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Challenges of Online Education in Architectural Design from the Perspective of Professors and Students

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Research Article

Abstract

Architecture education is very important in the education of future architects and is defined by the combination of practical and theoretical coursework. Due to the pandemic conditions, online education is one of the available options for education. which faces many challenges. However, due to the prevalence of virtual education in the world, due to the corona disease in the world and the need for communication between the scientific fields and practical education, it is faced with the adverse effects in the form of numerous challenges and shortcomings. The purpose of this research is to extract concepts and dimensions. And the components of the challenges of online education of architectural design.

Methods: This research is practical in terms of purpose. The research method used is a qualitative method, which was done with content analysis and coding of data collected by 12MAXQDA software. Then, from among the challenges based on the sub-components of online education challenges, the coding process is divided into two sections: general challenges; online education and specific challenges; Architectural design is taught online.

Findings: Based on the review of 732 free codes in 26 code-oriented categories, 7 main concepts were reached, which include the challenges of the educational environment and educational facilities; the challenge of students' psychology; the impossibility of correction and solving students' problems; weakness in the way professors evaluate students' learning. For architectural design, the lack of understanding of the design concept and the students' ability to analyze and be

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creative to implement the design, the weak educational program and the content of intensive courses, and the weakness of the electronic infrastructure.
Conclusion: According to the findings for these 26 code-based online architectural design training courses, which are based on various and different challenges, and improving its quality will increase the quality of virtual courses and requires a serious look for the training of future architect engineers

Keywords: Online Education; Virtual Education; Architectural Design.

1. Introduction

Architecture education is very important in the education of future architects and is defined by the combination of practical and theoretical coursework. Due to the pandemic conditions, online education is one of the available options for education. which faces many challenges. However, due to the prevalence of virtual education in the world, because of the corona disease in the world and the need of communication between the scientific fields and practical education, it is faced with the adverse effects in the form of numerous challenges and shortcomings. The purpose of this research is to extract concepts and dimensions. And the components of the challenges of online education of architectural design (Asadpour, 2021).

Throughout history, education has been one of the pillars of civilized societies. In today's era, its importance has increased to such an extent that the quality of education has been defined as an added value. In this definition, the quality of an educational system is the status of the students of this system in terms of knowledge, attitude and acquired abilities, so that it is possible to attribute the existing level of these acquired capabilities, abilities and attitudes to the educational system (Bazargan, 2010).

Architecture education aims to cultivate inner talents and improve the necessary skills, as well as transfer architectural concepts and values, seeking to educate creative and knowledgeable people in this field. On the other hand, teaching architectural design is a challenging matter that depends on many variables. Since the formation of a designer's personality and the acquisition of design skills are related to this category, it is highly sensitive and it is necessary to pay attention to the process of architectural education in architecture schools due to its importance (Daneshgar Gadham, 2009).

There have been changes in architecture education all over the world, one of which is the introduction of digital education and the use of modern technologies. Online education has had challenges, and there are flaws in the field of architectural education, and there are also many challenges in architectural design education (Benjamin H, Flett, and Zeigler-Hill, 2020).

At first glance, the challenges of virtual education overlap with the concept of disadvantages of virtual education, but it can be said that these challenges are issues that should be addressed seriously, and by addressing the aforementioned issues, the quality of virtual courses will increase. On the other hand, although the challenges are similar, we can consider this concept in a general way, and its difference with the limitations of virtual education is that these challenges will not necessarily be seen in all the cases raised in the discussion of limitations. But the limitations are considered to be one of the limitations of virtual education (Bayat, 2019).

Since the purpose of this article is to investigate the challenges of online architectural design education, this article deals with virtual education, architectural design, architectural design education, online architectural design education. At the end, suggestions and conclusions will be presented.

1.1. Virtual Education

The history of virtual education goes back to the beginning of the 20th century and even before that. In 1858, the University of London was the first of its kind in the sciences to award degrees through the delivery of coursework and course materials by post and through distance learning. From 1900 to the present, distance learning has gone through several developments. (Ebrahimzadeh, Mousavi, and Adam Nohayi, 2013).

