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Conflict of virtual and reality in interior design studio: Assessment of student success rates

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Abstract

This study evaluates the relative efficiency of interior architecture education programs delivered through face-to-face education (FFE) compared to online education (OE), from the perspectives of both students and educators. The quality of learning, as perceived by educators, was assessed through the analysis of semester grades assigned after each academic term. Conversely, the student perspective was gathered via a structured questionnaire. This research addresses a notable gap in existing literature regarding student success by incorporating the educators' viewpoints into the analysis with a comparative analysis examining student success rates between FFE and OE. This investigation, from the student perspective, found the FFE model to be a more effective educational approach compared to the OE model. The disparity between the instructors' perspectives was not significant. Nevertheless, valuable insights were obtained from educators utilizing the OE model, especially regarding their experiences during the pandemic. These insights could inform future research on hybrid educational models. As a result, this study advocates for the implementation of a hybrid educational model as a progressive direction for interior architecture education.

Keywords: face-to-face education (FFE), online education (OE), design studio courses, student success, pandemic

1. Introduction

With the declaration of COVID-19 as a pandemic, as of March 2020, every aspect of life has changed dramatically. One of these dramatic changes was that educational institutions urgently had to stop face-to-face education (FFE) and switch to online education (OE). In these emergencies, the pace of implementing the interventions was crucial. Hence, educational institutions had to adapt to this change urgently. In the case of this study, the investigated OE system was implemented rapidly, and the same education program was revised in 2017. This study adopts a holistic approach, comparing the experiences and outcomes of the OE model from the perspectives of students and educators concerning the impact on student success rates before and during the pandemic. Therefore, this research encompasses a seven-semester-long examination dating before and during pandemic experiences. In light of the changes instigated by the pandemic, the responsibility of educators and institutions to perpetually enhance the educational system has come under increased scrutiny. Thus, this study aims to explore innovative strategies for the further development of design education, informed by the insights gleaned from the OE experience.

2. Changes in the Interior Design Education System Due to the Pandemic

The design studio education model, which forms the core of interior design education, aims to reflect the one-to-one communication between the student and instructor and the interactive working studio atmosphere of the learning environment (Afacan, 2016; Ahmad et al., 2020; Dreamson, 2020; Gul & Afacan, 2018; Marshalsey & Sclater, 2020). Therefore, design studio education goes beyond solemnly being space as a studio to an educational approach in which

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theoretical and practical knowledge is regularly applied with one-to-one critiques between the student and the instructor. Due to the pandemic and the transition of the education system to the online education system, design studio education had to switch to online education. As already mentioned, the one-to-one relationship between student and instructor and the interactive studio environment forms the core of design studio education, and it is of great importance that these issues are adapted to online education as effectively and unaltered as possible. In this respect, adapting the design studio courses to online education housed a complication. Sketches are the tool of expression and communication in design, starting from the formation of the initial design idea, development, creation of technical and 3d drawings, and the critics between the instructor and student. In this case of online education due to the pandemic, it was predicted that this communication tool used in design courses would not be much easier to carry out in the online education system compared to face-to-face education (Oktay et al., 2021).

Online education was one of the educational methods that existed before the pandemic, developed over many years with the development of globalization and modern technology, and used by educational institutions (Afacan, 2016; Dreamson, 2020; Ginns & Ellis, 2007; Ioannou, 2017). This online education method, which has been used for years to support education, has become the only education method used by almost all educational institutions during the pandemic. However, it is also known that online training used in response to a crisis or disaster during the pandemic period is different from a thoroughly planned online training experience (Hodges et al., 2020). Therefore, online education before and during the pandemic, which was developed to sustain the learning experience amid the closure of educational institutions, should not be considered the same. According to Gümüş (2007), the online education system was traditionally defined before the pandemic as learning and teaching through electronic tools such as internet technologies and mobile communication tools. However, the online education system mentioned in this study also deprived the students of the university campus and its services, which became the only possible way of sustaining education.

As Gümüş (2007) and McCormack and Jones (1998) said, several issues must be considered when implementing online education. These are referred to firstly as online education's purpose, the reasons behind its adoption, and the achievements that are aimed at in the end. Secondly, a suitable pedagogical approach and appropriate online tools must be defined. Lastly, the adaptation through effective interaction, not just with appropriate software tools but through encouraging the students' participation (Gümüş, 2007; McCormack & Jones, 1998).

