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Original Article

Investigating the Relationship between Web-Based Teaching Components During the COVID-19 Pandemic and Elementary School Teachers' Anxiety: A case study of Amol city

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Abstract

E-learning has been extensively integrated into the educational system during the COVID-19 pandemic, aiming to enhance the quality of education. While introducing numerous benefits and positive impacts, this rapid transition has also posed new challenges that could potentially increase anxiety among elementary school teachers. Therefore, this study aimed to examine the relationship between web-based teaching components during the COVID-19 pandemic and anxiety levels among elementary school teachers, providing practical operational solutions. This research is applied in terms of purpose and correlational in terms of methodology. The statistical population of the study included all elementary school teachers in the city of Amol, totaling 750 individuals. A sample of 256 teachers was randomly selected from the city of Amol. Data were collected using the Salmi Anxiety Questionnaire, Abedini Chogordani, Ghasemi Nafchi, and Tabashir (2021), and a researcher-made questionnaire to measure web-based teaching components. The validity of the questionnaires was confirmed through face validity, and Cronbach's alpha coefficient was employed to determine the reliability of the research instrument. Data analysis was conducted using Pearson correlation coefficient and multiple regression analysis. The findings indicated that the contributions of web-based teaching components, including support and virtual learning infrastructure (169.0), learning and technological complexity (141.0), electronic content production (267.0), and type of course instruction (203.0), were significant predictors of teachers' anxiety during the COVID-19 pandemic. However, the contribution of the effective assessment component (107.0) was not statistically significant. Virtual education infrastructure, learning technological skills, acquiring content production skills, type of course instruction, were negative predictors of teachers' anxiety during the pandemic. The results of the study revealed a significant negative relationship between some web-based teaching components and anxiety levels. Therefore, it is recommended to reduce teaching anxiety in web-based education by implementing empowerment courses to develop online teaching skills, producing effective content, and fostering technological development in in-service teacher training.

Keywords

Virtual education, Web-based teaching, Anxiety, Teachers.

Introduction

The transition from traditional classroom to modern methods in education had a great impact on the education industry and the executive factors, especially teachers, who were responsible for providing quality learning to students, meaning teachers should cope with the abrupt changes and facilitate learning. Traditional education drives learners to memorizing parrot-like concepts. This causes poor practices for the learners in analyzing data and facing problems in everyday life that require reasoning and creative solutions. Therefore, as the need for today's generation differs from the past, it must also employ new educational and learning

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methods to meet their needs. Nowadays, information and communication technology (ICT) is widely considered in all countries. With the development and expansion of the day of the addition of information and communication technology and its impact on life, web-based teaching cannot be neglected (Karimi Haji Khademi & Heydaripour, 2021). The coronavirus disease has led to the emergence of education policies in the home for learning to prevent the outbreak (Faizah et al., 2021). In other words, the coronavirus outbreak caused a significant change in the way the learners learnt, so the sudden outbreak of the virus hampered the educational system all over the world and compelled instructors to switch to web-based teaching. Some of the learners and teachers began to accept this new teaching method and are preparing to learn web based learning (Sharin, 2021). The process of transferring knowledge, values, methods, skills and beliefs from one person to another is training. Web-based teaching started in the United States in the 1800s, when the University of Chicago teachers and learners were in different places trying to communicate through correspondence courses (Sadiku et al., 2018). For implementing web-based teaching system, the existence of structure (networking, software and hardware), real but very limited educational space (physical resources), digital content, skilled manpower and financial resources are essential (Karimi Haji Khademi & Heidaripour, 2021). In this regard, the primary school level as one of the important courses in web based education faces many challenges and problems. Some studies explained the main challenges for elementary school teachers in virtual education include their ignorance of modern teaching methods in cyberspace, their familiarity with online testing and evaluation methods, the timeliness of web-based training for teachers, their lack of skills to produce content, and their inability to have a suitable environment for performing virtual teaching (Dehghani et al., 2021). In addition, Aliyyah et al (2020) argue that the main challenges elementary school teachers face in web-based education include their limited experience of teachers, lack of urbane knowledge of web-based education, and the extent to which they share or technical hurdles in web-based education. Web-based learning was widely implemented at all educational levels during the coronavirus era, and reduced the risks and anxiety of contracting the coronavirus (Qaderi and Shukri, 2021). One of the benefits of web-based learning is that it can create effective learning through both interactive and collaborative activities design (Stefaniak, 2020). This kind of education not only facilitates the transmission of new information, but it also improves knowledge levels and creates equal learning opportunities for all individuals (Tan et al., 2023). This type of learning is composed of three support systems: learning tasks, learning support and learning resources (Hidayati & Bentri, 2022). The task of learning is a set of tasks that are given to students by teachers with the aim of achieving the ability. Learning support is a learning system developed and designed on a learning website that students can easily understand. These features should be easy for students to understand. Learning resources that are predominantly developed in web-based learning include related video and learning resources (Pradana et al., 2023).