1-before from 1900: the first appearance the car half automatic, that one the car Computer in opinion taken will be.

2- 1900 – 1959: the first period Development Technology Computer (the first and the second war global

3- 1960 – 1979 space and Internet primary

4- 1980 – 1989: Computer and evening Internet

5- 1990 – 199: evening technology Information and expansion Internet

2000-6-today society global

Education virtual, an opportunity B alternative for confrontation with Limitation Hi Education face to face realization the ideal Education for everyone and context making for Development stable and balanced in the country is (altar and Salehi, 2015).

This learning is a new approach in providing an equipped, interactive and learner-oriented learning environment that can be used at any time and place by using the resources and characteristics of various digital technologies and aligned with other forms of educational environments to create a free, flexible and distributed system in education. is used (Kermi et al., 2013). In recent years, virtual education has been promoted as one of the important applications of new information and communication technologies in the world, and extensive activities have been started in this direction. Considering the rapid changes that are taking place in the surrounding environment, the implementation of virtual systems in order to provide services and new technologies in the field of teaching and learning has been raised as a basic need (Fatehi et al., 2022).

For speakers, students and universities who are familiar with online lectures, the format of lectures using Internet-based information technology does not pose a problem. On the contrary, those who are not familiar with online lectures experience stuttering. They need to be quick and responsive to give online lectures. Unfortunately, this stuttering makes the speaking method ineffective, even causing problems. Schools and universities close their campuses indefinitely and suddenly have to transfer their online education using free services like Google, leaving their students with heavy course loads, achieving low results (Arif, 2020).

1.2. Architectural Design

There are many ambiguities in defining design, and theorists examine and define this matter from various angles. Also, to define it, it is necessary to know the different situations of design and its exact differences. In addition to this format, different approaches such as Architecture design interior design and. It has different backgrounds for definition. Of course, different theorists have sometimes tried to provide very general definitions, such as: the optimal solution for a set of real needs in a specific situation (Lawson and Park, 2018).

The existence of these definitions emphasizes the comprehensive scope of this issue. Therefore, in the field of architecture, design is considered an analytical process that requires analysis,

evaluation and selection. In fact, design can be seen as an effort to invent solutions before implementing them (Shefaei and Behzadpour, 2015).

In other words, it can be said that design is a multidimensional activity that includes a variety of skills and thought processes, including analytical reasoning, intuition, and creative expression. Learning how to design can be a frustrating and confusing process that is difficult for some students to understand. Teachers use a wide range of strategies when teaching. These strategies are often based on how their professors teach with little or no theoretical basis in student learning. For students, lack of understanding of the design process can challenge their desire to be motivated and actively engaged in the studio project. The result is less than optimal learning and students who do not achieve their potential (Hosseini et al., 2018).

In the architectural design process, there are three main obstacles facing the architect:

- How to deal with and communicate with the subject
- Lack of necessary experience in the design process
- Lack of continuous communication between the hierarchies of the design process (Rahimi, 2009).

Design, especially conceptual design, is a process for formulating and determining the problem, speculation, evaluation and progress in architecture, so designers need a modeling tool that has the speed and flexibility to confirm and strengthen the initial plan. Preliminary sketches are perhaps still considered a superior skill for introducing metaphor into the design conversation. True collaborative design work will undoubtedly be the norm for many design professionals. But to realize it, designers need to use a combined model with the ability to combine the advantages of the preliminary plan with the opportunities obtained from the models (Garner, 2005).

In the course of questioning, the designer tries to find the best process for the best product. He designs the basic data, limitations, guidance and features of the shape, contiguity, and dimensions of performance-related issues. It is the form of theoretical foundations and links with fields and disciplines that are related to architecture in some way (Kahdooi et al., 2016).

Teaching architectural design is a challenging matter that depends on many variables. Since the formation of a designer's personality and the learning of design skills are related to this category, it has great sensitivity and it is necessary to pay attention and study the architectural education process in architecture schools. In this regard, the initial steps of education in learning architectural design are very important in the training of designers (Daneshgar Gadham, 2009).

