Students Perception of Effective Online Learning: A Study of Practical Design Courses

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ABSTRACT

With academic online learning becoming an inevitable alternative to the traditional approach of learning for schools and colleges worldwide during the pandemic, there has been a greater need to investigate students' perception of online learning in academia especially for curriculum courses of special nature such as practical courses. With a need to fill a research gap related to the effectiveness of academic online practical courses, this paper aims to get some insights into how students interact with those specific course modalities virtually. This will enable us not only to evaluate student's learning outcomes but more importantly, facilitate and improve students' learning experience in virtual practical classrooms.

Interior Design major students from all levels of study at Jubail university college were surveyed. The students' answers were analyzed using SPSS with relation to their experience in taking online practical courses during the suspension. With both satisfaction rates and effectiveness of learned courses being positive, attention was given to the most important factors that affected the quality of online teaching and learning of practical design courses. The students' level and background were the most influential factors, while the course nature was affected by the course material availability and the instructors' effective feedback. The paper has also shed light on the role of both the teacher and students in the learning process along with other factors such as time, technology, and environment that were also examined and analyzed.

Keywords: Distance learning, perceived effectiveness, practical courses, design studio, student satisfaction.

1 INTRODUCTION

Online learning is expanding significantly, especially in higher education where it becomes an integral higher-education experience in most universities. Many factors are involved on the widespread of online learning including: the economic downturn worldwide, the need for people to up-skill themselves to turn into employable individuals and finally reducing the spatial problems as in pandemics. In 2020, covid-19 virus spread which caused a widespread shut down in traditional (face to face) learning systems (schools, colleges, and universities) and a shift to online teaching. This shift came as an eye opening for many educators regarding the importance of online learning which was not given enough attention by researchers. This study aims to contribute to the growing area of online learning by exploring the best possible practices for practical courses in specific.

Many studies have investigated online learning and its implications on students' learning experiences. Most of

those papers appear to regard all learning experiences as equivalent, despite the distinct differences between practical and theoretical courses. As the nature of each course is unique, the pedagogy used to achieve its outcomes shall not be identical. Not only the outcome matters, but also the whole journey throughout the course since the first beginning of a certain content.

2 RESEARCH OBJECTIVES

This study aims to contribute to the growing area of online learning by exploring the best possible teaching practices for practical courses in specific. This will enable us to improve and formulate a better learning experience for students in virtual classrooms.

1. To explore the underlying factors that shaped students' online learning experience.

2. To examine the main factors impacting the perceived learning experience for students in practical design courses.

3. To suggest a framework of efficient online teaching practices for practical design courses.

3 RESEARCH METHODOLOGY

3.1 Participants

The research target participants are undergraduate interior design students. All participants were enrolled in at least one practical course which has been taught online. Participants are 117 female students and recruited from all different levels: (freshmen, sophomore, junior and senior).

3.2 Method

Using a descriptive qualitative method approach, the study adopts a 5-point Likert scale questionnaire survey. Evaluations of student's perception of their learning experiences use a rating from 1 (Strongly Disagree) to 5 (Strongly agree). Statistical analysis of data is performed using SPSS.

The survey questions are divided into three parts. The first part includes questions that aim to collect student's information, level, nature of courses taught, and student's experience in online courses in general if any. The second part is related to the student's online learning experience in an aim to investigate the main factors impacting the perceived learning experience in practical design courses. Finally, the third part is designed to explore anticipated solutions from the students' perspective.

3.3 Procedures

The researchers took formal agreement to run the survey for interior design students. The survey was distributed electronically through students' formal emails and other communication channels.

Students were given one week to collect needed responses through google forms active link.

3.4 Measures

The survey outcomes were related to three categories. The first outcome was about the perception of online learning experience. The second part was about the role of teacher as well as students in the learning journey. The third part was to evaluate the effectiveness of online practical courses with relation to the online communication and course delivery parameters.

4 LITERATURE REVIEW

There is intense utilization of blended learning approaches for various courses depending on their nature, and there is a paucity of literature related to the possibility of blended/online learning approaches in laboratory and studio classes. The key differences between online and traditional learning are location, interaction, and intention[1][2][3]. Online learning is used as a blended learning technique that would require interaction between teachers and learners. online learning provides learning analytics that enables decision making based on the available data [4][5].

