cover the courses materials. This paper considers the possibility of teaching design courses via online learning platforms. Also, design teachers' and students' opportunities and challenges in communicating by using the e-learning platforms. In addition, how online teaching has affected students' performance. At the end of this paper, there is an explanation about the future of e-learning in the Sultanate of Oman.

Keywords: Online Teaching; Design Teachers & Students; Communication; Challenges and Opportunities.

1. Introduction

E-learning is an educational revolution that improved the learning methods and tools by using different online platforms; for example, Blackboard [1].

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In other words, e-learning is defined as learning via internet or any teaching materials delivered by using any electronic technology. Since the technology is changing to better every year e-learning and became an essential tool in education field [2]. Regarding to spread the Coronavirus pandemic almost all the universities around the world have successful transformation from old-style teaching to learning from distance; for instance, around 5,000 courses were prepared to be covered online within two weeks in Zhejiang University, China, United Kingdom, the Imperial College London registered high number of students in a new online course on the Science of Coronavirus, which it started in 2020 on Coursera platform [3]. This pandemic has made unexpected changes in education field in Oman, either for the teachers, students, or educational institutions, wondering how the courses are going to be taught once the schools and universities shutdown until the end of the academic year [4]. There are many researches that have conducted about e-learning effectiveness, platforms, and its' advantages and disadvantages, but this paper is going to focus more on teaching design program at University of Technology and Applied Sciences in Nizwa via online platforms during the suspension of study. Teachers overview about controlling and changing the method of teaching beside the issues that faced them. Interviewing design students from Graphic, Interior, and Multimedia Design majors to share their experience while using online platforms to communicate with their instructors. In addition, comparing students' marks between Spring 2019 and Spring 2020 semesters for the same course to analyze their performance, if it has affected by online teaching. The last point is about the future of learning from distance in Oman. This paper is going to help to know more about how to upload lessons' and assignments' plans or strategies for practical, practical-theoretical, and theoretical design courses and evaluation criteria. Modifying instructors' communication with their students by using online tools.

2. Literature Review

2.1 Terms and Definitions

Online teaching has three main terminologies, which are mostly known globally:

E-learning has been defined according to H. Rana and his colleagues [5] as increasing learners' knowledge and skills by using different online teaching platforms, and it is built on three basic standard points; as following:

Exchanging and spreading updated knowledge, and saving data possibility. Sending information through WWW. Providing a wide range of learning solutions. Distance Education is the method of computing for communication to deliver information from distance, as it is stated [5] that Distance Education has many features and they are listed below:

Affecting positively standard of an educational institution. Applying various media to send and receive knowledge between instructors and students. Simplifying the way of sharing data. Focusing more on one person than group of learners. Teachers become as knowledge maker. A virtual Classroom [6] is an online classroom where instructors and learners interact together, by clarifying teaching materials and responding to students' questions, it helps students to go through the uploaded lessons anytime they need to A virtual Classroom based on:

Live Video Lessons. Live Audio Conversation. Text Chatting. Online Whiteboard; electronic interactive screen. Online Library; extra learning resources. Any other tools provided by teachers; according to course materials.

3. Study Objectives

This research paper study is conducted to intent the following points:

- Improving e-learning teaching method for Design Courses, after implementing it for the first time at University of Technology and Applied Sciences in Nizwa.
- Preparing well organized online course curriculum.
- Selecting proper tools and manage time to communicate with students and responding to their clarifications.