Another part of this changing age is the changing students (Prensky, 2001). Today's students are no longer the people our education system, which has been used for many years, designed to teach. This new generation has grown up with the changes brought about by the digital age and technology. As a result of the growth in this digital world, we know that today's students think and use information differently than before (Bhattacharjee, 2019; Oblinger, 2004; Prensky, 2001). In addition, these new generation students can communicate more easily in the online education environment than previous generations, as they have mastered different usage styles of online environments (Pektaş, 2015). However, online education has started to be used primarily to remedy an extraordinary situation due to a pandemic that suddenly appeared rather than adapting to this changing age and students. Therefore, while the online education system was quickly set up in a crisis, it did not have the time and equipment to construct the infrastructure a newly created education system would need. Instead, there was a rush to adapt existing course models to the new lifestyle as quickly as possible. While it may be possible to transfer courses and curricula in different disciplines in this way, it should be noted that this process in Interior Architecture education is particularly challenging within the scope of studio courses (Marshalsey & Sclater, 2020). In addition, many students and educators thought online education to be unsuccessful within the scope of interior architecture education (Ginns & Ellis, 2007; Ioannou, 2017). In other words, the traditional perception of Interior Architecture education is that design education is not learned outside of the studio environment and cannot be sustained without a mutual and face-to-

face dialogue between the student and the instructor. In other words, there were concerns that the one-to-one dialogue between the student and the instructor developed in the studio environment would be interrupted by online education (Ioannou, 2017). Therefore, converting the traditional studio model education to an online environment had multiple difficulties (Dreamson, 2020). Asserting these concerns, design studios' social interaction and character-enhancing experiences have been some of the most damaged elements in online Interior Architecture education (Dreamson, 2020; Iranmanesh & Onur, 2021). Although online education provided convenience in many areas, such as the increase in the use of computer-based drawing programs (McConnell & Waxman, 1999; McLain-Kark, 2000; Zuo & MaloneBeach, 2010), unfortunately, the sociocultural development of a student could not be provided in online education (Salama & Wilkinson, 2007).

3. Definition of Success in Education Models

It is believed that the evaluation of the success or failure of the Interior Architecture education method can be measured by the extent to which it reaches its ethical and ideological goals (Afacan, 2016; Ginns & Ellis, 2007; Gul & Afacan, 2018). Therefore, whether it is FFE or OE, the success rate of a design course can be measured by the level of fulfillment of the learning outcomes (Ginns & Ellis, 2007). Nevertheless, the depth of achievement of the learning outcomes of a design course by the student is not the absolute signifying quality of the success of the course. Such a superficial point of view does not provide detailed foresight to identify and develop the advantages and disadvantages of the education model used, especially within the purpose of this study, which is to compare two different education models.

Crowther and Briant (2020) present various definitions of academic achievement, one of which is the course grade average this study adopts. Hence, the paper investigates the grade evaluations, accounting for the design courses and the semester grades. Therefore, the grade given at the end of the semester in design courses identifies the success rate from the instructor's perspective.

Various methods used to assess the quality of education named as course experience questionnaire [CEQ] (Lizzo, Wilson & Simons, 1997; Richardson, 1994), study process questionnaire [SPQ], and revised two-factor version of the study process questionnaire [R-SPQ-2F] (Biggs et al., 2001) offers a more detailed investigation on the success rate of education models. However, the perspective used by these surveys is only student-oriented. Nevertheless, the success rate of an education model should be investigated from multiple perspectives. Analyzing an education model with only one perspective as a student perspective limits an in-depth investigation and understanding.

According to the article by Entwistle et al. (2002), six factors determine the quality of an education model, interacting and influencing the quality of learning (Figure 1). Firstly, the student's pre-experience, knowledge, judgment, and motivation. The student's knowledge and expectations before starting education also influence two other factors: learning approaches and the student's perception of the learning environment. The factors mentioned so far and their influence on the achieved learning are entirely student-centered. Therefore, the next factor in this concept is the instructor's pedagogical knowledge and teaching approaches. Regardless of the educational model employed, it is not an exaggeration to say that every instructor imparts a unique perspective to their teaching style. Lastly, another factor is how course material is selected, organized, presented, and evaluated, all contributing to the education and learning environment provided by the end of the day (Figure 1). These factors guide the analysis this study has adopted as its methodology.