In addition to virtual learning opportunities, the teachers' web-based teaching has highlighted challenges in the Coronavirus era including the presence and cognitive activation of students, low interaction, lack of access to smart devices, unstable internet access, management challenges, lack of interaction and participation, and ways of evaluation and validation of training and issues related to motivation and psychological well-being (Kaplan-Rakowski, 2020).

In fact, teachers were forced to use tools, educational media, and content production tools to effectively teach on the web. This created resentment and psychological pressure on teachers because of the limited equipment and challenges they faced in the internet. In this environment, teachers should adapt their curriculum to an online platform and feel inadequate and powerless, can be created while creating support for students in this challenging atmosphere (Assunção Flores & Gago, 2020; König et al., 2020; Jain et al., 2022). Many

learners face psychological problems during school years. These difficulties may be more apparent during the outbreak of COVID-19 with restrictions and transmission to an online learning environment (Pelucio et al., 2022). On the other hand, teachers may feel isolated from home classes, particularly for teachers who have become accustomed to day-to-day interactions with students and colleagues (Hart & Nash, 2020). In this short period, despite the lack of readiness to teach in online learning environments, teachers were forced to use technological skills and as a result, they encountered situations that perhaps did not have the social - emotional competence necessary to tackle (Hadar et al, 2020).

Research (Joshi et al., 2021; Pokhrel et al., 2021; Selvaraj et al., 2021) have shown that online education has created anxiety and significant psychological challenges for students and teachers. Meanwhile, teachers' anxiety may affect their job performance and result in poor performance and depression (Husseini et al., 2020). Actually, anxiety indicates the undesirable emotional state which is the product of mental pressures and struggles. Its main feature is fear and fear of the upcoming events (Ansari, 2021). This psychological state can be experienced by every human being throughout their lives; However, if it defies balance, it is known as a mental disorder (Cure & Cure, 2020).

Ahmadi et al (2023) conducted a study entitled Examining the Relationship between Media and Information Literacy of Teachers and their Attitude to Web-based Education with the Advancement of Students in the Corona Era. The results showed that there is a relationship between teachers' media and information literacy to web-based education and students' educational achievement. Sadeghzadeh and Ramezani (2021) explored the relationship between teachers' attitude to technology and their adaptation to the first virtual learning course in COVID-19 epidemic: the role of intermediate-ability and teacher's anxiety to the use of technology in a class. The results showed that the overall attitude of teachers regarding technology, has affected adaptability to the first course of virtual learning due to the indirect effect on their perception of technology usage and also to reduce anxiety about using technology in the classroom. Shomaliahmadabadi & barkhordari ahmadabadi (2023) have examined the effectiveness of virtual, happiness training based on the theory of choice theory of choice on the hope and anxiety of COVID-19 female teachers during the coronavirus epidemic. The results showed that in the post-test group the mean score of COVID-19 anxiety was significantly decreased and the average score of hope was significantly increased. The effectiveness of virtual learning of happiness with a theory of choice approach is considered as an effective intervention in reducing COVID-19 anxiety and improving hope.

