Original Article

Faculty Members' Experiences About Virtual Education Opportunities and Challenges During The Covid-19: A Qualitative Study

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Article Info

Article history:
Received 23 May 2021
Accepted 05 Sept 2021
Published 10 Sept 2021

Keywords:
Corona Crisis
COVID-19
Virtual Learning
Qualitative Approach
Content Analysis
Challenges and Opportunities

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Abstract

Background & Objective: The necessity of virtual learning during the COVID-19 epidemic has caused serious challenges due to the lack of preparedness of educational centers, regarding the provision of appropriate educational infrastructure and the unfamiliarity of teachers with virtual learning methods. Over time, some educators have turned threats into innovative opportunities in learning and have improved education in some cases. Without a doubt, studying these challenges and understanding teachers' experiences in this field can help better arrangement for the growth and excellence of virtual learning.

Materials & Methods: In this qualitative research, 11 semi-structured interviews were made with the faculty members of Alborz University of Medical Sciences in 2020. The texts of interviews were analyzed by conventional content analysis method using MaxQDA software.

Results: In this study, two main classes of "individual barriers to virtual learning efficiency" were extracted, which encompassed the sub-classes of personality traits and family factors, and "organizational management", comprised of the sub-classes of infrastructure provision, management and leadership, training and supervision, ethics and law and evaluation.

Conclusion: Given the continuity of the Corona crisis, each university must specifically evaluate teachers' challenges and experiences in the field of virtual learning during the COVID-19 pandemic in order to find effective solutions to tackle them.

Introduction

The development of virtual learning in the past few years has had an extraordinary impact on the growth and excellence of the level of education and educational equity in different parts of the world. Similar to other technologies, however, the use of this novel technology requires the proper foundation, education and formation of an acceptable environment for presenting and using its countless facilities and capabilities. In this regard, various factors are involved in the success of virtual education, such as supporting the faculty, existence of a support system, organizational commitment, management system, instructor's competence, method of service provision and the infrastructure (1-3). Before the COVID-19 epidemic, only some of the universities held a few courses online. The outbreak of coronavirus led to the prevention of gathering of people in educational spaces due to the high transmissibility of the disease (4) through respiratory droplets and close contact (5) in order to control the disease. This has challenged the provision of in-person and regular education in the world and has resulted in the development of virtual learning (6). The world health organization (WHO) has also suggested distance learning (e.g., use of radio, TV, and the internet) as the best solution for education during the COVID-19 epidemic (7). Meanwhile, the

[DOR: 20.1001.1.22519521.1400.14.42.8.2]

[DOI: 10.52547/edcj.14.42.1]

lack of experience of most teachers in this field has led to problems such as lack of familiarity with the disease, structural issues in the existing systems, and Internet-related problems (8).

In a research, Contreras et al. evaluated the challenges and experiences of teachers at the University of Mexico regarding virtual learning during the coronavirus epidemic, concluding that all facilities required for online training must exist in the university and an official guideline must be developed for virtual learning (9). In another study, the researchers assessed the challenges of virtual learning in medical fields from the perspective of the faculty. Their results led to the extraction of two main classes of organizational obstacles and ethical challenges, which were determined by sub-classes of improper organizational culture, inappropriate infrastructure, neglection of intellectual property rights and overlooking of ethical issues (10). In the present study, researcher dealt with challenges during virtual learning in the COVID-19 epidemic, including unfamiliarity with virtual training and problems in accurate student evaluation. Therefore, each university must eliminate challenges in this area by understanding them and expand virtual learning in the field of medical sciences. Given the lack of knowledge of real experiences of teachers at Alborz University of Medical Sciences, and with regard to the specificity of virtual education problems in different educational institutions of the world and in educational groups in postgraduate and bachelor degrees, the present study aimed to determine the perspective of teachers at Alborz University of Medical Sciences about the virtual learning problems in teaching theoretical courses for undergraduate students during the COVID-19 epidemic.