4. Materials and Methods

The information of this study has been collected from primary and secondary research resources, staring with interviewing design students to know how it was effective for them to shift from traditional classes to use online learning tools in different design majors, the challenges and difficulties that they have faced in their courses especially in fully practical courses which depend on working in workshop, studio, and design software's. On the other hand, how learning from distance helped to improve students' skills and abilities to use technology for educational purposes. Moreover, to get students' feedback about this sudden transition that has affected their performance, and what they suggested to improve teaching design subjects via online. The interview has made to understand students' attitude toward e-learning and design course from different aspects. Based on discussing with other teachers from the Design Department, it was analyzed and inferenced the common issues faced instructors. Controlling the changes cover the rest of course's contents until the end of semester, and converting lectures to online lessons by using different platforms. Moreover, modifying practical assignments that should be followed up by instructors in class room, and paper exams to online exam. Switching group projects that completely based to be done in the college's studio or workshop into individual project finished at home. Another problem that has figured out is, lack of students' interactivity to teachers' announcements. More data has been collected from observing and documenting work process through teaching the courses. All of these consequences and problems collected from primary research motivate to look for their solutions in secondary resources about E-learning in higher education institutions with different specific main topics. Secondary research is including published papers from International Journal of Emerging Technologies in Learning, International Journal of Education and Development using Information and Communication Technology, Journal of Education and Training Studies from ResearchGate, ORCID Connecting Research and Researchers, ScienceDirect, Hundred.org. Furthermore, online articles from trusted websites, for instance; Scientific American, eLearning Industry, Wise-Qatar.org, World Economic Forum, Enableed Education (Online Learning Solutions), al-fanarmedia.org, Oxford Business Group, Learn Cube. In addition, online articles found in local newspapers which are Oman Observer and Muscat Daily.

5. Effectiveness of E-Learning

5.1 Effectiveness of E-Learning in General

It is assumed that switching from face to face teaching to virtual learning without prober preparing, as it has happened suddenly due to Covide-19 pandemic, will affect teaching performance. However, others think this transformation is going to impact teaching methods and open new doors for education future particularly in universities that fully focus on traditional teaching [3]. According to T. Wang Vice President of Tencent Cloud and Vice President of Tencent Education said "I believe that the integration of information technology in education will be further accelerated and that online education will eventually become an integral component of school education" [3]. Some researches approved e-learning is more productive, for example; around 25 to 60% of course's content thought through internet was remembered by students, whereas 8 to 10% retained while attending classes. Moreover, distance education is faster for students to gain knowledge it saves approximately 40 to 60% learning time rather than going to the classroom. As, it is flexible for them to go through the uploaded online lessons as many as they need and any time [3]. C. Li and his colleagues [3] stated that many universities around the world have showed their successful transition, it was quoted from Dr. Amjad, a Professor at The University of Jordan that e-learning has made a positive impact on the teaching method, it allowed to chat between him and his students more convenience by using Lark application. Dr. Amjad said he has used Lark during the suspension of study, and he is going to use it in the future, because it is easy to use for online video meetings, and upload document faster, moreover he trusted offline and online can work together and complete each other. Reasons to success this kind of education have been discussed by other researchers, referring to M. D. Beer and his colleagues [7], the first reason is that online learning motivate students to interact with e-learning application, another point to add is learning from distance can be more preferred than traditional learning because it leads to strong interaction among educators and learners. Moreover, well planned online course can solve to remove the educational boundary in geographical aspect. In contrast, traditional teaching teachers are enabled to control students' absence and missing up lessons, whereas; distance education effectiveness hang on students' activity outside the class [8].

5.2 Effectiveness of E-Learning in Design Program

Can Design & Art courses be taught online effectively? Andrew claimed that [9] many professional artists are using internet to post and share their techniques in order to benefit who are interested in art in comfortable and interactive way, however; learners may not live the same experience while being in art studio. E. Nwaodua [1] claimed that both Theoretical and Theoretical Laboratory Courses may be taught from distance. Online Theoretical Courses which need handouts can successfully be learned build on many online educators and learners experience, as they are accessible all the time for students to download their tasks in their own computers, for instance; Photoshop tutorials notes. Theoretical and Laboratory Courses and it is difficult to include courses that totally depend on studio or laboratory work, for example; in subjects where students have to work with tangible materials to recognize, and examine them. Many researchers argued teachers to record videos while explaining lectures to show the work process and development then share them with students by using online platform. Even though, the videos cover perfectly what it is done in the laboratory, the experience

and learning environment cannot be the same as in the classroom students are going to understand more deeply while working under instructors supervising. Based on interviewing design students from different majors about their opinion in virtual classroom for design subjects most of them said that it is beneficial because many tutorials about design software applications are available online, in addition designers improve their skill and inspire ideas through observing what it is new in design world from social media. Another point they mentioned learning from distance is more comfortable because they are channels to chat with their teacher discussing about assignments before submitting, also helps to complete projects or tasks faster and smoothly. In opposite, group of them were against the idea teaching design courses via online platforms. As, design students need a continues follow up from the teachers in classroom while working on practical projects, they believe learning from distance can affects their performance negatively. Moreover, they assumed that it is more convenient to communicate with instructors in traditional way.