Teaching architectural design in most universities is done with a workshop system, it is based on doing work by students and then correcting it by professors. In fact, architectural design is something that is formed in collaboration between students and professors. In the meantime, it is possible for students to use the opinions of their other classmates; But these opinions are applied in a tasteful and scattered manner, which ultimately cannot help to improve a project in the right direction, and it is the student who decides to use in the field of architecture, although the methods of designing and producing space and form , is the most central issue, but apparently there is neither a unique method nor a single path in its process for design (Lawson and Park, 2018).

Today, it is considered a new thing that distance education is offered by universities for bachelor's and master's degrees. Although for the wide application of such a system, especially in architecture education, even for its current level, more time is needed due to the need for advanced programs and the special needs of the field of architecture. In architecture education, the course units are divided into theoretical and practical groups. Theory units can easily adapt to online units, as many universities have been offering theory units virtually for many years. The main problem is

related to practical units and workshops, which are difficult to transfer to the Internet, especially architectural design courses and workshops (Ebrahimzadeh et al., 2013).

For the effectiveness of the workshop as the heart of architectural education, the sub-categories of sketching and construction, photo and copy, individual criticism, collective criticism, building together and teaching from others are the category of cooperative education with the sub-categories of brainstorming, cooperation and social skills, solving Weaknesses of each other, dialogue between students and lecturers, students and goal setting and striving for the goal were identified, the media category with the subcategories of authentic site introduction, social interaction, sharing, representation and sketches, and finally the assessment category with self-evaluation subcategories. The professors are a collective assessment that should cover the activities of the architectural design department (Zandi et al., 2019).

The categories of architecture education include the ability to design with sub-categories of identification (understanding the problem, simultaneous evolution of the problem and solution, the context, the request of the client and the real consumer, design regulations), formulation (separation of the problem and multiple functions, concept and ideation), framing (way The primary solution and format of architecture and gathering background and reference), reflection (testing ideas, reflection in the process, expertise, evaluation) is the category of active design thinking of the branches of convergent thinking, creative thinking, critical thinking, combination of elements, analysis and inference. The effectiveness of the workshop as the heart of architectural education is from the sub-categories of sketching and construction, photo and copy, individual criticism, collective criticism, building together and teaching from others. Weaknesses of each other, dialogue between students and lecturers, students and goal setting and striving for the goal were identified, the category of media with the subcategories of introducing a valid site, social interaction, sharing, representation and sketches and finally the category of assessment with the subcategories of self-evaluation, professors It is a collective evaluation that should cover the activities of the architectural design institute (Zandi et al., 2019).

As an example, one is the process of designing education that is formal in education The architectural design is used, including the following steps can be seen in the Table 1:

Table 1 Architectural design teaching methods (Karvan et al., 2018)

Stages/Titles	Teaching and learning methods	Assignments	Prerequisite	presentation method
1- Draft	Presenting the coach Presenting the instructor-comprehensive Comprehensive presentation	- His research -Case study - Project briefing session - Meeting with the employer	- Research and presentation skills Advanced research skills - Research and thinking skills - Management ability	-
2-Schematic plan	brain storm Instructor feedback Comprehensive trainer discussion group discussion Sharing ideas Feedback from colleagues	- Site analysis - Draw a diagram - Zoning - Design idea -Programs - expansion - Division	- Commitment - Critical thinking skills - Management feature - Moral values - Self-confidence - Conversation	-Physical model - draft - 2D drawings - 3D drawings

			skills	
3- Development of the plan	- Coach's response - Comprehensive trainer discussion - Brainstorming - Presentation of successful projects - Group discussion - Feedback from colleagues	- Architectural design - Perspective - structure - technical	- Critical thinking skills - Self-confidence - Commitment	- Design and drafting - His research - Interpretation and design Graphics

Because in education of comprehensive design, they should be familiar with the process of problem solving to design, factors influencing the formation of concepts, critical thinking in design, and the stages and practice of studies in design, Ledar in education mainly relies on the conceptual, analytical, and social process, which Based on that, design learning topics are formed (Thaghafi, 2014).