Self-regulated learning and learning behaviors that might be measured through the learning management systems are assumed like a revolution of making analysis to predict and solve potential problems throughout the learning process [6]. A personalized theme of education could be easily achieved through online learning, where all resources are available anywhere and anytime [7][2].

Studio and design courses require specific communication to convey ideas through the use of technology, sketching, and physical modeling[8][2]. It also has teaching and learning methods where the site visit, discussion, and experimental learnings are required[9].

4.1 Factors that influence online learning

It is significantly important to investigate students' experiences with the online learning classes, especially with its Continuous remarkable growth. It is not enough to depend on the student satisfaction; however, it is important to gain insight into the main factors which influenced the student's experience by asking detailed questions about how different factors outside and inside the classroom shaped the learning experience[9]. According to [10][2] efficient online student's experience can be judged by investigating the student's participation in the online environment.

Students' engagement with the online materials, discussions, teacher, peers and scoring a high result in different assessments, all can be indicators of an effective online experience. Of course, the student's participation patterns are influenced by many factors,

one of the main factors is: technology and how confident the student is with the website and the interface characteristics[2]. The second main factor is teaching strategies, which refer to the teaching methods and approaches used to reach the best practices of efficient online teaching. Teaching strategies can be categorized to four main pillars as reported by Kimberly: [4][11] clear communication, constructive feedback, timely response, and visible engagement in course activities.

4.2 Effective Online Teaching & Learning

High quality online teaching has the capability of providing students with the same knowledge they would gain in traditional classrooms[4][12]. The foundation of effective learning in general is applicable also to online learning[2][13]; however, certain aspects of online learning have been examined by scholars to fully understand its implications on the quality of the virtual learning experience. For example, studies have shown that higher students' interaction and engagement in the process of learning will lead to better or more effective learning experience. The more students are actively involved with the educational content, the more they will learn[13][14][15]. The technological tools and Web-based activities commenced by virtual learning creates an encouraging environment for such engagement.

McMurtry (2016) summarized the best online teaching practices that have been discussed in literature to "visible engagement in course activities, timely response, prompt and constructive feedback, and clear communication". McMurtry (2016) research findings; on the other hand, encompassed additional practices that includes fostering human connection by demonstrating care and empathy, communicating frequently, giving frequent, specific feedback, humanizing communication, and organizing the course spatially, logically, and temporally. Teachers have a huge responsibility to meet students' requirements and expectations for their preferred online preferences and learning styles given that students became more conscious and have clear expectations of what they look for in an online learning environment[16]. Existing research stresses on the value of professional development for instructors and the importance for them to have initial online experience as a student first to properly support the decision-making process of their future online courses[17][18].

4.3 Students Satisfaction in Online Courses

Although student satisfaction is prompted by their attitudes and perceptions[15][19], satisfaction was also found to be strongly linked to student's ability to achieve their goals[6]. Thus, examining student's satisfaction levels with online experience is a strong indicator of students' learning outcome[20].

There have been many studies examining the factors affecting student's satisfaction levels on their online learning experiences. Number of researchers highlighted the importance of instructors' role in this equation. For example, a study reported the importance of instructor feedback and engagement and its huge impact on learning in addition to satisfaction[21]. Another study by Mupinga et al (2006)[1], reported that more than 70% of students viewed good communication as the most significant factor they look for in an instructor.

Other studies, on the other hand, have shown that some student characteristics such as gender, marital and class status[21] and other variables related to the level of students[7] affect student satisfaction levels.

4.4 Students Perception of online Learning

Students and teachers have different perceptions towards online learning[22]. Conversely, student reflections, in particular, give an essential understanding of the various aspects of the learning process such as learning outcome, motivation, communication, satisfaction and performance[9][23][24][25]. More importantly, investigating students' perception of virtual learning unfolds valuable information about learning effectiveness and successful learning practices[7].

Positive students' perceptions of online learning were reported and explored by many scholars in literature. A study by Soffer & Nachmias (2018), showed that students viewed communication in online courses to be equally good or even better than communication in face-to-face traditional courses. Similarly, the comfort level in using technology and the flexibility students find in online courses is reported higher in another study[8][21]. In a study done by Miller and Redman (2010), strong connections were conveyed between positive students' attitudes and instructor presence and between positive students' perceptions and the use of creative technology in virtual classes. Further research has examined determinant factors that would affect student's perception[8]. Still, there has been a lack of research that explores the relationship between students' perceptions and their achievements in the online courses[13].