6. Challenges and Opportunities of E-Learning

6.1 E-Learning and Design Academics

In order to have well-studied and prepared online course, teachers need to write accurate course outline, choose the suitable online tools or platforms to clarify course's content, project, and evaluation criteria [9], due to Covide-19 and un expected shifting to learning from distance design teachers faced many challenges and based on being a design instructor in Design Department at University of Technology and Applied Sciences, Nizwa the following issues have been figured out among department's teachers.

- The first challenge was how to change course's materials, tasks, and exams to fit with selected education platform system, with considering course objectives and teaching methodology in limited time. I. Yengin and his colleagues [10] stated that when deciding the teaching online method, medias, course resources, projects must be organized. Objects or medias of e-learning are as long as internet technology is spreading knowledge by any exist digital or non-digital system that is accessible all the time, for instance; Text, Audio or Video, Info Graphic, Interactive Presentation, and Test. E-learning services mean the platform or communication method between teachers and students, that could be by Discussion Forum, E-mail, Chat Room, Audio or Video Conference, and Wiki. In addition, course activities including Documentation for teaching materials, Online Discussions, Software Application, Assignments, and Exams through using online objects and services.

- Secondly, lack of basic IT skills with students to deal with e-learning platforms, for example; some students do not know how to turn on microphone while having audio conversation or they do not to reduce file size and save it with correct format in order to submit their project. Whereas, internet is a great and superior tool to gain knowledge for different learners' levels and demands, as M. D. Beer and his colleagues [7] said internet has no limit or end to spread information using up to date teaching technologies.

- Thirdly, lack of students' interactivity and responding to teachers' announcements and attending online video conversation. E-learning is a new trend in Sultanate of Oman according to an article in a local newspaper Oman Observer written by L. Kothaneth [11] it will take time to be accepted among

students and society. In addition, lack self-motivation and students are more satisfied talking to their instructors' face to face, some students are not use to employ technology in their learning. Another reason of less students' interactivity is social sensitivity as virtual education environment focus on exchanging, and chatting with other learners. Body language enhances communication between teachers and students especially when giving feedback, but it is omitted in e-learning. Person to person feedback encourage students to be active in class.

- The last challenge faced academics was controlling time for preparing and posting lectures, and answering students' questions and clarifications, because they have received e-mails all the day mid-night. It was stated that instructors have struggled to run their time when working with online education platforms, "cyber culture values" a quote from Reeder are featured with speed, reach and fast, and response [7]. Academics must to identify contact method and time, working in appointed time to present lectures and instructions and responding to students' clarification [12].

6.2 E-Learning and Design Students

Self-organized and motivated learners are the most part of students who beneficial from using e-learning technology, also they can watch how they are performing regarding to course's requirements [10].

Design students at University of Technology and Applied Sciences have shared their learning from distance experience for the first time through an interview;

- Many of them were happy to go through this new challenge and it gave students a great chance to use different online teaching platform, such as; Blackboard, Google Meet, Google Classroom.
- Moreover, they were comfortable using those systems, because they facilitate the communication between them and tutors, where the lecturers can give feedback to the students easily.
- Another experience they gained is to be more self- dependence in education from distance, by checking new announcements and following up course's tasks.
- Self-criticism is a skill learned during using virtual education, students said they have become able to evaluate their work and found out mistakes before submitting it.
- The last lesson learnt from this experience is respecting time, be punctual regarding online conversations and meetings. However, other design students faced many problems through this new experiment;

- The big issues are a weak internet service in countryside area and some students with limited income do not have internet connection at their home.
- Other students do not have personal computers. The first two problems were not only with design students, but they are a global challenge; according to   C. Li and his colleagues [3] said that in many countries and undeveloped countries some students do not have secure internet network and late technology development is threating online learning. Based on collected data from OECD in Indonesia just above 30% of students have their own computers, whereas almost 95% in industrialized country, such as; Switzerland, Norway [3].