Design is known as a thinking of identifying the problem and formulating the problem of its basic causes, structural dynamics and operations that lead to the problem solving approach. The design process is the scientific study of existing ideas, thought and thought in obtaining architectural solutions. The combination of the concepts of schema images and the discovery of design ideas, the examination of design issues, local limitations and the inseparability of projects and development had concepts (Karvan, 2018), they have divided the activity of designers into three groups of perception and imagination, and building an organization. In general, design They have organized with a wide range from computer programming to the creation of architectural form and space and imagination and construction. In general, the design process faces a range from computer programming to the creation of architectural form and space and urban design and has different aspects (Zandi et al. 2019).

Architectural design education is dependent on many variables. During the course of design training and design practice by architecture students, it can be seen that a complete and comprehensive understanding of the design problem did not happen immediately after the introduction and confrontation with the design problem, and during the design process, there are still ambiguities in the mind. He is struggling with the student (Sadeghi, 2018).

Online education in architecture had a history even before the recent pandemic. Over the past decade in Australia, Curtin University (2021) has offered the world's first accredited online architecture, innovative interior design and online bachelor and master of architectural science programs through self-directed learning and visual, verbal and written communication techniques. , Cape Peninsula University of Technology (2021) in Cape Town, South Africa, offers a two-year part-time program through block publication in a hybrid format including online education, university blocks and work-based coaching (Asadpour, 2021).

The online design studio is used as a tool and a method to transfer design knowledge virtually to students, visitors and guests in a familiar environment during the Corona virus. Therefore, the online studio was used to develop an online viewer experience for the students' final presentation called a virtual presentation (Ahmed et al., 2020). Many other research efforts are being made to provide new horizons of architectural education. All of them represent new opportunities that should probably be considered as a normal (not abnormal) situation. For future architects to meet these challenges, a review of the architecture curriculum is needed. The emphasis is on the studio as much as the other dimensions. Moreover, it may be time to expand the architecture curriculum, integrate different regulations, and really try to create the future (Adnan and Anwar, 2020).

2. Research Background

Online education is planned learning in which learning and teaching usually take place in separate environments. For this reason, online education needs communication and institutional technologies for designing and planning education. Online learning only focuses on the needs of the learner for the relationship with the instructor, while online education should include both sides of the relationship, i.e. the instructor and the learner. Online education is a new way to design, compile, deliver and evaluate education that uses electronic capabilities and facilities to help learning. E-learning is an educational method that has been created since the emergence of the Internet and the growth of this technological phenomenon and the use of its capabilities, and in fact, it is an evolution of the distance and virtual education method and meets the needs of people who want knowledge and want to learn, especially That the time and place are completely optional in this educational method. Today, electronic education has attracted the attention of many teachers and educational institutions and is one of the most basic and popular topics and uses on the Internet. Strategic planning and attention to online and virtual education has followed at the middle level (creating equal educational opportunity and creating new educational innovation) and the micro level (Salimi and Fardin, 2019).

The characteristics of the professor and educational content and the user's enjoyment of using electronic learning systems are effective in encouraging the use of electronic learning systems (Lim, 2020). The main factors of students' satisfaction are the combined environment of traditional and electronic methods can increase the level of students' satisfaction. The data becomes Universities should also address these issues in online education by developing codes of conduct to ensure transparency and security (Jentsen, 2019). In a research aimed at investigating the traditional education and distance education of health students, they found that the communication time between the student and the teacher in distance education is better than the classroom-oriented communication time (Kendai, 2020), but the virtual space is a native environment that simultaneously With its increasing development, it also spreads the ruling thought and the culture mixed with it. The flow of thought production and civilizational dynamics resulting from the virtual space overcomes the user and can transform, complete or destabilize his identity. But from another point of view, the virtual space reduces the obstacles of the real space in the global communication of the message, and due to its diversity, in different forms of images, animations, avatars and similar cases, it reduces the inability to express verbally and in writing, and it provides a unique opportunity to propagate religion and It has provided the processing of the word of revelation and the perceptual evolution of humans (Kendai, 2020).