Materials and Methods

This was a qualitative research with a conventional content analysis approach performed to determine the experiences and challenges of teachers at Alborz University of Medical Sciences regarding virtual learning during the COVID-19 epidemic in 2020. Following receiving a code of ethics from the university (IR.ABZUMS.REC.1399.057), data were collected using purposive sampling, and the process continued until no new subject or class related to this concept was found. The inclusion criteria were willingness to participate in the study after receiving a full explanation about the research stages, being ensured of the confidentiality terms regarding their personal information and granting informed consent. Data were collected through semi-structured interviews carried out by the first author. In total, 11 individual in-depth interviews were made with teachers of Alborz University of Medical Sciences. Given the lack of presence of teachers in the university, interviews were performed via WhatsApp social media at a mean duration of 35-45 minutes. After coordination with the participants, a video or audio call was made (depending on the opinions of the subjects), and the interview would be started by introducing themselves and asking about their work experience, level of familiarity with virtual learning and related software. The researcher asked questions such as: “what are the problems faced in virtual education during the COVID-19 crisis?”, “what methods are used to continue the teaching process?”, “how do you deal with virtual learning challenges and problems?”, “what would happen if the epidemic continued?”, and “what do you suggest for making things better in this situation?”. After each interview, the content was read several times and ambiguous items were resolved through a phone call. Ultimately, the content of the interviews was analyzed by the content analysis method. In this regard, MaxQDA2 version 10 was applied to facilitate the data analysis process. However, no new subject or class related to this area was found after analyzing the interviews done with participant 11, which led to the termination of the data collection process. To confirm the accuracy of the data, we used the member check method in the initial coding stage, for which we checked the codes and interpretations from the

analysis of some interviews with participants. Moreover, observers' reviews were applied to confirm coding accuracy. Furthermore, sampling was carried out with maximum variability in age, gender, work experience and field of study to establish information richness. Accordingly, verifiability was covered by regular data collection, constant comparison of the data and accurate recording and observance of neutrality and analysts' agreement on classes. In addition, the criterion of data reliability was considered by researchers' long involvement with data and immersion in data.

Results

This qualitative research was conducted on 11 faculty members of Alborz University of Medical Sciences, four of whom were male and seven were female. The mean age of the subjects was 42.27 years and their mean work experience as an educator was 15.7%. In addition, three of them taught basic science courses while eight of them taught specialized courses in various nursing, operating room, anesthesia, midwifery, laboratory sciences and health departments. The analysis of the data obtained from the interviews led to the extraction of two main classes, namely "individual barriers to the virtual learning efficiency" and "organizational management", each of which encompasses a number of sub-classes (Table 1). This section focuses on the description of the main classes and their sub-classes.

Table 1: Classes, sub-classes and primary extraction codes

Main classes	Sub-classes	Initial codes
Individual barriers to virtual learning efficiency	personality traits	resistance to change
		concerns about the disease crisis
		unfamiliarity with technology
		lack of belief in the effectiveness of virtual learning
		presence in a crowded environment
	family factors	change in family's expectations
		tolerating a mental pressure from the family
	infrastructure provision	Bandwidth and internet speed
		free internet
		need for content production facilities
Organizational management	management and leadership	crisis management
		development of clear instructions
		evaluation based on teacher performance
		preparing the educational infrastructure
	training and supervision	preparation of faculty members
		assistance of content production
		supervising the teaching process of professors
		monitoring and evaluation
	ethics and law	intellectual property
		confidentiality and privacy
	evaluation	tuition receiving
		cheating
		assignment evaluation
		unrealistic grades
		formative assessment

[DOR: 20.1001.1.22519521.1400.14.42.8.2]
[DOI: 10.52547/edcj.14.42.1]

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[DOI: 10.52547/edcj.14.42.1]

1) IndividualBarriers tothe Virtual Learning Efficiency

This class comprised of the "personality traits" and "family factors" sub-classes:

Personality Traits

This sub-class was formed based on the coverage of initial codes of "resistance to change", "concerns about the disease crisis", "unfamiliarity with technology", and "lack of belief in the effectiveness of virtual learning". One of the educators mentioned "after years of in-person holding of classes, how am I supposed to talk without the presence of students, record my voice and upload the file on the system? Teaching is defined by a marker, a board and Q&A." (Female teacher, 50-year-old, specialized course).

