

Virtual learning anxiety: A case study of Pedagogical University (Ukraine)

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Abstract

This paper deals with the after-effects of the COVID-19 pandemic in the educational sphere. The authors aim to report the results of an observational study that was focused on the perceptions of virtual learning in students and teachers of Bogdan Khmelnytsky Melitopol State Pedagogical University during the first (March 2020) and the second (December 2020) lockdowns in Ukraine. The following objectives are set: to analyse scientific literature on virtual learning anxiety; to explore the participants' emotional state when studying/working online; to find out a list of digital tools, virtual platforms and messengers preferred by students and teachers; and to identify the most common challenges and benefits of virtual learning/teaching. In the study, anxiety in virtual learning is defined as a psychological state of a person caused by unawareness of modern digital technologies, lack of properly developed ICT skills, and misuse of virtual learning tools which result in distress, dissatisfaction and uncertainty. The authors come to the conclusion that technological and psychological training of both students and teachers should go in line and function as a holistic system in order to reduce virtual learning anxiety. Potential solutions to overcome the challenges and create an effective virtual learning community are given.

KEYWORDS

information and communication technologies, online education, university students, virtual environment

Context and implications**Rationale for this study**

School and university educational systems had to adjust to the changes caused by a global pandemic. In spite of the fact that virtual learning was already introduced in the educational process of Ukraine before the COVID-19 pandemic, its use was often defined as short term within the framework of the university curriculum and was only of an optional character. The task of modern society is to provide students and teachers with knowledge, attitudes and practice regarding the pandemic to eliminate anxiety in virtual education. It is important to investigate the overall state of research in the field of virtual learning anxiety and stress in both university students and teachers. For this reason, it is necessary to explore the perceptions of virtual learning among university students and teachers. The authors conducted the research at the Bogdan Khmelnytsky Melitopol State Pedagogical University during the first (March 2020) and second (December 2020) lockdowns in Ukraine.

Why the new findings matter

It is shown which processes related to e-learning/teaching should be conducted:

- enhance the online transformation of higher education at a government level; organise training courses of developing students' and teachers' ICT skills;
- introduce online education methods for lecturers;
- organise in-depth training courses for teachers which deal with interactive online teaching methods;
- form students' individual learning trajectories;
- develop online multidisciplinary courses;
- monitor the level of satisfaction of students and lecturers of the online education organisation for the accumulation of statistical data in the dynamics.

Implications for researchers

The results of the research would be useful in the process of overcoming the anxiety of university students and teachers about e-learning/teaching. Academics are called upon to simulate and research certain scenarios in an attempt to create a suitable algorithm of action that educational institutions might be able to adopt in case similar circumstances arise again. Subsequent qualitative research should be done at the national level of Ukraine to profoundly evaluate the challenges that have been faced by students and teachers while studying and teaching in a virtual environment.

INTRODUCTION

The wide and rapid spread of a global pandemic has brought irreversible changes in the educational process of Ukraine. Both school and university educational systems have had to adjust to these changes and introduce new information and communication technologies in order to develop remote ways of interaction between teachers and students, shifting from face-to-face communication to virtual space. Although virtual learning had already been introduced into Ukraine's educational process before the COVID-19 pandemic, its use was often defined as short term within the framework of the university curriculum and was only of an optional character. Taking into account the later changes in the economy, health system and life in general, virtual education has become an urgent need of modern society, offering a wide range of opportunities and concomitant challenges. This type of challenge is connected with the fact that online classes are often intimidating for students who have doubts about how to open online assignments, download course materials or send test results. These fears of a technological character highlight the under-development of information and communication technology skills.

Another problem of distance education is that internet connection may be of bad quality, students can start to feel bored at home, and unfinished assignments can pile up, leading to psychological problems such as anxiety, stress or depression (Lindasari et al., 2021). Besides, as far as pandemics are often associated with the development of general stress and panic, the strain that students can suffer when studying online can be doubled by other stressors and lead to exhaustion, anxiety and burnout (Mheidly et al., 2020).

On the other hand, virtual learning can also cause problems to teachers insofar as they were forced to adopt new distance learning strategies and skills necessary to operate on digital platforms such as Moodle, Google Classroom, Google Meet, Zoom, Skype, and so on. Often this transition process was accompanied by the lack of technical resources, skills, training in educational technology, necessary equipment and pressure on behalf of the university administration. Consequently, the majority of educators who had switched to online instruction, witnessed high levels of anxiety, tension and stress symptoms while adjusting to their online classes (Fernández-Batanero et al., 2021). Coping with these symptoms has become an important task of developing and improving the virtual learning process and overcoming its negative effects.