Education technology is a partial intermediary for online learning and a complete intermediary for lesson technology in terms of its relationship with students' satisfaction, since all dimensions have a proper alignment and have a meaningful evaluation level. On the other hand, course technology significantly facilitates the learning process of students (Sun, 2016)

Since the majority of articles on the challenges of online education in architectural design have first mentioned the common challenges of online education, in this article we will first examine the researches on the common challenges of online education:

The background of research in the field of general virtual education challenges

Adaptation to conditions of sudden transition to online learning and comparisons of reactions to online conditions compared to more conventional face-to-face learning conditions confirmed that students have pervasive negative reactions to online conditions due to the pandemic. In addition, adaptation to the pandemic was widely associated with more positive responses in several indicators. Also, the indirect communication model was supported that personality traits are

associated with specific reactions to online learning through their relationship with adaptation (Besser, Felt, and Zeigler-Hill, 2020). Complementary analysis showed more positive reactions and learning adaptation of students who have a sense of belonging. and were more important, highlighted the role of adaptation and the significant challenges of university students who have experienced changes in their learning and living conditions, due to the need to rapidly adjust to the changes and uncertainty caused by the covid-19 pandemic, attests .Other relationships identified show that an increase in the level of belonging and importance may be a way to improve the level of attention, motivation, learning and fulfillment of students' expectations, and this is consistent with evidence about the role of matter and belonging in positive orientation. and learn the results. In general, these results indicate the complete and relevant use of positive psychology structures in the adaptation in general and in the adaptation of students' learning. Overall, these results indicate a complete and relevant use of positive psychology constructs in general adjustment and in students' learning adjustment (Besser, Felt, and Zeigler-Hill, 2020).

Higher education providers are increasingly aware of the diversity of their current and potential learners and are striving to provide a range of options for their engagement. The increasingly flexible delivery modes of different pathways and opportunities available to university students for those seeking further education. In changing different modes and in different modes, one size fits all modes is often used. Barriers to participation are especially evident in group work activities. The online environment also creates challenges for many academic staff who increasingly require a higher level of technical and technical ability than their regular academic workload. Adds the toolkit in providing them with direct experience through different methods to prepare a wide variety of people in different contexts and settings that they may interact with in the future in the workplace. and external, it may be a valuable implementation for academics who want to engage with the online space in various ways and plan online educational programs. This can also help to limit some of the interaction of foreign students who prefer to have access to a wide range of interaction with their peers (Gillett-Swan, 2017).

An additional challenge is the infrastructure required to facilitate online courses and thus the high prices associated with accessing the content, whereas, for online learning to do so, students must have access to the correct instrumentation, whether a telephone be smart and what a portable computer. They have jointly received sufficient net information packages. Similar online learning in rural areas simultaneously finds issues. This could be as a result of class sizes and higher lecturer-to-student ratios, reducing students' ability to access online content and even fewer resources to access it outside of smartphones, similar to Internet cafes. Smartphone technology may already exist, however, the power of urban and rural Indonesians to unlock their potential is uneven. The most common strategies used by teachers to solve students' problems are the use of online chat, in which Whatsapp has been the most used. Other strategies employed were the use of video conferencing and the combination of both online chatting and a video conference. On the contrary, there are some problems (Seylan, colleagues, 2020).

- In a research, the obstacles to the development of virtual education in Iran are described as follows: (Kardan and Fahimi Fard, 2013).

-Slowness in the development of required telecommunication infrastructures

-Lack of liquidity for the development of communication networks

-Lack of liquidity of various organizations and industries for the relatively expensive development of electronic education

- Necessity of equipping virtual education systems in local and national languages

- The expensiveness of producing electronic course content and the necessity of pure design and production
- Failure to develop a suitable policy for the implementation and development of e-learning in accordance with the goals and facilities of various organizations and industries
- Giving little importance to education in most of the policies and decisions of senior managers
- The number of private sector practitioners in the field of e-learning and the lack of leadership and convergence among them in the field of e-learning (Kardan and Fahimi Fard, 2013).