In addition, a number of teachers talked about lack of motivation and lack of enjoying the process

For instance, one of the female teachers stated "during the first few days, I saw so concerned about the disease and lack of infection in my family that I could not focus to learn the new job." (Female, 37-year-old, specialized course)

B) Family Factors

This sub-class is formed based on the coverage of initial codes of "presence in a crowded environment", "change in family's expectations" and "tolerating a mental pressure from the family". The presence of teachers at home has changed their role and the family's expectations. On the other hand, the presence of all family members at home has caused a chaotic environment, which has led to distraction and increased mental pressures on teachers. Some of the participants mentioned:

"You know, from one hand, you are at home and everyone expects you to help out. On the other hand, you cannot stand not to help them." (Female instructor, 29-year-old, specialized course)

"How am I supposed to handle an online class or record the class content in a crowded house while keeping two small children quiet?" (Female instructor, 41-year-old, basic science course)

"My spouse's fear and concern influence all family members. In addition, I become pestered because of all the noise in the house, which sometimes makes me crazy. I do not see these things when I am at work. These issues are common when you are a teacher from home." (Female instructor, specialized course)

2) Organizational Management

This main class encompassed five sub-classes of "infrastructure provision", "management and leadership", "training and supervision", "ethics and law" and "evaluation".

Infrastructure Provision

Initial codes such as "Bandwidth and internet speed", "free internet", and "need for content production facilities", were the sub-classes of organizational management. In this regard, some of the teachers expressed:

"Internet speed has slowed and access to resources has become more difficult due to the corona epidemic, which has led to people's staying home and a higher use of the Internet." (Male teacher, 37-year-old, specialized course)

"Things have been better lately. But I spent so much money on the Internet at the beginning of the crisis." (Female teacher, 41-year-old, basic science course)

"As a teacher, I had no knowledge of these content production programs. I would make only one PowerPoint throughout the in-person classes. Then, I would go to the class and teach the content. Now, we need someone to teach us different programs to prepare better content in video or other forms. I personally am really upset about the current situation." (Female instructor, 50-year-old, specialized course)

B) Management and Leadership

Management and leadership comprised initial codes of "crisis management", "development of clear instructions", "evaluation based on teacher performance" and "preparing the educational infrastructure". The unprecedented situations in the COVID-19 epidemic have called for the necessity of crisis management in all areas, including education. Based on the opinions of participants, education managers should be able to have practical and

[DOR: 20.1001.1.22519521.1400.14.42.8.2]

[DOI: 10.52547/edcj.14.42.1]

prioritized solutions to lead the group through crisis management.

"Even though the ministry has encouraged the use of virtual learning for several years, the relevant authorities have not taken it seriously. Only a limited number of teachers knew how to handle an online class. Things were very chaotic in the first days." (Male instructor, 42-year-old, basic science course)

One of the participants believed that "the authorities must provide clear instructions for teachers and students at a macro level and after a rapid evaluation of the current status of the community. This will prevent arbitrary work in this field." (Male instructor, 42-year-old, specialized course)

Another teacher mentioned:

"Hasty decisions without review of most authorities bothered everyone. They constantly changed their mind. However, they were not at fault because things changed at the same time. It was really annoying. I hope that they would develop a fixed protocol and avoid creating a new protocol every day." (Male instructor, 45-year-old, basic science course)