5 DISCUSSION & RESULTS

5.1 Role of Course Teacher/ Students

The interaction between course instructor and students is found to be the most critical interaction affecting the perception of online learning quality and outweighing student to student and student to content interaction[7]. Hence, both instructor and student play a significant role in the learning process. Responses of students in the survey were compatible with this notion as most of the students (47.4% and 19%) agreed that the success of the online learning depends heavily on the teacher's role.

4.02 out of five is the average scale of the student's responses. The significant correlation, P= .013, between teacher' role and the students' preferences to take other online courses. Most of the students who do not prefer to take other online courses, think that online learning depends heavily on the teacher role. The majority of the students who believe that teacher has a significant role in online learning were junior level (45.5%) followed by sophomore (23.6%) and senior (21.8%). Survey results obtained are supported by the findings of the literature review that highlighted the substantial responsibility carried by the instructor in the success of the whole learning experience[4][26].
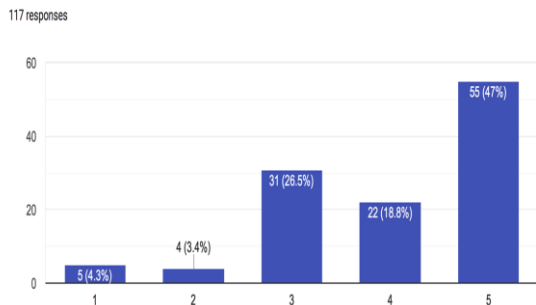

Figure 1: Participants' Response to (I believe the success of the online learning process depends greatly on the role of the teacher) on a 5-point Likert scale

Credit or Source: Authors

Similarly, most students strongly agreed that the success of distance learning depends on the student and his commitment and diligence. 4.18 out of five is the average scale of the student's responses. There is also a significant correlation, P= .000, between students' commitment and perseverance and their preferences to take other online courses. Most of the students who do not prefer to take other online courses think that online learning depends heavily on the role of the student. This may indicate students' reluctance to the extra commitment imposed on them during the online learning.
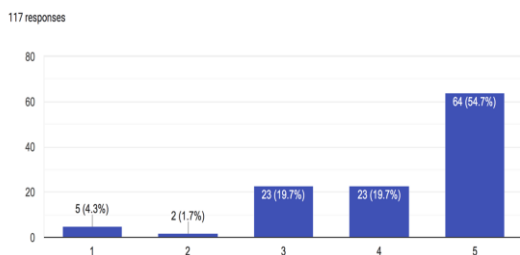

Figure 2: Participants' Response to (I believe that the success of the distance learning process depends on the student's commitment and perseverance) on a 5-point Likert scale

Credit or Source: Authors

5.2 Effectiveness of Online Learning

5.2.1   Course Teacher and Online

In view of the data collected, most of the students had available and updated course materials on the college's educational platform during their online study of a practical curriculum course/courses with more than half of the surveyed students showing strong agreement. In light of the student's experience, 65.6% of the students strongly agreed that the availability of course materials and updating them periodically is necessary for the success of the distance learning process. 4.45 out of five at the Likert scale is the average of all responses. There is a significant correlation between the students' level and the importance of updating learning materials periodically to them, P=.000, The majority of the students who believe that updating the learning material has a significant role in the online learning were senior level (35.5%),followed by junior level (31.6%),then sophomore (18.4%) and finally Freshmen (14.5).This shows that The more advance the level is the more students think that updating the material will greatly affect the online learning process.
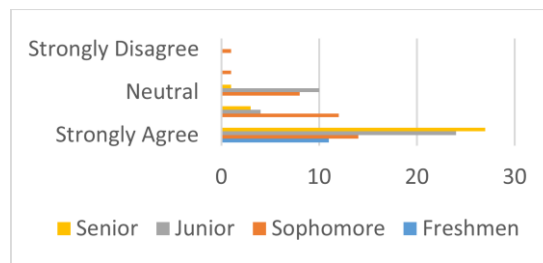

Figure 3: Correlation between students' level and the importance of updated course materials online.