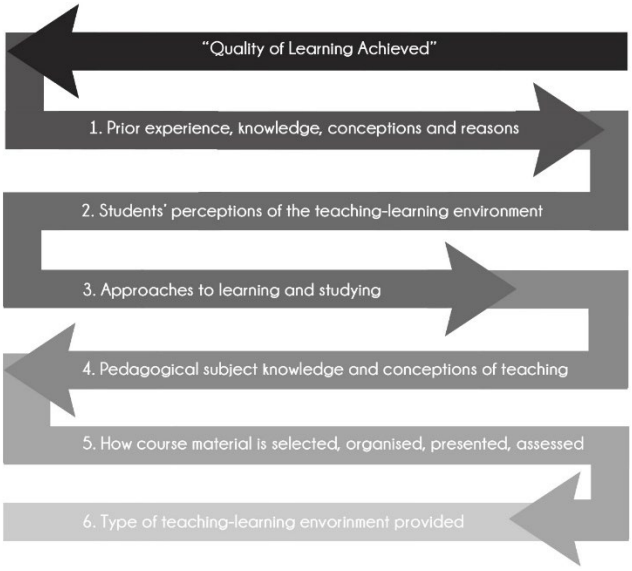


Figure 1 Six steps in identifying the quality of learning achieved (Entwistle et al., 2002)

4. Assessment of FFE and OE Model in Student Success Rates

Within the scope of this study, the data collected in FFE was five semesters following 2017 due to the renewal of the education program. However, OE was applied to the following two semesters with the same structure, which is a rather vital point to acknowledge. The OE model was the same as FFE, with no alterations in the course structure, but it was done on online platforms. Hence, the education program was not subjected to any changes.

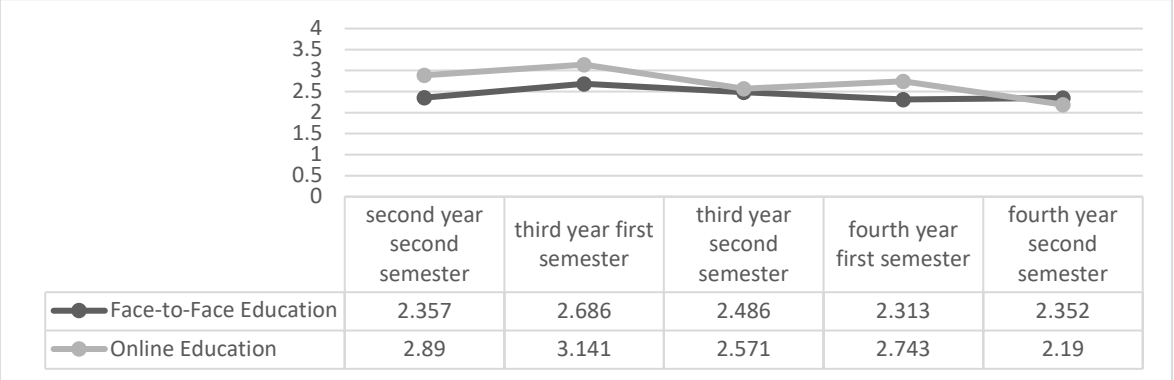
Within the scope of this study, the crucial part of interior design education, such as design courses, is examined. Nevertheless, the focus of this study is limited to ten design courses of a single University only as the analyses must be done on the students who have experience with both education models. From the instructor's perspective, the success of the learning achieved was evaluated with the grades given at the end of each semester. On the other hand, for the student perspective analysis, a questionnaire was used in which 159 students participated. Considering the expected number of students not attending classes at the expected rate of 10 percent each semester, this survey has collected these data with a deficit even below this rate.

4.1. Analysis of Student Success Rates Through the Instructor Perspective

In the assessment of the instructor perspective, the semesters covered by the study were divided into fall and spring education periods. The reason for this is the differences in the success rates and factors in each period. Additionally, the mentioned ten design courses are investigated in the study, from the second year second semester to the fourth year second semester, as these students are the only candidates who experienced both education models. Consequently, with these defining criteria, the course grade averages as a definition of academic achievement stated by Crowther and Briant (2020) were divided into three groups as the students who passed (Figures 2 and 3), failed (Figures 4 and 5) and absent (Figures 6 and 7).