Educational problems: how to write a lesson in electronic education, the lack or lack of incentives for teaching through electronic means (Sabbaghian et al., 2019).

In a major research, the factors that cause the failure of electronic training courses have been investigated, which are: weak and inappropriate disappointment in training technology and training personnel, poor execution of the training course, lack of participation and interaction, heavy costs of personnel and training technology, investment Weak and inappropriate in educational technology and educational personnel (Jay Badyen and Agini Suye, 2010)

- In an article, the main factors identified as the failure of e-learning courses are the impossibility of using direct conversations with professors and other learners instead of using chat tools / the boring / stressful content of e-learning courses. existence of e-learning courses / complexity and difficulty of the learning process in e-learning courses / unattractiveness of e-learning / boringness of materials and course contents of e-learning courses / inefficiency of e-learning courses in the category of learning / lack of appropriateness and compliance E-learning courses are based on the individual conditions of the learners / not having enough time for learning (Verzalik et al., 2010).

3. Research Method

The present research method is based on various studies and investigations related to the subject of research in the field of architectural design education and online education in the years 2005 to 2021 and also by using authentic Latin articles in the fields related to online education and architectural design, coding key concepts to summarize The amount of information that is caused by using the software in three stages of open coding, axial coding and finally, the selection of the main categories of MAXQDA12, in the following, we can refer to the tool for collecting information from theoretical studies, the steps of conducting research for validation studies: selection from the professors of architectural design education (targeted sampling and explaining the problem for them) and then preparing questionnaires in 2 sections (professors, students) according to the sub-components of the challenge of online education and sending it to the professors of architectural design. Below is the diagram of the research structure and process.

4. Findings

In this research, after extracting and coding the information related to the general and specific components of online architectural design education, in the open coding stage, coding was done by extracting the opinions of experts that were directly mentioned in books, magazines, and authentic Persian and Latin articles or by The authors were identified, through the representation of concepts, line by line, phrase by phrase, paragraph by paragraph or page by page. , a concept or a code was attached to each line of the sentences, and this code or concept filled the maximum conceptual and semantic space. At this stage, all the information was coded and until the saturation of the data, included 749 open codes, 32 central codes and 6 concepts, and the definitions and principles that were raised about the challenge of online education in the articles related to the research topic in the

theoretical foundations section were found. Many cases have common concepts that are expressed in different expressions. In Table 2, the number of extracted open codes are shown separately for each area. After extracting the open codes, the central coding stage of the common concepts were categorized in the form of major categories.

Table 2 Number of extracted open codes for each area

Theme	**Axial code**	**Number of open source**	**Challenge**
- Technical challenge -Cultural challenge - Economic challenge - Educational challenge	category First Problems technical is that in it weakness in Below made I see and was not communication the face to the face to between teacher and learner and decrease security in Information - Handle Second Problems a skill and Absence match Teachers with Education on line may be that Absence Acquaintance with the environment virtual and Structure it difficulty Evaluation quality learning Students Absence Proportion manner evaluation with presentation harvest down to be Literacy Information and computer E Learners resistance Teachers for login to evening fan bring and change Shame Hi assessment traditional and in finally increase Volume work Teachers - Handle Third Problems that Issues moral expression done are that it particle for direct object from the most important Issues a dream Teachers virtual knowing are (abstinence and Colleagues ,2014) challenge Hi major before Roy Teachers in to work get fan bring Information and Communication are from: ready not being Below made I see Absence Education and skill force human Absence Allocation Credits enough to this domain Expensive and Also illiteracy or low Literacy Teachers in application tools electronic (Olabi and Colleagues, 2013) the result review Obstacles and challenge Hi university virtual badge gave that Ali Although Existence Problems and Issues technical in Zimeneh Infrastructure I see Issues cultural and social and managerial from sentence challenge Hi before Roy this Universities in Iran are (Khadior and Rahmani, 2014) speed down Internet, weakness in	586	**The common challenge of online education**