- Practical courses that basically focused on working in design workshop and laboratory; it was difficult for some students to use Adobe software especially for the first time without direct teacher's guidance in the college's campus. It has been found by A. Annika [13] that traditional teaching method is more welcoming in developing countries rather than virtual leaning, students feel safe to move to another step in their project after instructor proven. In opposite, distance education is more about self-learning where learners must to search, analyze, study, and apply. Whilst, self- independent learners finish project's tasks by themselves without teacher following up, at the same time another group of them were in a maze spending long time to get out from it [14].

- Inconvenient environment to work and study at home, due to missing of professional tools for specific design courses, for example; technical drawing tables, photography equipment, furniture design materials. Lock down in many cities because of Covid-19 played a role to obstruct students to complete their project which related to practical courses because of absence of assignment needed materials at home, where they found themselves isolated and lost self-mastery [8].

7. Students' Performance from Online Learning

To study the impact of design students' performance via virtual classroom due to sudden changing in teaching method, Art & Design for Recycling is a practical course offered for third year students as department requirement course for all design majors at University of Technology and Applied Sciences, Nizwa. This paper is going to compare students' results between two semesters Spring 2019 and Spring 2020, in order to inference the effects of online teaching. In Spring 2019 semester the course was taught in university's workshop and 25 students were enrolled, first and second project have completed individually under teacher supervising by giving comments and improving work in classroom. Around 20% out of 25 students have gotten grade from A to A- in project one, and just over 15% in second project. Between grade B+ and B-, at the first assignment well over 30% of students have recorded the result, comparing to second assignment about 56% of them were marked. While, the low marks ranged from C+ to C- were registered for 44% of them in project one and 24% in second project. However, the final project students have worked as groups (each group contains 2 to 3 students) in the campus's environment, nearly 20 % of students have marked A, and almost 80% have got very good grades between B+ and B. In Spring 2020, 52 students took the course and it has been taught in two teaching methods, at the beginning of the semester it was covered in the university's workshop accurately first project. Students were followed by the teacher guiding them to come up with as possible as perfect creative art work which made of recyclable materials, the result was well over 30% of the students have scored high grades among A and A-. Most of the students performed well just under 60% of them recorded B+, B, and B- levels, although roughly 17% have not achieved project's objectives. In the middle of the semester, the teaching method shifted to learning from distance du to Coronavirus lockdown, therefore students worked on second and third assignments at home guided by teachers by using e-learning platforms. In project two, approximately 80% reached A and B grades, however just over 20 % submitted works with low quality. The third project has changed from group into individual work because of university's shutdown, the project has divided to weekly tasks which makes it easier for student to work on it and for instructor to follow up the progress and give feedback. At the end of the semester around 40% have fulfilled the project perfectly and got A and A-, and just under 30% of them submitted good and accepted work which placed in each B and C levels.
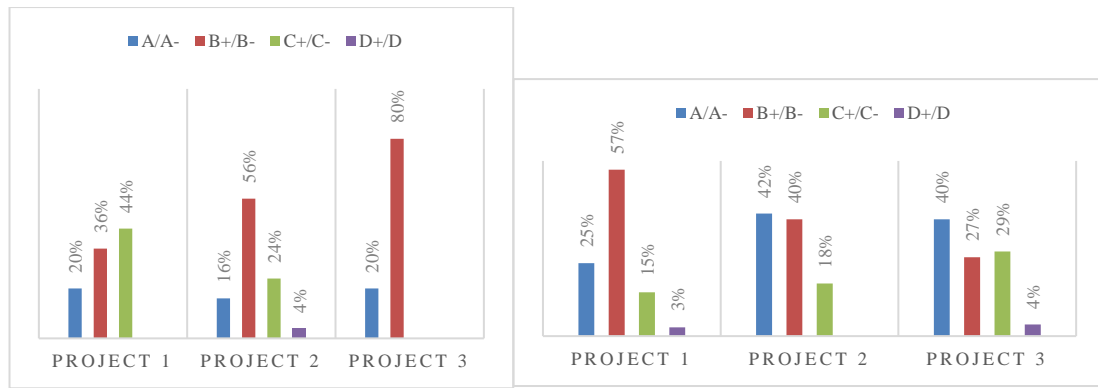
Students' Results Spring 2019   Students' Results Spring 2020