Malick and Sarfaraz (2020) presented a research entitled Perceived Anxiety among university students in the Korona Period Education. This study aimed to examine the effect of e-learning on anxiety perception in university students. The results showed that 96.9% reported that they experienced anxiety via virtual learning.

In the study Roman and Pelopano (2020) entitled Effectiveness of Electronic Emergency Training during the COVID-19 pandemic, it was concluded that psychological distress and increasing concern about the COVID-19 pandemic have negative effects on learning effectiveness. Students with poor Internet access problems, insufficient time due to family issues, and poor working space at home are likely to be less effective in the online class learning process for them. Pressley et al (2021) conducted a study titled Stress and Anxiety of Teachers during the Coronavirus epidemic. The aim of this study was to examine the effect of return to teaching during coronavirus disease on teachers' stress and anxiety. The study included 329 elementary school teachers from across the United States who completed a survey. The results showed that the greatest increase in anxiety was experienced by virtual learning teachers during Corona period. Ozamiz-Etxebarria et al (2021) assessed the prevalence of anxiety, depression and anxiety among teachers during the COVID-19-19 epidemic: a systematic early review with meta-analysis. The results showed that teachers at

different educational levels experience undesirable mental symptoms during the coronavirus epidemic and the levels of anxiety vary in different countries. Arora et al (2021) assessed the impact of the coronavirus and online exam anxiety on self-efficacy: a moderating role in coping strategies. The results showed that the students' anxiety has adverse effect on their self-efficacy. The results indicate that the sample studied reported more anxiety about corona anxiety as compared to the corona anxiety. Also it was found that the relationship between anxiety and self-efficacy is stronger at the low levels of the counter strategy and significantly weakened at the high levels of the coping strategy.

Pelucio et al (2022) conducted a study titled Depression and Anxiety among students learning online during the coronavirus epidemic. The results showed that most participants mentioned emotional impact relative to impact on other variables such as learning, financial, social and technological aspects. The results also showed that the participants in the virtual learning of Corona period experienced an intermediate level of anxiety. Amalaraj et al (2023) conducted a study entitled The Review of E-learning during the Corona Era and Levels of Anxiety among University Students: A systematic review. The articles were in-depth analysis from 2019 to 2021. Results of systematic review showed that e-learning has been significantly associated with anxiety. Different factors such as gender have an effect on the formation of anxiety caused by e-learning.

Dayal (2023) under the title of online training and its impact on teachers throughout the Corona period. The results indicated that the COVID-19 virus has exacerbated widespread inequality in internet access, smart devices, and education required for an effective transmission to online education. However, teachers were quickly adapted to online training with help from institutions' training and tutorial tools. However, 92% of interviewees experienced psychological problems such as stress, anxiety and loneliness due to online training.

In short, the entire coronavirus epidemic suddenly caused a sudden change in the educational system. Therefore, considering the teachers' important role in developing education in the country, their mental stress and lack of mental health can have irreparable damage to the education system. On the other hand, it can be said that when teachers experience high levels of stress, they result in poor quality training, support and poor health of teachers and ultimately burnout among teachers. In addition, teacher stress and poor support affect student progress (Sokal et al., 2020)

The importance of virtual education and mental health of teachers is that they need the support of friends and family and the students' parents more than they seek support from the educational system or school principals. An important part of the challenges of virtual education, which also pertains to their mental health, relates to teachers' lack of preparation and technology literacy. With technological advances and the process of digital education, virtual learning methods and online training for teachers have become increasingly common. One possible effect of virtual learning on teachers is to create anxiety and fear for compliance with the new training process. For many teachers who have become accustomed to being in the classroom's physical environment and interacting with students, a shift to virtual education can bring psychological concerns. This may be due to lack of direct contact with students, reduced social and interactive activities, and a sense of lack of control over the educational process, which can lead to increased teachers' anxiety. Some teachers may not be familiar with the use of new technologies and training platforms, which may increase anxiety and uncertainty about their skills. Also, measurement and evaluation of progress and learning in virtual learning may put some teachers under pressure, which can lead to anxiety. Therefore, the aim of this study was to investigate the relationship between web-based teaching components in corona period and anxiety among primary school teachers.