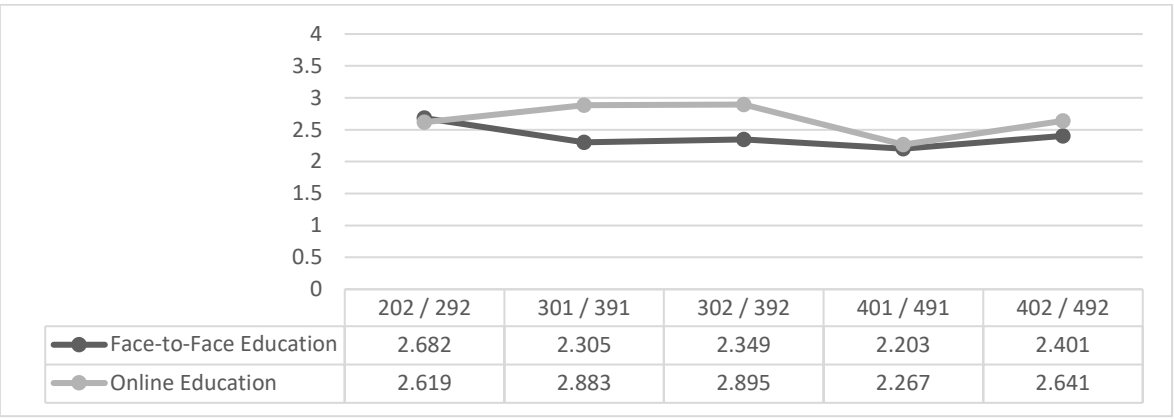
In the detailed analysis of the success rate of both education models from the instructor's perspective on the passing students, while there is no significant difference, the OE model has been observed to be slightly more successful (Figures 2 and 3). Nevertheless, in the third year second semester students of the fall semester and when they proceeded to the fourth year in the spring semester, the instructors observed no significant difference between the two education models (Figures 2 and 3). Furthermore, the failing grade was much higher in the OE model during the fall and the opposite in the following semester (Figure 4). Although there were variations in the proportions of students who received failing marks between the education models, the failure rates have progressed in the same ratio within the semesters (Figures 4 and 5). In other words, the design

courses fail averages have shown similar trends of decrease and increase in both education models. The last detailed analysis where student success rates are evaluated from the instructor's perspective is the comparison of FFE and OE class participation rates (Figures 6 and 7). When both education models and semesters are examined, a significant drop is observed in the withdrawal (W) and absence (NG) rates following the third-year design courses. In other words, while higher rates of absence are observed in the earlier design courses, students try less to drop out of class as they get closer to graduation, with a higher drop rate in the OE model in the early years.



	second year second semester	third year first semester	third year second semester	fourth year first semester	fourth year second semester
Face-to-Face Education	2.357	2.686	2.486	2.313	2.352
Online Education	2.89	3.141	2.571	2.743	2.19

Figure 2 The fall semester design courses pass grade averages



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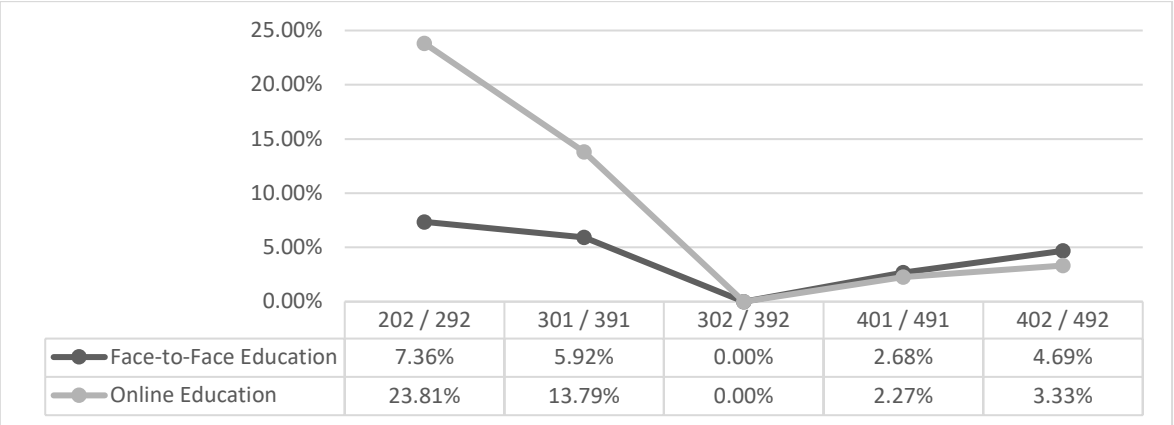
Face-to-Face Education	2.682	2.305	2.349	2.203	2.401
Online Education	2.619	2.883	2.895	2.267	2.641