Figure 1

From the case study, it is found that learning from distance has not affects students' performance negatively, at the same time it has no direct or strong positive impact on learner's outcome. What can be noticed in Spring semester 2020 in project two and three which have been completed from distance most of the students scored Excellent and Very Good marks, and around 20% to 30% got low grades these clarify and emphasis that e-learning depends on Students Motivation & Interactivity and Instructor Guiding Style. According to some design students' responses from an interview done for them, they said that online learning has positive and negative influence on their results. Positively, it saves time moving from their accommodation to the university, so they have more time to study and work on their assignments, moreover they stated that distance education provides appropriate learning environment because it helps to organize their schedule and finish subjects' tasks on time. Negatively, they claimed that absence of face to face conversation leads to misunderstanding courses' and projects' requirements, and some instructor delayed to answer students' questions or do not give enough feedback all of these reasons played a big role in decrease learners' performance. Furthermore, they assumed that e-learning it is not success with practical courses, but only with theoretical subjects.

8. Preparing Online Courses

As Covied-19 is still spreading and new academic year is on the doors, online teaching mood is going to be used, University of Technology & Applied Sciences more specifically the design department is preparing the teaching methods that will work with practical, practical-theoretical, and theoretical courses. The department is planning to use synchronous and asynchronous modes, for example; in contact four hours teaching courses, two hours will be live lesson and two hours to upload recorded tutorials or giving activity. However, attendance will be taken in synchronous lectures only. The first thing the department is doing in order to have successful organized program is to convert and change some subjects' content and assignments to fit e-learning needs, as [5,15], mentioned that traditional course outline does not meet learning from distance requirements. It is a challenge for instructors to study e-learning area and students' behavior, in order to; determine which tool or method to be used to help students to achieve high results [16]. I. Yengin and his colleagues [10] said each element from the course including unites, lessons, prerequisites & goals, and tasks must be modified to support online teaching method, then decide the efficient learning tools to communicate with students. In addition, other

researchers conducted that to evaluate effectiveness of education from distance is totally based on sending information correctly [2].

Online courses structure follows many educational systems to reach learning objectives [2,16], instructors should consider the below points while preparing the course materials;

- Clarify and emphasis the importance of course's assignments and tasks in students career life.
- Introduce learning outcome for each project, and what students are going to fulfill at the end of the course.
- Provide guide lines or tips which will help students to finish the assignment on time.
- Provide short tasks before any project which will enhance student understanding and self-learning.

Furthermore, teachers should consider motivational factors that will stimulate students to interact and respond to online courses; The first factor Instructor's Feedback, is playing a big role to keep strong connection between students as there is no direct communication, when planning assignments and short exercises academics must to sit appropriate way to provide feedback for them [10]. Dividing modules into short lessons, is the second factor to encourage learners to be connected, W. Bao [8] said lessons preferred to narrow down into around 20 – 25 minutes, to keep students' concentration. Teaching method should divided into two aspects which are Offline Self-Learning and Online Teaching. On other words, Offline Self-Learning assists to make sure students are following what lecturers post in e-learning platform, by reading about a specific given topic regarding to the lecture and submit their short research or opinions before the class starts. In this way teachers are motivating students to up to date about new course content uploads, also students are going to be more independent self-learner, and think critically [7,8]. Whereas, Online Teaching part learners are involved in online chatting board to share about readings [8,17]. In addition, another important factor is Voice Tone which is forth point, as long as body language and face expressions are omitted in virtual education, teachers voice tone and the way they speak effect on students' motivation. Instructors must talk slowly and change sound levels to help students to enjoy audio or video tutorials and hold information [8].   Some researchers argued that academic must focus more on learners' gender, age, life style, and educational needs and motivation when preparing online curriculum. Moreover, they preferred from the teachers to use and apply more than one education technology in their program [16].