Methodology

This descriptive study was carried out using correlation method. To gather the information about literature and theoretical bases, compiling and preparing research tools used library method (studying books, articles, dissertations, research projects and databases). By studying various related topics, the research is more recognized and it is useful in reaching the goal of the research. The statistical population is all teachers of primary schools in Amol city of which 750 students were recruited. A sample of 256 people was selected based on Cochran's formula which is performed by simple random sampling. Data were collected through a questionnaire including; a 1399 corona- and contributors anxiety questionnaire;

A: Anxiety Questionnaire: In order to measure the anxiety variable, the Corona Anxiety Questionnaire (CSS-18) Salimi, Abedini Chagardani, Ghasemi Nafchi and Tabashir (2020), which includes 18 Goyeh, were used. The results of exploratory and confirmatory factor analysis showed that the reliability of the Corona Anxiety Questionnaire was 91% based on the Cronbach's Alpha Coefficient. Grading this scale based on the Likert spectrum is 5 degrees from never to always. As a result, the validity of the questionnaire has been proven. Content validity method was used to further ensure the validity of the research questionnaire. The content of this study is as follow: Consistency coefficient is 0.91 Cronbach's alpha coefficient which shows the desirable reliability.

B: Web-based teaching components questionnaire: The questionnaire containing 44 questions was based on the web teaching components. Questionnaire's components were the infrastructure of virtual education (questions 1 to 14), technology learning (questions 15 to 18), electronic content production (questions 19 to 22), classroom instruction (questions 23 to 28) and students' effective evaluation (questions 38 to 44). The validity of the questionnaire made by the researchers' experts and professors was confirmed when measuring the research variables by a great convergence among the experts' viewpoints. In this study, using SPSS software and cronbach's alpha program, reliability of questionnaire was 0.79 which indicates desirable reliability.

Research findings

Demographic Distribution of Gender, Academic Degree and Teacher Work History

Table 1 shows the sample distribution according to gender, education degree and work history.

Table 1. Distribution of responders according to gender, academic degree and work history

		Frequency	Percent
Gender	Man	105	%41
	Woman	151	%59
	Sum	256	100
Education	Associate	32	%12
	Bachelor	146	%57
	Master of Science	78	%30
	Sum	256	100
work history	Less than 10 years	23	%9
	Between 10 and 15 years	24	%9.5
	15 to 20 years.	98	%38.3
	More than 20 years	111	%43.4
	Sum	256	100

According to Table 1, 59% of respondents were man and 41% were woman. 12% had Associate degrees, 57% had Bachelor degrees and 30% had Master of Science. 9% of teachers under 10 years old, 4.9% between 10 and 15 years old, 38.3% between 15 and 20 years old, and 43.4% have 15 years of work history.

Table 2. Descriptive Indicators of Research Variables

Variable	Sample Size	Mean	Standard deviation	Median	Mode
Virtual Training Infrastructure	256	2.93	0.7045	3.00	2.50
Technology learning	256	3.31	0.8366	3.37	3.50
Electronic content production	256	3.34	0.9407	3.50	4.00
Teaching Courses	256	3.87	0.8895	4.00	4.20
Effective evaluation	256	2.73	0.7627	2.66	2.33
Stress	256	3.79	1.0970	3.83	3.50