Credit or Source: Authors

Moving on to teacher's accessibility and the ease of communication, most of the students (36.2 % - 30.2 %) agreed that the course teacher was accessible and easy to communicate with 0.467 correlation coefficients with their desire to have other online courses. There is also a significant difference between groups in communicating with the course teacher, where the highest level is for the senior students' mean with 4.48. There is a significant positive relation between computer level and the communication level with the course teacher. P= 0.004 as per the Kruskal-Wallis test results. Which can indicate that students with more computer skill found it easier to commentate with the course teacher.

5.2.2   Students' Role

This questionnaire provided the study with three main insights in relation to students. First, students' ability to gain and understand the practical skills as well as the feedback of their work. When it comes to the number of

skills and knowledge acquired, students were neutral in their choices. 3.16 out of five is the average scale of their evaluation of the acquired knowledge. This in return was expressed in their willingness to study other practical courses online. Despite the fact of the existence of a significant correlation, P= .000, between students' acquired knowledge and their preferences to take other online courses. The coefficient is .67 which is moderate and evident in a positive direction. In addition, there is a strong positive relation between the computer level proficiency and gaining the course knowledge P= 0.001, which demonstrate the importance of the computer skill in acquiring the practical knowledge and skill of the course.

Figure 5: Participants' Response to (I had the ability to understand and amend the written comments sent to me) on a 5-point Likert scale
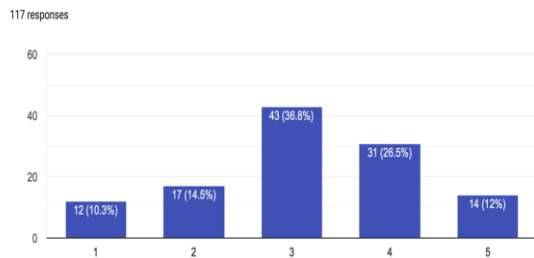
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Figure 4: Participants' Response to (By studying the practical course / courses remotely, I was able to acquire knowledge and practical skills for the course) on a 5-point Likert scale

Credit or Source: Authors

In relation to understanding the written feedback, Majority of students agreed that they were able to understand and implement the written feedback sent to them remotely with more than 28% of students showing strong agreement to the statement. Moreover, 25% of students agreed that they had the ability to understand and therefore amend their work based on the received comments. 29% of students; on the other hand, were neutral in their responses. A significant relation is found between the ability to understand and implement written feedback and the willingness to take further courses online with P value of 0.000 and a moderate correlation coefficient of 0.523. In fact, it has been noted that 46.6% of those students who showed unwillingness to take further courses online have difficulty apprehending the written feedback which highlights how this factor might alter students' decision in joining other practical online courses in the future.
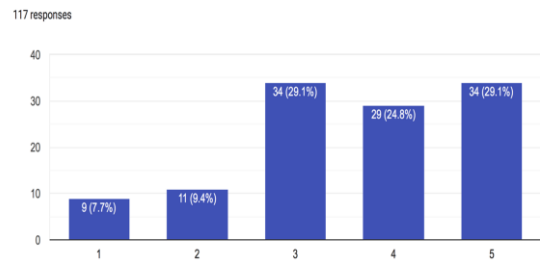
Second, with reference to students' ability to complete and acquire the practical skill. Most of the students did complete all the required assessments online, though when it comes to the number of skills and knowledge acquired, students were neutral in their choices. 3.16 out of five is the average scale of their evaluation of the acquired knowledge. This in return was expressed in their willingness to study other practical courses online. Despite the fact of the existence of a significant correlation, P= .000, between students' acquired knowledge and their preferences to take other online courses. The coefficient is .67 which is moderate and evident in a positive direction.

The sophomore level seems to be the most affected group throughout the online practical courses. They scored the least mean 2.64 between the four groups in the ability to acquire the needed skills. This level experienced the face-to-face courses for a full year and started to compare the previous experience with their ability to gain needed knowledge.

There is a strong positive relation between the computer level proficiency and gaining the course knowledge P= 0.001, which demonstrate the importance of the computer skill in acquiring the practical knowledge and skill of the course.