Figure 3 The spring semester design courses pass grade averages



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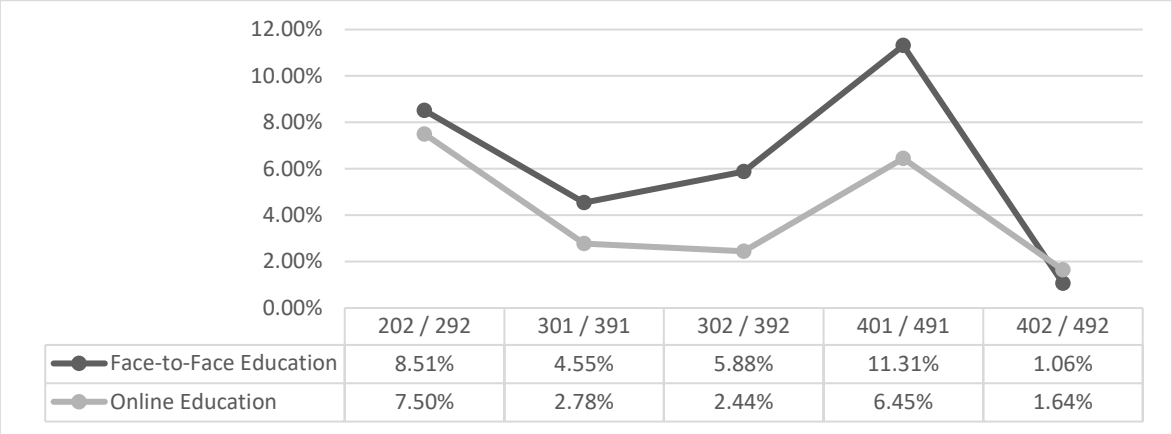
Face-to-Face Education	7.36%	5.92%	0.00%	2.68%	4.69%
Online Education	23.81%	13.79%	0.00%	2.27%	3.33%

Figure 4 The fall semester design courses fail averages



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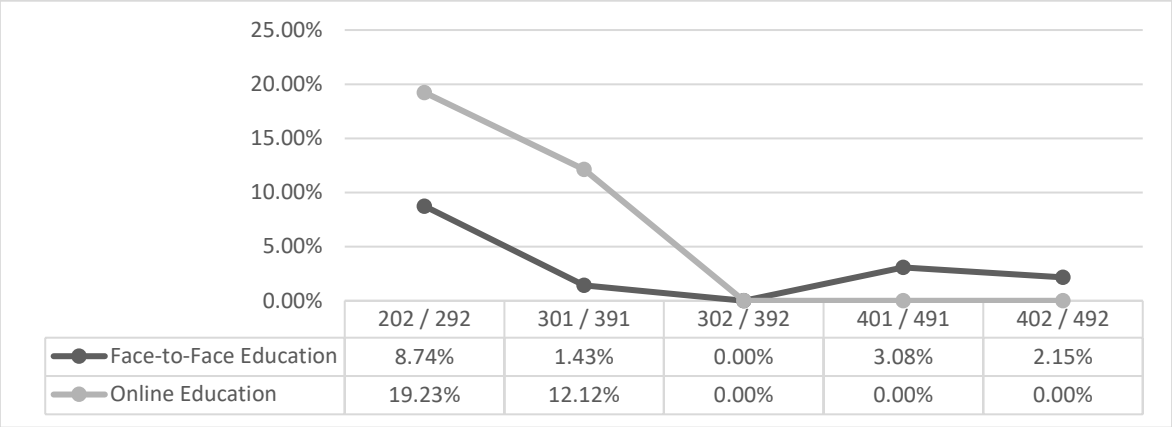
Face-to-Face Education	8.51%	4.55%	5.88%	11.31%	1.06%
Online Education	7.50%	2.78%	2.44%	6.45%	1.64%