According to table 2, the mean and standard deviation of the criteria for the structure of virtual education were 2.93 and 0.7045, respectively, technology learning was 3.31 and 0.8366, e-content production was 3.34 and 0.9407, Teaching Courses was 3.87 and 0.8895, effective evaluation of the sections were 0.73 and 0.7628, respectively, and stress was 0.799 and 077, respectively. The most important results of descriptive statistics show that there is a low level (lower than 3) for teachers of virtual education infrastructure and effective evaluation of students. It is higher than average (above 3) for students to learn about technology and production of e-content at the intermediate level and teach the types of lessons in cyberspace. Anxiety among teachers also is not in good condition during the coronavirus outbreak

Table 3. Kolmogorov-Smirnov test results

Research variables	Test statistic	Significant level
Virtual Training Infrastructure	0.899	0.394
Technology learning	1.150	0.142
Electronic content production	0.938	0.342
Teaching Courses	0.957	0.319
Effective evaluation	1.001	0.269
Stress	0.901	0.406

According to the findings of Table 3. It is observed that the meaningful level of Kolmogorov-Smirnov test for all research variables is estimated greater than 0.05. Thus in this test error level, the assumption of zero statistics based on normal distribution of data is accepted. Each of these variables has a normal distribution.

Table 4. The results of the Pearson correlation test for research hypotheses

Variables	Teachers' Anxiety	
Virtual Training Infrastructure	Indicators	Values
	Pearson test value	-0.436
	Significant level (sig)	0.0001
	Sample Siza (n)	256
Technology learning	Pearson test value	-0.302
	Significant level (sig)	0.0001
	Sample Size (n)	256
Electronic content production	Pearson test value	-0.466
	Significant level (sig)	0.0001
	Sample Size (n)	256
Teaching Courses	Pearson test value	-0.407
	Significant level (sig)	0.0001
	Sample Size (n)	256
Effective evaluation	Pearson test value	-.264
	Significant level (sig)	0.0001
	Sample Size (n)	256

Table 4 findings show; There was a significant inverse correlation between the Pearson correlation coefficient between the virtual learning infrastructure and teachers' anxiety (0.436). The statistical significance of the test (0.0001) was smaller than the error (0.01). So, the correlation between the virtual education infrastructure and signs of anxiety among teachers in Amol County during the coronavirus epidemic was revealed. So the lack of infrastructure for virtual learning has increased the anxiety of teachers during the coronavirus outbreak. There was a significant inverse correlation between the Pearson correlation coefficient between technology learning and teachers' anxiety. The significance of Pearson correlation coefficient was -0.302. The significance of test (0.0001) was smaller than error (0.01). Therefore, low level of technology learning in cyberspace caused to increase teachers' anxiety at the time of coronavirus outbreak. The Pearson correlation coefficient between output of electronic content and teachers' anxiety was -0.466. The test mean level (0.0001) was smaller than error (0.01). So, there was a significant inverse correlation between output of electronic content and anxiety creation among teachers in Amol county during the coronavirus epidemic. So the need to produce electronic content in cyberspace has increased the anxiety of teachers during the coronavirus outbreak. The Pearson correlation coefficient between the teaching type of the subjects and the teachers' anxiety was -0.407. The test significance level (0.0001) was smaller than error (0.01). So, teaching type of the lessons and causing anxiety among teachers in Amol city during the coronavirus epidemic was significant. So, a reduction in the quality of the virtual learning style of the curriculum caused to increase the anxiety of the teachers during the coronavirus epidemic. The Pearson correlation coefficient between the effective assessment of students and the teachers' anxiety was -0.264. The test significance level (0.0001) was smaller than error (0.01). So, students' effective evaluation and anxiety creation was in inverse and significant correlation among teachers in Amol during the coronavirus epidemic. Therefore, the reduction of the quality of effective evaluation of students in virtual space has caused to increase teachers' anxiety

at the time of coronavirus epidemic.

Multiple regression analysis was used to investigate and provide a model between web-based teaching components and anxiety among primary school teachers. Table 5 shows the adequacy indicators of the model.