Third, regarding student commitment to online sessions. 95% of students affirmed commitment in attending online sessions conducted during their online courses. Still, the same group of students had different views on taking another practical course online (36.2% Strongly Disagree, 20.7% Disagree, 4.3% Neutral, 14.7% Agree and 8.6% Strongly Agree).
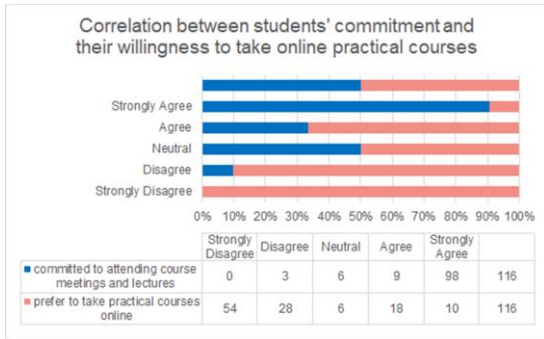
Figure 6: Correlation between students' commitment and their willingness to take online practical courses.

Credit or Source: Authors

5.3 Effectiveness of Online Learning

5.3.1 Time

As students' satisfaction was strongly linked to instructor's engagement and frequent, effective, and prompt feedback [10], factors such as time and number of students that might affect instructor's ability to give proper individual feedback to students are important to investigate. This will help to understand their implications on the effectiveness of the learning experience.

In the survey, students were asked to respond to the statement "The lecture time was sufficient to present the content and receive feedback". Most of the respondents showed agreement (32.8% strongly agreed - 25 % agreed) that the amount of time allocated for the feedback was enough with an average rate of 3.53 out of 5 on the Likert scale. This has a significant relation with their desire to take further courses remotely with a weak relation coefficient of 0.359. There is also a significant difference between students' levels (P=.009). Higher average responses were from seniors (4.19), freshman (3.72), sophomore (3.33), and then Juniors with an average response of 3.13. This can give an indication to the feedback level needed with relation to students' level.

There is also a significant positive relation between student's technological literacy and their evaluation of the time suitability to present the content and receive feedback. On the other hand, 61.2% of the students strongly agreed that the number of the students in each section is an important factor that affects the amount of feedback given to each student. 4.17 out of five at the Likert scale is the average of all responses.
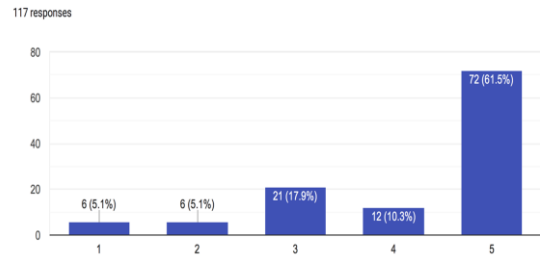

Figure 7: Participants' Response to (I believe that the student's number in each section of the course is an important factor in getting enough time for individual feedback) on a 5-point Likert scale

Credit or Source: Authors

5.3.2 Technology & Environment

Shifting from traditional classrooms to virtual meeting rooms demands a new set of arrangements for both instructor and students. Issues related to Internet access, possessing the necessary tools and equipment for the online connection, and having a convenient home study environment are all important elements to assess as they could disrupt student experience with online learning. These factors are therefore investigated in the survey.

Most of the students agreed (37.9% strongly agree and 24.1% agree) that they did not experience any problem with the internet connection during their online study of practical courses. Only 24.2% of students reported having problems in internet connection and 13.8% of students were neutral in their responses. In addition, most students agreed that they had a convenient study environment at home with a satisfaction rate of 3.79 out of 5 on a Likert scale. Higher satisfaction rate (4.22 out of 5) is reported on having the necessary tools and equipment for the online connection during their remote study of practical courses with an average agreement percentage of about 84% of total responses.
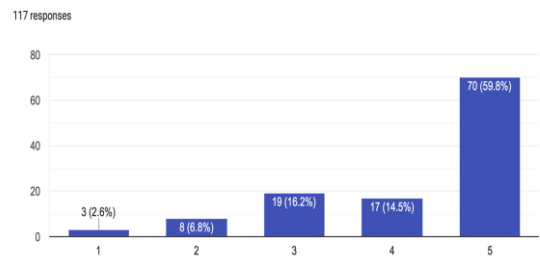

Figure 8: Participants' Response to (During my online study of a practical curriculum course/courses, I had the necessary tools and equipment for the online connection) on a 5-point Likert scale

Credit or Source: Authors

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A positive correlation is found between home environment and the desire to take other practical courses online with correlation coefficient of 0.532. Lower correlation was also found between having the necessary equipment and having updated course materials with the desire to take other practical courses online having a correlation coefficient of 0.229 and 0.289, respectively. Almost all students who are willing to take further practical courses online in the future expressed having a convenient environment at home, having the necessary tools and equipment for virtual learning, and had updated course materials on the institution's educational platform. This may indicate some significant factors in perceiving online educational experience.