	Resources hard software and soft software and dissatisfaction from quality Services to title challenge Hi technical technology cost up and capital put inappropriate to title challenge Hi force human Absence Acquaintance with Education electronic support low The officials and Absence desire Students to do works a team to title challenge Hi legal and Absence desire to learning always and attitude traditional to title challenge Hi cultural Centers Education electronic Universities government city Tehran may be (Fakhrzad, 2005) from other challenge I see can to Employing industry learning nimble and face to growth; speed in Learnings electronic; force Human specialist in design and production content and in presentation content(teacher); Methods teaching suitable Environments electronic; the need day In addition to Innovations again educational.reference Also must addition to be that use useful from one period virtual(online and or Offline)in need presence in one environment to away from pollution sound is; If this pollution audio, able consideration be, learning particle for direct object with Disturbance faced will did(Shabani and Mahmoudi, 2018)		
1-Design-process& communication skills 2-learning self-taught 3-Design, modeling and digital presentation 4-Familiarity&experienceWith professors and virtual software 5-Devices and technical facilities 6-Training and evaluation	1-1-Adequate feedback and reviews From Nedris teacher 1-2-ability teacher in conveying feedback virtually 1-3-Teacher skills for teaching virtual design 1-4-Enough time to respond to the teacher's criticism 1-5-Suitable hardware facilities for tutors 1-6-The possibility of explaining the design idea 1-7=Understanding Virtual design problem 1-8-Correct understanding of individual training 1-9-The usefulness of virtual training Compared to face-to-face communication 1-10-The desirability of teacher-	163	The specific challenge of online education in architectural design

	student communication as part of the design process 1-11-Company in Studio Design as an activity-oriented course 1-12-More case study opportunities in e-learning 1-13-possibility bring up Questions in the virtual studio 2-1-Development of student abilities 2-2-Improving creativity in response to the design problem 2-3-Saving student time compared to face-to-face training 2-4-Changing the role from a passive student to a knowledgeable one atmosphere Active and participant 2-5-Learning course objectives virtually 2-6-force to Trust in your abilities exceed the guidance of the instructor 2-7-Improving the quality of the final work 2-8-Necessary academic training on electronic learning methods 3-1-SendingMedia of the final design compared to the printed work 3-2-3D modeling as an alternative to physical model making 3-3-Advantage of 2D drafting software Satisfying the final virtual presentation 4-4-Prior acquaintance with the supervisor and the quality of learning 4-5-More design experience and knowledge atmosphere and efficiency of e-learning 5-5-Internet access quality 5-6-Access to the appropriate device (such as a laptop graphics) 6-1-The role of the professor as a consultant and facilitator instead of a provider and coach 6-2-Change in the evaluation criteria of the supervisor		

5. Result and Discussion

The COVID19 pandemic last fall semester challenged traditional architectural design courses and made everyone make hasty and urgent decisions. This incident not only revealed the shortcomings and weaknesses of the old education systems, but also provided opportunities for revision and reform. Because the challenge has occurred and continues to exist on a global scale,

scattered experiences can be coordinated with effective strategies and effective tactics. In summary, the results of this paper highlighted some important factors. Six specific indicators obtained from the analysis of the articles were identified: 1: Design process and communication. 2: self-taught learning; 3: Digital design, drafting, modeling and presentation; 4: experiences; 5: technical equipment and facilities; and 6: training and evaluation. Among the challenges of professors in teaching architectural design, we can point out lack of familiarity with educational software, lack of ability to produce content, lack of familiarity with class holding services, lack of expression skills, lack of ability to attract the audience's attention, lack of body language (Kiran and colleagues, 2020).