The task of modern society is to provide students and teachers with knowledge, attitudes and practice regarding the pandemic to eliminate anxiety in virtual education. Supporting self-care and mental health will promote less stressful communication and more effective interactions between the participants of the virtual educational process and ensure the students' right to education (Wakui et al., 2021). Considering the above, it is important to investigate the overall state of research in the field of virtual learning anxiety and stress in both university students and teachers.

Thus, the overall aim of this observational study is to explore and report the perceptions of virtual learning among university students and teachers of Bogdan Khmelnytsky Melitopol State Pedagogical University during the first (March 2020) and second (December 2020) lockdowns in Ukraine. The objectives of the study are the following:

1. To analyse scientific literature on virtual learning anxiety experienced by university students and teachers.
2. To explore the participants' emotional state when studying/working online during the first (March 2020) and second (December 2020) lockdowns.
3. To find out a list of digital tools, virtual platforms and messengers preferred by students and teachers.
4. To identify the most common challenges and benefits of virtual learning/teaching.

LITERATURE REVIEW

Scholars distinguish different types of anxiety towards learning/teaching through virtual education: computer anxiety, language anxiety, social anxiety, test anxiety (Tuncay & Uzunboylu, 2010), research anxiety, statistical anxiety, writing anxiety (Ajmal & Ahmad, 2019) and so on. In general, anxiety can be described as a basic human emotion consisting of fear, uncertainty, apprehension, tension and uneasiness (Tuncay & Uzunboylu, 2010) and characteristic of any stressful situation. In the study by Saad et al. (2017), a more specific definition of anxiety in virtual learning is given: 'a feeling of fear from misuse of information technology compromising course performance'. Due to the research results (Arribathi et al., 2021), anxiety contains two components—emotional (fear, inability to focus, restlessness and desire to escape reality) and physical (cold fingers, increased heart rate, cold sweats, headaches, reduced appetite, sleep disturbances and tightness in the chest). All these symptoms can be exacerbated when speaking about online anxiety as a more fundamental or basic form of anxiety (Clair, 2015).

Cadamuro et al. (2021) have found that in the context of distance learning, females are more susceptible and have a higher level of anxiety during the process of distance learning. They stated that interactive activities reduce the level of anxiety compared to traditional lessons. One of the main problems that occur is teachers' insufficient technical and pedagogical knowledge, and the absence of training and collective guidance. In their study, Jevsikova et al. (2021) proposed a model which allowed to reveal and define the factors that impact the degree of acceptance of distance learning technologies by education institutions. Among the factors that affect teachers' attitudes towards distance learning, they distinguish social influence, effort expectancy, technology anxiety and work engagement.

Bervell and Umar (2020) proposed a methodology for reducing technology-related anxiety, which may be of great importance for teachers who use blended learning in distance education. They stated that there is a need for further investigations on the topic of technology-related anxiety since its interrelations with students and teachers' gender, their locations and the specifics of a particular course are not studied enough. This opinion is supported by Cicha et al. (2021) who also state that for distance learning model success, a sense of self-efficacy should be ensured for the students.

Different results were received by Moy and Ng (2021). They did not find the connection between distance learning and stress, anxiety, depression. The researchers state that stress and anxiety may be caused by worrying about COVID-19 and as a result, the students might be even more anxious about traditional face-to-face learning. Abdullah et al. (2021) studied the quality of life comparing its scores before and during the pandemic. They discovered the dependence between stress, low quality of life and high number of COVID-19 cases in the participants' surroundings. Also, it is obligatory for the universities to provide the necessary distance learning conditions so that the students don't feel additional stress about their devices, internet quality and so on. (Moy & Ng, 2021).

MATERIALS AND METHODS

The after-effects of the COVID-19 pandemic on human activity have been a topic of interest for researchers worldwide. Up to now, research conducted on stress and anxiety mainly focused on healthcare workers whereas studies of the educational sphere are still lacking. In order to solve this problem and contribute to the growing body of scientific literature, the present study focused on the analysis of university students' and educators' anxiety in a virtual environment. The authors believe that research in this area could help design new strategies to cope with the stated problem. The authors hypothesise that

conducting coaching and counselling events such as seminars, training and webinars in order to promote online learning would reduce anxiety levels and bring positive changes both in students and teachers of universities. The study attempts to answer the following questions:

1. What are students' and teachers' emotions and attitudes towards learning/teaching in a virtual environment?
2. What are the factors that create anxiety among university students/teachers in a virtual environment?
3. What way did the participants' attitude to distance learning change after participating in events held by the university in order to promote online learning (seminars, trainings, webinars)?
4. What can be done in order to reduce students'/teachers' anxiety and enhance the quality of education?

The paper is organised in three parts. In the first part, a theoretical background of the study based on the literature review in the field is presented. In the second part, the data of the online questionnaire is analysed and the research results are discussed. In the third part, conclusions are made, recommendations are given and future research areas that address the gaps found in the present study are outlined.