Table 5. Regression Model Summary

Correlation coefficient	coefficient of determination	modified determination coefficient	Estimation Criteria Error	Durbin-Watson Test
0.543	0.295	o.281	0.9302	2.134

According to Table 5, the multiple correlation between the independent variables (web-based teaching components) and dependent variable (teacher's anxiety) is 0.65. The coefficient of determination was found to be 0.42. 30% of anxiety variation in teachers was related to web-based teaching components.

The mean values for the Watson test were 2.134. As the Durbin-Watson Test value is between 1.5 and 2.5, it shows that there is independence between the errors and there is no correlation between errors. This indicates the validity of the regression model. Considering that the tolerance of regression variables in this study is less than 1, and also considering that the VIIF is less than 5, there is no multiple linear correlation between research variables.

In the following analysis, for comparison of means in dependent variable and prediction of dependent variable, analysis of variance table as well as meaningful table of regression line coefficients are investigated.

Table 6. Variance analysis table

Model	Sum of squares	DF	Mean sum of squares	F	Significant level
Regression	90.553	5	18.111		
Remaining	216.349	250	0.865	20.928	0.0001
Kol	306.902	255			
The dependent variable: Anxiety					

According to Table 6, the F ratio was significance at 0.0001 level, which was lower than the error value (0.01). Thus, regression can predict the dependent variable, teachers' anxiety.

Table 7. Regression coefficients significantly

Model	nonstandard coefficients	standardized coefficients		T	Significant level	Tolerance	VIF
	B	Std. Error	Beta				
Fixed Value	6.771	0.321		21.10	0.000		

Virtual Training Infrastructure	-0.263	0.119	-0.169	-2.221	0.028	0.381	2.62
Technology learning	-0.185	0.077	-0.141	-2.386	0.018	0.504	1.98
Electronic content production	-0.312	0.084	-0.267	-3.707	0.000	0.574	1.74
Teaching Courses	-0.250	0.106	-0.203	-2.354	0.019	0.734	1.36
Effective evaluation	0.153	0.115	0.107	1.329	0.185	0.731	1.37

According to the results of Table 7, the significant level of predictive variables (e.g. structure of virtual learning, technology learning, e-content learning, courses teaching) is smaller than error value (0.05). The significant level of effective evaluation component is greater than error value (0.05). In other words, web-based teaching components (e.g. Virtual Learning Infrastructure, Technology Learning, e-Learning, Course Teaching) as predictive variables predict and explain teachers' anxiety at the time of the coronavirus epidemic. Of course, the infrastructure of virtual education, technology learning, e-content learning, teaching courses are the negative predictive models of teachers' anxiety during the coronavirus epidemic. The standardized coefficients (Beta) are used to make the regression coefficients more susceptible. Standardized coefficients are used to test the prediction of anxiety for teachers during the coronavirus epidemic. As the regression coefficient table shows, the component of e-content learning and teaching the course type of lessons are more negative and strong predictors of teacher anxiety in the coronavirus epidemic. The results of Pearson correlation and multiple regression tests indicate that the dispersion of teachers' opinions in relation to the web-based teaching components is significant. There is no reasonable correlation in the opinions of teachers during the coronavirus epidemic.

Discussion and conclusion

Technology and digitization have made huge changes in the teaching methods of the classroom. In fact, technology helps learners to develop their skills and lifelong learning by creating conditions for student-oriented instruction (Li et al., 2023). Therefore, the nature of learning environments has undergone a change with the emergence of the skills of the century and twenty. In addition to the introduction of the technologies, the corona crisis has also led to changes in learning environments such that traditional learning environments gradually shifted to online learning environments during the coronavirus era and caused the learners to gain new learning experiences (Fazeli et al., 2021). So, the purpose of this study was to investigate the relationship between web-based teaching components in Corona period and anxiety of primary school teachers. The results showed that there was a significant relationship between web-based teaching components and anxiety among teachers in Amol County during the coronavirus pandemic. The results were presented by Ahmadi et al. (2023); Sadeghzadeh and Ramazani (2021), Shomali Ahmadabadi and Khodari (2021); Ozamiz-Etxebarria et al. (2021), Arora et al. (2021), Pelucio et al. (2022), Amarraj (2023) and Diyal (2023) all aligned.