Figure 5 The spring semester design courses fail averages



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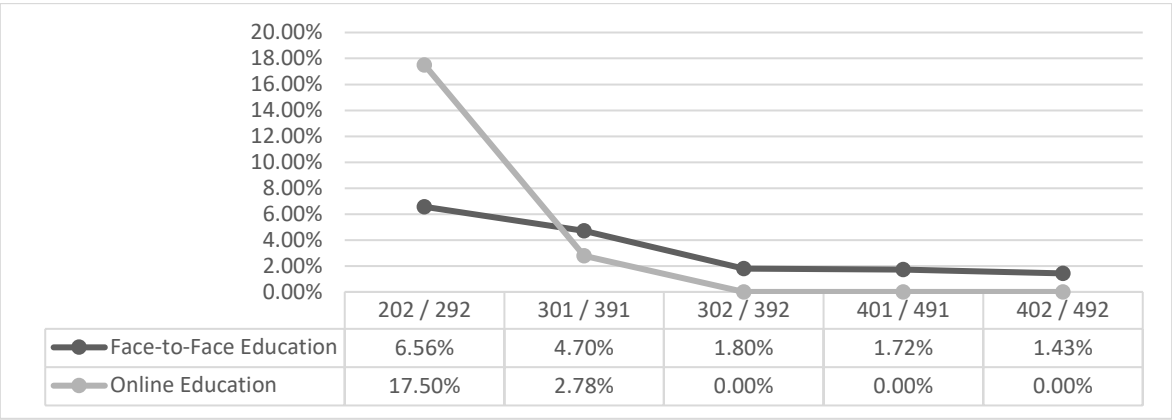
Face-to-Face Education	8.74%	1.43%	0.00%	3.08%	2.15%
Online Education	19.23%	12.12%	0.00%	0.00%	0.00%

Figure 6 The fall semester design courses absence averages



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Face-to-Face Education	6.56%	4.70%	1.80%	1.72%	1.43%
Online Education	17.50%	2.78%	0.00%	0.00%	0.00%

Figure 7 The spring semester design courses absence averages

4.2. Student Success Rates Through Student Perspective

The quality of education in a university environment can be evaluated as an integrated concept formed by the combination and interaction of certain factors. These can be referred to as prior education knowledge, experiences, and expectations, the learning environment provided, course material selection, organization and approaches to study, approaches to learning and studying, and the quality of the education obtained (Entwistle et al., 2002). Hence, considering these five main points, the questionnaire was prepared from the student's perspective. Consequently, the survey results are presented under the five headings given.

Table 1 Prior Knowledge, Experience, and Expectations

	Mean	SD	Disagree %	Neutral%	Agree %
I had experience with OE before the pandemic.	2	1.27	74.2	6.9	18.9
I had experience with FFE in studios before the pandemic.	4.5	1.12	9.4	0.6	90
I had positive thoughts about OE before starting.	3.1	1.17	31.5	32.7	35.8

When the students' education model experiences before the pandemic are observed, FFE model experiences are more than double the OE experience (Table 1). Hence, it is understood that prior knowledge of the OE model and its functioning was limited and insufficient to start it as successfully as FFE. This difference in the competence of the education model meant that the students had comparatively less mastery over OE model learning methods and tools. It is essential to state that this issue had a compelling effect on students' success at the beginning of the OE period. In addition, students' expectations and prior opinions before starting OE were also very influential. According to the survey results, an even distribution of opinions was seen with a trend toward a neutral-positive attitude.

Table 2 Learning Environment Provided

	Mean	SD	Disagree %	Neutral %	Agree %
I could get feedback from my teacher in OE.	4.1	1.05	8.8	8.8	82.4
I could get feedback from my teacher in FFE.	4.3	0.8	6.3	5.7	88.1
My teacher's interaction with me in OE motivated me.	3.9	1.07	11.3	18.9	69.8
My teacher's interaction with me in FFE motivated me.	3.9	1.16	11.8	17	71.6
In OE, what was expected of me and what I had to do was clear and understandable.	3.6	1.18	17.6	23.3	59.1
In FFE, what was expected of me and what I had to do was clear and understandable.	3.97	0.93	6.9	22	71.1
The critics received by other students in OE helped me in my work.	3.79	1.22	18.2	15.7	66
The critics received by other students in FFE helped me in my work.	3.54	1.15	20.2	27.7	52.2
Interaction with my classmates in OE was helpful in the context of the lesson and projects.	3.41	1.27	23.9	21.4	54.7
Interaction with my classmates in FFE was helpful in the context of the lesson and projects.	4.03	0.96	5.6	19.5	74.9