5.4 Perception of Online Learning Experience

Coronavirus is a milestone that changed the way we look at things, especially education. As students are the main engine for the educational process, their perception and evaluation of the experience they had for online practical courses are essential to predict and decide on the possibility of retaking the experiment over and over again. The survey questions were formulated to measure different areas linked to students' perception of online courses in general and especially practical courses. The reliability factor of all survey questions is 93% which is a good indication of the used data according to alpha Cronbach's test.

When students were asked if they would prefer to take another practical course remotely, 46.6% of all students surveyed did not agree at all to study other practical courses online. Keeping in mind that the norm of their answer to the whole experience refers to neutral with 2.95 out of five, a significant correlation between the positive experience and the students' willingness to take another online course P=0.000. The correlation coefficient is 0.74 according to spearman's rho test, which indicates a strong positive relation between the two factors.
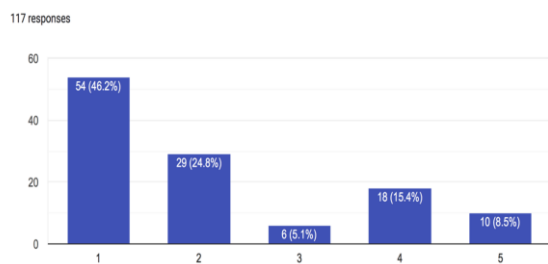

Figure 9: Participants' Response to (I prefer to study other practical courses online) on a 5-point Likert scale

Credit or Source: Authors

There is also a significant difference between the four levels of study in their willingness to take online courses. The lower the level the less satisfaction the group has. This is obvious from the Anova test significance score which is 0.001. The mean differences reveal that the senior students are the most satisfied group with their online experience of studying practical courses. It reaches 3.65 out of five, which indicates that students strongly agree. Keeping in mind that the homogeneity test of variance for the four groups is greater than 0.05.

Where the sophomore is having the least mean 2.39 and the senior mean is 3.65 out of five, this indicates the level of students' satisfaction during their online experience in practical courses. This likewise is corresponding with the significant positive relation between the students' ability to use computer programs skillfully, and their rating to take online practical courses.
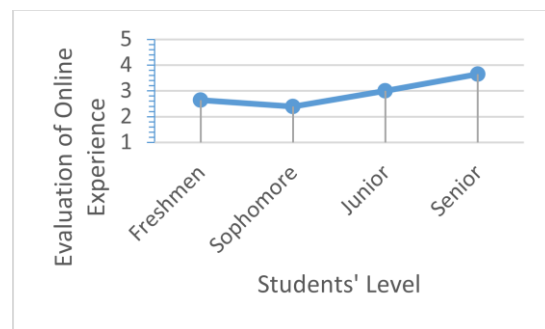

Figure 10: Students' Level and Evaluation of Online Experience Relationship

Credit or Source: Authors

Most of the students have a neutral response regarding the smoothness of the online classes, in terms of the delivery of the practical information. 3.09 out of five at the Likert scale is the average of all responses. There is a moderate correlation between the students' willingness in taking online practical courses with a significant P value of 0.000, the easier the students receive the information, the higher the willingness to take practical courses remotely. The sophomore level scored the least satisfaction rate 2.36 out of 5 in receiving information in a smooth way. This also matches the significant positive relation between computer level and receiving information through virtual classes smoothly where P= .003