In this finding, Mailizar et al (2020) and Zhang et al (2020) brought insufficient equipment and insufficient Internet access as a challenge for the teachers to provide virtual learning during the Coronavirus era. Virtual education in general is dependent on the infrastructure of ICT. Because it can make online education system universal, simple, flexible and accessible. Li and Wu (2021) did a study called Students and Teachers about the online learning experience in China during the coronavirus outbreak. Network congestion is the most common problem that students

face. On the other hand, such as ease of use, user-friendly, appropriate appearance, leadership and user guidance, flexibility increases the quality of applications and learning networks (Skiba, 2017). Despite good prospects for IT-based education, one of the most important factors on Shad TV, poor existing technical infrastructure and lack of access for some students and teachers, especially in regions deprived of smartphones and High-speed Internet, caused problem of virtual learning and raised teachers' concerns. The present study was conducted by Karimian (2021) researches on the poor satisfaction of learners with the first version of the educational network. Moradi (2021) Problems with installation and commissioning, low loading rate of materials especially video and audio files; It's the same. Some of these studies were probably done with previous versions of Shad and have an effect on teachers' anxiety; In other recent editions of the Shad Program, however, new features were added that removed some of the teachers' concerns. The redesign and beautification of the user interface, the possibility of attendance and absence, the ability to test, as well as working folders and the use of the Homework, Teachers and Teachers Service (Razavi, 2023). Another important component that influences teachers' anxiety is learning technological skills in web-based teaching. In explaining this finding, it can be said that with the changes in technology creation, it is appropriate to incorporate technology alongside in-person classes due to increase flexibility in simultaneous and asynchronous communication training, use of class at any time and place and decrease of costs(Juntak et al., 2020). Therefore, one of the essential skills for teachers is technology literacy. In order to reduce teachers' anxiety in this field, they must support concerning their motivation and technology to fully use technology as a enrichment factor. Also teaching multimedia educational production skills can help teachers to produce quality content and thereby make effective teaching. Using the hybrid approach in education can also improve the impact of virtual learning (Moradi et al., 2023). Online teaching skills and electronic content production are another important component of teachers' anxiety-related virtual learning. In fact, producing electronic content is a skill and requires learning and practice courses. Prior to Corona, teachers did not have the required qualifications and were not able to produce content. In addition to teaching in-person settings, teachers can also use various types of electronic content. It is both easier and quicker for the teacher to go through the process of learning, and easier for the student to learn all sorts of subjects. You can use a variety of content production formats such as video, text, images, slides, audio, etc. He used the opportunity to study with students in an atmosphere far away from school. This also makes it easier for students to fix in their mind by learning a variety of subjects during their daily life. To explain this finding, we can say that in order to make virtual learning courses effective and reduce teacher anxiety levels, we must train effective teaching skills including online teaching, methods for creating interaction and participation in online training, new online evaluation methods and feedback.

According to the research findings, in order to reduce teachers' anxiety and effective teaching in web-based learning environments, it is recommended that through the development of virtual infrastructure and adding virtual teaching assistant in web-based courses, the quality of training increases and decreases the teacher's anxiety and workload. It also boosted the server and bandwidth of virtual education infrastructure through the launch of a content production studio, training and human resource empowerment specialist. In addition, because of the poor effect of educational content production on increasing teachers' anxiety, it is suggested that capacity building and the ability of ICT in schools to support and enrich educational activities using new methods such as IT-based active teaching strategy in teacher's empowerment program. From the physical point of view, this study is limited to schools of Amol city. The researcher must generalize findings of caution. In addition, teachers pay less attention to online teaching during coronary time and their opinion on the components of virtual learning may influence the effectiveness of classroom instruction.

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