In general, students expressed positive feedback on the survey's topic of the learning environment provided (Table 2). Respectively, the students' satisfaction with the accessibility of instructors received the highest rate in the survey on this topic for both education models. However, FFE has been defined with a slightly higher rate. This higher rate in FFE can be interpreted as the positive influence of being on a campus and having closer and easier access to instructors. Following, the motivation raised from this interaction between instructor and students has been defined as being done successfully for both of the education models. Another important assessment of the learning environment was clarifying what was expected from students in the relevant education model. Again, in this aspect, the students' evaluations were positive, but with a slight value difference, it was stated that the expectations from the students were clearer in the FFE period. As mentioned before, this is thought to be proportional to the interaction between the

student and the instructor, and it can be said that the removal of the campus environment created a compelling factor in the student's general communication with the instructor and the course. The last matters discussed in the learning environment provided were related to students' interaction within and outside of classes. The only issue discussed within this topic of the learning environment provided, which OE had more positive feedback on, was that the criticisms received by classmates were more helpful in OE. The critics received in OE by other students served as guidance to individual projects because in the OE platforms in which design courses were held, critics were given in a more open and accessible way to all. Previously, in FFE, a critic of each student was given in a more personal and private interaction rather than in front of the whole class. However, with OE this became more open and accessible to the whole class. Design course instructors, with OE, could easily provide general comments and advice to the whole class while criticizing a student's project online. In other words, the criticism of a single student's project became an example for the whole class. In addition, courses are now recorded with OE, and a student who did not attend the course retrospectively could make self-criticism about his project by looking at the critics of his/her other classmates. Despite this, yet again, the results have stated that the interaction between classmates was more successful in FFE, and as it was in the previous statements, this can be associated with the positive influence of the campus environment.

Table 3 Course Material Selection, Organization, and Approaches to Study

	Mean	SD	Disagree %	Neutral %	Agree %
Design courses were better organized and handled in OE.	3.51	1.25	22	20.8	57.3
Design courses were better organized and handled in FFE.	3.83	1.03	8.2	27	64.8
Design jury organization in OE was successful.	3.47	1.29	23.9	20.1	56
Design jury organization in FFE was successful.	3.74	1.10	11.9	31.4	56.6
In OE, the virtual environment and platform in which the training was continued were understandable and supportive.	3.79	1.13	12.6	24.5	62.9
In FFE, the spatial environment in which the training was continued was supportive.	4.03	0.97	6.2	17	76.8

As stated before, the positive influence of being on campus on the quality of learning is shown in the course material selection, organization, and approaches to study (Table 3). Even though the students have stated satisfaction with the online platforms used during OE, the spatial environment of FFE received a higher satisfaction rate. Last but not least, other discussion issues under the topic of course material selection, organization, and approaches to study were the juries' organization, teaching, and success. While students in both education systems showed satisfaction, it was observed that they had provided more positive preferences towards FFE, with a slight difference.

Table 4 Approaches to Learning and Studying

	Mean	SD	Disagree %	Neutral %	Agree %
In OE, I was able to do research and work on my projects in a superficial way rather than deep research.	2.77	1.31	49	18.9	32.1
In FFE, I was able to do research and work on my projects in a superficial way rather than deep research.	2.77	1.22	48.5	21.4	30.2
In OE, I have successfully fulfilled what my teachers asked for me and the 'learning outcomes.	3.9	1.12	12	15.1	72.9
In FFE, I have successfully fulfilled what my teachers asked for me and the 'learning outcomes.	3.95	0.99	9.4	13.2	77.3

The workload was high in OE.	3.97	1.22	15.7	14.5	69.8
The workload was high in FFE.	3.63	1.19	20.7	18.2	61

The initial issue discussed under this topic was the depth of the research and study done by the student, and the same statement was made for both education models (Table 4). Following the issue of reaching the learning outcomes of the courses, both education models have been stated as successful with a slightly higher rate in FFE. In other words, there was no significant difference between education models in this learning outcome issue. In addition, the workload during the education models has been identified as being high for both but with being the highest in OE.