9. Future of E-Learning in Oman

Yusra Mouzughi is vice-chancellor at Muscat University said "What we have seen in many cases … has not necessarily been e-learning but delivery of the same (traditional) material on a virtual platform. E-learning has a different pedagogical base". Higher education organizations in the next months should provide more planned and resourceful learning from distance style, that will be shown on students' behavior and performance [18]. At the present time, instructors are giving their lectures from home? And the question is Does learning from distance is going to be used after the pandemic? In developing countries, it has been famous since 2000, and some high standard universities are providing free online courses as the Covide-19 is still here. Dr. Magd from The Modern College in Muscat assumed that, this situation has given higher education to become accessible for

any group age, and social and economic status. He also added it is indeed that it was a big challenge to shift from traditional teaching method into online without any expectation, however it is going to be easier for the academics to teach from distance in the coming semester because they will have enough time to prepare and modify the course contents in order to meet e-learning requirements [11]. ICT is a government e-service organization in Oman which support e-learning, although it has claimed from Ministry of Higher Education to not credence online bachelor's degree, but some universities and colleges have got ratification from the ministry to provide blended open courses, for example' Arab Open University. The strategy of ICT is to create and fulfill cooperation between knowledge, skills and values with technology in different education aspects and levels. The government is trying to improve teaching quality by building technological infrastructure for the educational organizations, by providing convenient environment equipped with computer laboratories, local network, and IT support from ICT. Furthermore, the system which followed by the government has achieved its online learning's objectives effectively and efficiently in higher education and it is planning to develop it by extending virtual classrooms, libraries and specialized vocational software [19]. The establisher of an Artificial General Intelligence Company in Oman, stated "COVID-19, as a black swan event, will change all the aspects of our life in a post-COVID time. The education sector will be heavily affected in this period and e-education and online learning will be common practice in the future. The pandemic has accelerated digital transformation in many sectors, especially education" [4].

10. Conclusion

To sum up, in the time the world is facing digital revolution impacting our life from different sides, it is also struggling with Covid-19 pandemic, however the virus has expedited digitalizing progress in society, industry, and education [20]. The unexpected transition in teaching method in Design Department at University of Technology and Applied Sciences, the academics and students have been in challenging condition which is learning from distance. In other words, teachers have to cover the rest of course's content and communicate with students using online platforms, which was a new experience for them. In addition, design students faced many difficulties following up lecturers' announcements and completing assignments because of they are not used to use e-learning technology, inconvenient study environment, and absences practical courses tools at home. Whereas, some of them have gained new skills while engaging with this study method. Students motivation and interactivity are some of the keys to success virtual classroom without effecting negatively on students' performance. Another way to make learning from distance effective is well organized and prepared course curriculum that meet online learning requirements. Omani government is trying to support online teaching style, by providing and building e-services foundation in order to enhance technology in different life aspects, especially education sector. Finally, because of this quick teaching method transformation in the world, the question is how the global market of education will be influenced, if e-learning will be kept after Covid-19? [3].

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11. Appendix

This interview questions are formed to collect Design students' experience about using e-learning tools to cover Design courses, during the suspension of study because of Covid 19. All the collected data will be used to write a paper about "Covide-19 & Shifting from Traditional Teaching to E-learning; Design Courses in University of Technology and Applied Sciences, Nizwa"

- As you are a design student, do you think that E-Learning is useful in Design Program? and why?
- What are the challenges that faced you while, using E-Learning tools, especially if you have courses based on Softwire or Studio?
- Do you feel that E-learning affects your performance positively or negatively? why and how?
- Have learned or gained new experience by using e-learning tools? if yes write what and how?
- Do you have any suggestions to improve Design teaching via e-learning?