C) Training and Supervision

This sub-class comprised of initial codes of "preparation of faculty members", "assistance of content production", "supervising the teaching process of professors", and "monitoring and evaluation". According to faculty members, they had to be provided with sufficient facilities in order to better adapt to the current situation. In this regard, one of the teachers mentioned "teaching in cyberspace as a whole new experience in the first days and weeks was shocking and unbearable. You could not see the students. There was no question and answer. Moreover, there was no one to tell us what to do." (Female educator, 47-year-old, specialized course)

Another subject marked:

"We thought that the disease would be handled in a short time and we would return to our classes. We did not take things seriously. They had to prepare us better than this." (Male instructor, 37-year-old, specialized course)

Another teacher expressed "we do not understand this state-of-the-art technology. For more than 20 years, we have taught in classes and have only used PowerPoint. The educational system must have recruited an expert group to teach these things to teachers. Things were really hard in the first days." (Female instructor, 50-year-old, specialized course)

On the other hand, there was no adequate system to monitor the performance of faculty members, which led to many irregularities in the performance of teachers, which affected students' learning. One of the subjects marked "no one checks the quality of content provided by teachers or the time of uploading the content on the system. There is no accurate monitoring, and it only depends on how much the teacher is efficient in the field of education." (Female instructor, 37-year-old, specialized course)

D) Ethics and Law

This sub-class included the initial codes of "intellectual property", "confidentiality and privacy", "tuition receiving" and "cheating". A number of teachers complained about free access to their content from across the country, declaring that the rights of the producers of these contents, such as books and any other educational content, must be protected. Meanwhile, another group of instructors believed that the distribution of these contents promotes knowledge, and mentioning the name of the content's creator would be sufficient. In this regard, some of the participants affirmed:

"We spend many nights working on preparing valuable content and pay a lot of money to the Internet and books to achieve this goal. Meanwhile, a group of teachers and even other universities use our content in their own names. Who is going to protect our rights?" (Male teacher,37-year-old, specialized course)

"I have seen my work used in other places. I am happy about it as long as their students are at the same level as my students. It would be great if they mentioned my name. It would actually show that they have ethics." (Female teacher, 50-year-old, specialized course)

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Another ethical issue in virtual learning is confidentiality and respect for all. Due to voice recording, Information can be shared intentionally or unintentionally, which should be kept confidential between students.

In this regard, one of the experienced teachers of basic science courses mentioned:

"During all these years, we have made a few mistakes in classes but we were able to handle it. Now, you have to be very careful because your voice is being recorded and any mistake would be big trouble." (Female, 47-year-old, specialized course)

Another concern in virtual learning that was addressed during the COVID-19 crisis and raised by a group of professors was how to calculate tuition.

One group argues that since lessons are prepared once and taught to different groups during the semester, tuition fees do not make sense, while others believe that the amount of time and energy spent on content preparation and course management during the semester, which is consistent with repeated formative assessments, is much more than the time and energy required for face-to-face teaching. This should be taken into account and teachers' salaries should not be reduced.

Some of the participants marked:

"Some of the teachers prepare a few PowerPoints and record classes for all courses and levels. For instance, they have eight credits but use the content of two credits. I have 10 different credits but do not get tuition for all of them. Meanwhile, a person with a managerial position receives tuition for those eight credits, which is not fair." (Female instructor, 29-year-old, specialized course)

"I think that handling a virtual class is much harder than an in-person class. It takes so much more time and energy. A teacher who works well, repeatedly takes exams and has a lot of students understands what I am saying." (Female instructor, 37-year-old, specialized course)

Ultimately, a group of teachers complained about cheating students in their assignments and believed that a lack of adherence to ethical principles in preparing and doing the assignments is one of the problems of virtual education.

"Whatever I do, they find a way to cheat in their assignments." (Male teacher, 45-year-old, basic science course)

E) Evaluation

This sub-class includes the initial codes of "assignment evaluation", "unrealistic grades" and "formative assessment".

Teachers complained about the time-consuming process of assignment evaluation in classes with a high number of students.