Most students surveyed have a neutral response towards the efficiency of the received feedback with an average of 3.2 out of 5 on Likert scale. Still, nearly 26% of students strongly agreed that the online feedback given to them was both effective and helpful. Few students; however, did not find the received feedback being beneficial nor effective with 11.2% strong disagreement and 23.3% disagreement rate. Unsurprisingly, more than half of those students showed

unwillingness to take another practical course online in the future with different dissatisfaction rates. The correlation between effective feedback and the desire to take other practical courses online is a significant correlation (P= 0.000) with correlation coefficient of 0.562 indicating a positive moderate relation.
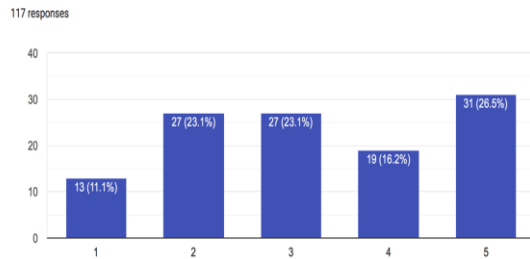

Figure 11: Participants' Response to (Receiving feedback online was beneficial and effective) on a 5-point Likert scale

Credit or Source: Authors

Regarding the accessibility of student's communication with each other during the online learning period, many of the students gave a neutral response, 2.73 out of five is the average scale of the student's responses. There is a significant correlation, P= .000, between students' ability to communicate easily with their classmates and their preferences to take other online courses. Most of the students who do not prefer to take other online courses think that online learning obstructed communication with their classmates, which is similar to previous results in (Panigrahi et al., 2018) article[13].

When it comes to the amount of time which online learning requires, students were neutral in their choices, 2.79 out of five is the average five-point scale. A significant correlation, P= .000, existed between the amount of time needed for online learning and their preferences to take other online courses. The majority of the students who do not prefer to take other online courses think that online learning consumes more time than usual. On the other hand, most of the students who prefer to take other practical courses online believe that online learning consumes less time.

6 CONCLUSION

Due to the many factors that are shaping the online student's learning experience, it is important to have a shared understanding of these factors and the best practices to deal with them. Both educators and students need a better comprehension of how to deal with the online obstacles. They need to be equipped with good technological skill, learning and time management skills[27]. As has been noted before, this paper approaches online learning differently with emphasis given to the students' perception of online practical courses. Many factors were examined and analyzed throughout the paper. One of the main factors is the

students' level, which showed that first- and second-year students are still having limited experience, as well as capabilities to handle practical courses remotely easily and efficiently. The more advanced the students' level, the higher satisfaction rate that can be achieved, as much as the students' achievements.

Shifting from traditional to virtual design settings unfolds issues related to place, time and communication channels that need to be examined. Pzedagogical differences between virtual and traditional design studios are linked to key challenges and opportunities associated with virtual learning[4]. Although such a design studio holds greater responsibility on the teacher, it also imposes an equivalent obligation on students to be accountable for their own work. The results of the survey in this paper have shown compatible perceptions where most students have considered teacher's and student's roles are among the key factors determining the success of online learning experiences.

Practical design courses have special nature where feedback and discussion are keystones to enhance students' information, knowledge, and self-confidence. Despite students' opinion being neutral about the feedback effectiveness, more than quarter of the students found the advice very helpful. In addition, students' communication skills need enhancement to post the quality of taught courses as high as their time effectiveness in handling practical virtual courses.

Although enrollment percentage in online courses continues to grow, online learning is facing many barriers[4][7], especially when it comes to the lack of social interaction. An emerging issue related to students' decision to drop out of online classes has been discussed in some studies. In this study it was noticeable that the students were unwilling to take further practical courses online due to several reasons, including the following: 1. the high reliance on technology, where new programs and software are used as part of the teaching method. 2. The increasing role of the students in terms of understanding, analyzing, applying, managing time and communicating during the course. 3. The unsuitable home environment, which can include the lack of a quiet place or the lack of the necessary tools and equipment for virtual learning.

Future Work and Limitations

The study took place for interior design major students at one college. This study might be repeated with the same content on other design students majoring in other national or international universities. The survey conducted directly after finishing one semester online, it could be repeated also for the same students in an extended study to compare results and come up with solid facts about the courses nature and the learning effectiveness.

Furthermore, Pedagogical issues arising from shifting design studios and practical courses in general from a traditional studio setting environment to a virtual room need to be explored further in literature in order to meet

the designated learning outcomes of such courses and accomplish an effective and meaningful design process for students.

Declaration of competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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