According to the results of previous research, Asadpour, 2021, Morozumi et al., 2001; Niculae, 2011; Schnabel and Ham, 2012; Masdeu and Fuses, 2017; Iannou, 2018; The challenges of online architectural education methods for design education were investigated and this research, in addition to their results, in the challenges of online architectural design education, it was concluded that there is a weakness in the way professors evaluate the students' learning for architectural design and it should be The use of multiple evaluation methods in the class and the use of students in teaching and discussions prevented cheating, and there is a lack of understanding of the design concept and the ability to analyze and create students to implement the plan, which should be used in the selection of students at the entrance of the university and the existence of its interests. Pay special attention to architecture. The necessity of preparing native software for virtual education, the use of visual effects in effective learning, the concentration of an important element in learning through virtual education, the need to have two-way video communication in virtual education, the lack of sufficient supervision in holding high-quality classrooms in education systems. virtual, online tests and the problem of inadequate evaluations, professor-oriented virtual education system, not student-oriented. Infrastructural problems are still ongoing for students and the Internet is the main problem of all students. Accordingly, their structural characteristics and relationships were analyzed with regard to their relationships with the two pillars of architectural design education, i.e., professors and students, considering the important role The general nature of communication skills, both physically and figuratively, there is evidence that these factors result from the traditional roles of education practitioners and curriculum providers. Although students insist on changing the role of the professor as facilitator and consultant, they consciously refuse to accept the role of an active participant in the design studios. An important part of the education system, at least in developing countries, focuses on improving skills Teaching is focused and does not encourage and motivate students. Now that e-learning prioritizes individual skills, there is a great opportunity to move towards sustainable education in architecture. In addition, changes in teaching methods require structural reforms in educational content and upgrading of professors' skills, none of which is possible without support from architecture schools. University professors mentioned online exams and insufficient evaluation, lack of monitoring of online education systems and weaknesses in the online education delivery systems of universities as other problems of students these days, and it is hoped that by recognizing the weaknesses and highlighting the strengths of the day, Let's witness the reduction of challenges and progress in this field.

Based on the review of articles, it was concluded that potentially the most appropriate teaching and learning methods are in the form of a combination of both face-to-face and virtual methods in the design studio. The Corona pandemic in 2020 accelerated the recognition of these approaches and forced professors to take these hybrid methods seriously when teaching architectural design and evaluating what students have learned in their design studio. In the future, studies on different approaches to designing the design workshop and work on the workflow of design courses need to

increase the quality and quantity, so that a better and healthier design studio environment can be produced.

6. Conclusion

Examining the challenges and proposing solutions to improve online architecture education during the outbreak of the Corona disease and the closure of educational centers is very important. Due to the fact that all education is online in the whole world, paying attention to practical courses such as architectural design education is a new opportunity to address Its challenges have been provided. The purpose of this research is to examine the challenges and solutions of general and specific online education of architectural design education. Despite the great emphasis of the lecturers in the field of design on the importance of proper teaching of architectural design, little research has been done on the challenges of teaching architectural design professors and students in online education. In this research, by inferring and analyzing the research content about the challenges of learning and teaching online architectural design, the components of the general and specific challenges of online architectural design education are determined, and after checking in MAXQDA 12 software, the general and specific challenges of online education Architectural design is divided into 2 categories of challenges for professors and students, and training students to understand the design process from understanding to practical applications and implementation of the design, raising the electronic infrastructure and site facilities, and assigning a part of the system to the evaluation of projects and assignments. And solving problems of students are very important. New configurations must be developed to redefine studio content, procedures, and outcomes to ensure student learning efficiency, assessment practices and assessment methods, and objective and meaningful achievements. All these should be based on new communication skills as part of the media.

- Peer, emotional, social and economic solutions should be considered in planning policies and definition of new design studios. Isolation, loneliness, and the disadvantages of using social media should also be considered as part of strategic planning. Both students and academic staff.

Limitations on national resources and university facilities should be considered in any planning and structural reforms. The results of some recent studies have shown that e-learning has led to a greater gap between poor and poor students. Finally, global online communication in transferring experiences between architecture faculties and schools should be further increased. Sharing university facilities can actually fill a little void in other universities and improve the sense of empathy.

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