"If I were to give two assignments to 50 students, it would take a long time to read and score them one by one." (Male instructor, 42-year-old, basic science course)

Achieving unrealistic grades by students who copy the work of others was also one of the things that would lead to a decline in the quality of education and training of poor students with high grades.

"If you check the grades of students, you can see that all of the students, especially the weaker ones, have significantly improved in this area because of cheating. These are not their true grades." (Female educator, 47-year-old, specialized course)

Some educators in the field of medical education also believed that in order to have a realistic evaluation, summative evaluation should be turned into the formative evaluation and the presentation of various assignments and exercises.

"I always say that not just one exam at the end of the semester is enough when we are concerned with students' cheating on the tests and learning during the course. We have to constantly work with them, give them assignments and feedback so that they could understand their mistakes. This is how they can learn and this is what we can expect from evaluation." (Female educator, 50-year-old, specialized course).

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Discussion

In the present research, the results obtained from the conventional qualitative content analysis of challenges and experiences of teachers in the area of virtual learning during the COVID-19 epidemic were classified into two main classes of "individual barriers to virtual education efficiency" and "organizational management". The main class of "individual barriers to virtual education efficiency" encompassed two sub-classes of "personality traits" and "family factors" while the main class of "organizational management" comprised of the sub-classes of "infrastructure provision", "management and leadership", "training and supervision", "ethics and law" and "evaluation". Simultaneously with the analysis of the data using the software, the researchers repeatedly reviewed the interviews several times to ensure that all semantic units were identified and the relevant codes were extracted. Therefore, several other codes were added manually to the codes extracted from the software program at the end of data analysis and in the interpretation stage, some of which were "evaluation based on the performance of teachers" and "evaluation monitoring", which were included the sub-classes of "management and leadership" and "training and supervision".

The critical situation caused by the COVID-19 epidemic forced teachers to use virtual education while having no familiarity with the use of technology in this regard. On the other hand, some of the educators had to deal with problems caused by the disease in hospitals, and concerns related to the spread of the disease negatively affected the quality and quantity of educational sessions. Concerns and stress caused by the Corona crisis, lack of preparation, limited familiarity with this teaching method and lack of regular and specific instructions for using virtual learning caused confusion among teachers. In a study by Shenoy et al., while there were some confusions at the beginning of the work, most teachers were satisfied with virtual education, such that some of them considered online training to be better than regular classes since it increased their concentration and ease of mind and eliminated concerns about commute (11). Therefore, it seems that concerns decrease and the quality of teaching in virtual contexts increases over time and with increasing the skills of teachers.

Some teachers did not believe in the effectiveness of this type of training method in the learning-training process. In a study by Müller et al., most of the teachers, who had previous experience of e-learning before the COVID-19 epidemic, preferred in-person classes. They stated that forced change and teaching in the form of e-learning happened suddenly, which caused pressure, uncertainty and anxiety. According to the participants, it was difficult to change their mindset and get used to online tools, and their priority was to hold traditional classes. They explained that learning new skills such as voice recording caused "technical stress" in these individuals (12). In fact, the results of the foregoing study showed the necessity of higher support of teachers in this area, which is consistent with our findings. In a study by Mishra et al., most teachers believed that if they were convinced that the online method would have greater benefits, especially in this epidemic, they would be better motivated to teach. Based on their opinion, personal motivation was of great importance in this field, which would be formed gradually (13).

Since teachers' lack of belief in the efficiency of virtual education was pointed out in the present study, it seems that there is a need for convincing teachers to use this teaching method during the Corona crisis. On the other hand, many teachers who worked from home had problems such as Internet disconnection and high costs of Internet services. Therefore, organizations and governments must pay special attention to this area and provide more internet facilities to this group of people in the community.