Table 5 Quality of Learning Achieved

	Mean	SD	Disagree %	Neutral %	Agree %
The grades I got for design courses in OE were high.	3.4	1.25	21.4	28.9	49.6
The grades I got for design courses in FFE were high.	3.46	1.14	17.6	29.6	52.9
I believe that design courses are taught more successfully in OE.	3.23	1.42	32.7	22	45.3
I believe that design courses are taught more successfully in FFE.	3.72	1.21	12.6	27.7	59.7

The final topic within the questionnaire is the quality of learning achieved in which students' opinions about the success of the education models were provided (Table 5). The initial issue is about the design course grades. Contradicting the data collected from the previous method of instructor perspective, the students have stated that they had higher grades in FFE. Relative to the previous finding, the more successful education model was stated as the FFE model, according to the students' perspective. From a general point of view, it is stated that both education systems are successful, but when a more detailed examination was made, it could be seen that FFE received a much higher rate. Another significant issue is the percentage of disagreeing statements made by students who found the OE successful. While 45.3 percent of the answers agreed with OE being more successful a 32.7 per cent of the students disagreed. This contradicting statement is too important not to overlook. However, only 12.6 percent of the students disagreed with the FFE model being the most successful education model to be carried out in design courses.

5. Conclusion and Further Suggestions

Education aims to introduce and provide essential knowledge, values, and skills for individuals to achieve specific objectives in their future professional endeavors. Consequently, certain goals consistently direct, support, and motivate the educational process. These objectives, established by educators and institutions, are subject to continuous evolution in response to the demands of contemporary society and geographic contexts. In light of the pandemic, educators and educational institutions, having been entirely unprepared, were compelled to transition their educational programs to a wholly online format. Although it was anticipated that conditions would not revert to their previous state, it became apparent that interior architecture education would transform similarly to those experienced in other fields.

This study examines the pandemic's changes to design studio education in Interior Architecture and compares the education models on the quality of learning achieved. Following this, two perspectives have been adopted: student and instructor. Through this assessment of the instructor perspective, the OE model was found to be slightly more successful in terms of student success in grades. On the other hand, from the student perspective, the FFE model was more successful with a significant difference.

In design studio education, the student's grade at the end of the term consists of the evaluation of the design projects. The project, which emerged at the end of the semester, symbolizes the accumulation and success of the learning outcomes acquired during this period. The design studio training is based on the one-to-one relationship between the instructor and the student, also, the

student's project is shaped by the ongoing critics conducted throughout the course. Hence, student projects finalized at the end of the semester are considered to be proportional to the success of these critics. However, beyond the apparent project success is the knowledge acquired by the student. Therefore, it should be kept in mind that in some cases, the student does not reflect the quality of education provided in the design course through their grades. For these reasons, it is not reliable to describe the success of the education model based only on grade evaluations. Further, although students got higher grades in OE, they have given the opposite statement of having higher grades in FFE with the questionnaire. In addition to this contradiction, this study has suggested further implementation of statistical programs to analyze course grades and research on investigating the successful tools found in the OE model according to both perspectives that could be adopted within traditional design studio education.

Today's students have been born and raised in a digital environment. Thus, the evolving nature of the global landscape has significantly influenced the characteristics of contemporary learners (Prensky, 2001). The current cohort of students is no longer aligned with the educational frameworks in place for many years. Immersed in the transformations instigated by the digital age and technological advancements, this new generation processes information and engages with it in fundamentally different ways than previous generations (Bhattacharjee, 2019; Oblinger, 2004; Prensky, 2001). Consequently, there is an urgent need to adapt educational models to meet the evolving needs of this generation. This necessitates further research into the implementation of design studios within the field of interior architecture, leveraging insights from the OE model and its relevance in a digital context.

In light of these insights, this study proposes the adoption of a hybrid education model as a progressive path forward for Interior Architecture education—one that harmoniously intertwines the strengths of both Fully Face-to-Face (FFE) and Online Education (OE) paradigms (Doering & Veletsianos, 2008; Valadares et al., 2005). Informed by the lived experiences and perspectives of educators and students alike, this model is further shaped by the recommendations outlined in this research. Crucially, educators and institutions must remain responsive and agile as the world evolves—often in subtle yet significant ways. The pandemic served as a powerful catalyst, underscoring the urgent need for educational models that are flexible, and resilient, but also forward-thinking and inclusive.

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Resume

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