Many teachers pointed to the need for crisis management to better handle the situation and develop clear guidelines for students and teachers, and

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some educators believed that the preparation of the e-learning platform was not done quickly and accurately, which caused many problems at the beginning of training. In a study by Kibuku et al., lack of adequate policies for virtual learning, insufficient ICT infrastructure, lack of technical and educational qualifications and training of e-educators, budget constraints, negative perception of e-learning and quality issues were among the challenges of virtual learning in Kenyan universities (14). Education and monitoring were other sub-classes of organizational management performance, which encompassed the initial codes of preparation of faculty members, assistance in content production, monitoring the teaching process and evaluation monitoring. The faculty members believed that the educational center should provide them with sufficient opportunities and facilities so that they could better adapt to the existing conditions. Many educators demanded the presence of experts, who were familiar with new technologies, and expressed the need for the existence of facilities to help produce content. In a study, Dhawan declared that many educators encountered many problems while working with EdTech during the COVID-19 crisis. Some of these issues included lack of familiarity with new teaching methods when starting work, and unfamiliarity with distraction reduction and student skill improvement techniques (15). In this respect, our findings are congruent with the results of the aforementioned study. Therefore, developing standard guidelines to guide teachers and, if necessary, assist faculty members in content production to enhance the quality of virtual learning seems necessary.

The sub-class of ethics and all included the codes of intellectual property, confidentiality and privacy, tuition receiving and cheating. Some educators complained about the uploading of produced content and their inappropriate use by some students. A group of teachers believed that their privacy was violated by holding classes online and recording their voices. In fact, they lost the respect of some of the students due to the lack of holding in-person classes. Another concern related to virtual education during the COVID-19 epidemic was the time spent during virtual education, which affected the tuition of teachers. Ultimately, a group of teachers believed that students did not adhere to ethical principles regarding their home assignments, which was one of the problems of e-learning. Most educators pointed out students' teaching in their assignments and exams and complained about the lack of appropriate monitoring in this area. In a research by Rajab et al., student assessment (57.5%) was one of the challenges to online medical education during the COVID-19 pandemic in Saudi Arabia (16), which is consistent with our findings. According to Azimi et al., in comparing the assessment system of Iran with Russia, there was less attention to the plagiarism, pre-testing and conformity of assessment procedures with educational content (17). To solve these problems, it seems useful to pay attention to the standard guidelines of e-learning in leading countries and use their solutions to combat cheating. According to Ebadi, some of the most important concerns of faculty members and students in the field of coronavirus epidemic were the inability to provide practical courses and internships, holding exams and the possibility of online cheating, traditional resistance to change, and reduced social interaction (6). In this regard, some of the problems mentioned were similar to that of the faculty members at Alborz University of Medical Sciences. However, the teachers did not mention the issue of reduced social interaction and the inability to provide internships, which could be due to conducting the research in the early weeks of the COVID-19 crisis, using alternative solutions such as simulators in training to compensate for internships and the existence of multiple ways of communication. On the other hand, most teachers did not imagine that the crisis would last that long to cause serious damages in holding practical courses.

Conclusion

According to the results of the present study, the COVID-19 crisis and the necessity of virtual learning have caused serious damages in the family environment of university teachers and educational institutions. Given the continuity of this situation in higher education, every university is required to recognize the issues related to this area and apply effective solutions to solve them proportional to their structure so that the health of educators and students is maintained while ensuring the effectiveness of the education provided in these centers.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Acknowledgments

Hereby, we extend our gratitude to the vice-chancellor for the research and technology of the university for financial support of the article. In addition, we would like to thank the faculty of Alborz University of Medical Sciences for assisting us in performing the research.

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Sadati L, Nouri Z, Hajfiroozabadi M, Abjar R. Faculty Members' Experiences About Virtual Education Opportunities and Challenges During The Covid-19: A Qualitative Study. J Med Educ Dev. 2021; 14 (42) :1-10

[DOR: 20.1001.1.22519521.1400.14.42.8.2]

[DOI: 10.52547/edcj.14.42.1]