The authors have conducted small-scale research in order to identify if both the students and teachers of Bogdan Khmelnytsky Melitopol State Pedagogical University feel anxiety concerning virtual learning. The general number of the participants was 265. It has to be mentioned that this sample comprised 92.1% females and 7.9% males. On one hand, this inequality of the representatives of genders can be explained by the fact that traditionally the majority of students and teaching staff in pedagogical universities are women. On the other hand, such kind of correlation of genders doesn't influence the research greatly, as the aim didn't presuppose the research of gender issue.

If talking about the participants in terms of their status (a student or a teacher), it has to be highlighted that the sample comprised 90.5% students and 9.5% teachers. Furthermore, the majority of teachers taking part in the survey have work experience of more than 20 years (43.8%). As for the other respondents, 31.3% of participants have from 10 to 20 years of work experience, 12.5% have from 5 to 10 years and 12.5% have less than 10 years of work experience. Students of all years of studies in the university took part in the survey: 34.3% were first-year students, 35.6% second-year students, 8.8% third-year students, 13% fourth-year students and 8.4% were Master's students. The authors developed an online questionnaire comprised of nine questions on the perceptions and usage of virtual learning. The questionnaire was created and distributed through Google forms.

RESULTS AND DISCUSSION

In the survey, the participants were asked a question 'What emotions describe your reaction to the start of distance learning in March 2020?' Figure 1 shows the responses of the respondents. It can be seen that over a third of participants (34.2%) felt joy and satisfaction when distance learning was implemented in Ukraine due to the COVID-19 lockdown; 52 participants (19.8%) said that they had experienced anxiety and worry; and 42 respondents (16%) highlighted that the feelings of discontent and disappointment were the predominant ones when they found out about the start of distance learning. So, these figures may reflect the fact that at that period of time (start of distance learning) in Ukraine both students and teachers were unaware of what distance learning was, what its advantages and challenges

were. New forms and methods of education have become increasingly important since quarantine due to the COVID-19 pandemic has led not only to changes in the global architecture and system of the world economy but also to the transformation of higher education. The COVID-19 pandemic has affected educational systems worldwide, leading to the near-total closures of schools, universities and colleges. Most governments around the world decided to temporarily close educational institutions in an attempt to reduce the spread of COVID-19. Students and teachers were not ready for that—this explains why they experienced mixed feelings.

Students and teachers were also asked about their reaction to virtual learning by the end of the first semester of the 2020–2021 academic year. The authors formulated this question in order to see whether the attitude of the respondents changed after they had experienced half a year of distance learning. Respondents' answers are presented in Figure 2. Practically the same number of respondents—101 (38.3%)—in comparison with the previous questions, felt the same emotions (joy and satisfaction). This also applies to other replies; thus, it can be stated that the students' and teachers' reactions to virtual learning did not change significantly during half-a-year-long distance learning.

With the widespread transmission of the virus between countries and even continents, the institutional closure has resulted in nearly 100% of students and teachers all over Ukraine not going to their universities and colleges. In order to see to what extent students and teachers felt sure and satisfied while learning and teaching online, they were asked to assess their feelings according to the following scale: 1 ('I am not self-assured and I feel discontent while learning or teaching online') to 10 ('I am absolutely happy with virtual learning, it makes me feel comfortable and self-assured').

In response to total lockdown in Ukraine, the Ministry of Education and Science of Ukraine as well as the authorities of Bogdan Khmelnytsky Melitopol State Pedagogical University recommended the use of distance learning programmes and open educational applications and platforms so that teachers could teach students remotely and limit the disruption of education. So, the questionnaire contained a question focused on the tools the teachers and students used while learning and teaching distantly. The respondents were asked the following questions: 'What kind of tools, platforms, social networking sites and messengers did you use while learning or teaching distantly?' Figure 3 shows their responses. The authors have analysed the responses and come to the conclusion that the greater part of students and teachers use Zoom (92.1%). It is followed by the university's distance learning site (87.9%). Less than 1% of students and teachers mentioned in their responses such options as Gmail, Google Duo, Google Meet, etc.

Since the beginning of quarantine, higher education institutions have not been fully prepared for online education, they have used only certain elements of online education. And online teaching methods have required development and clear regulation. This situation promotes a higher need for psychological counselling of both students and teachers due to the increased levels of stress and moral distress as a result of the change in the learning environment and the future prospects of their careers. So, the authors asked the

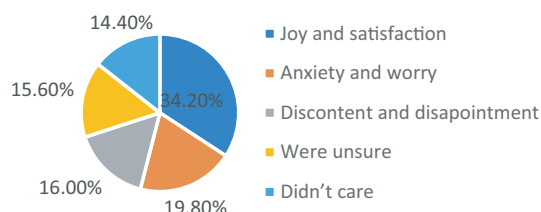


FIGURE 1 Emotions that describe participants' reaction to the start of distance learning in March 2020

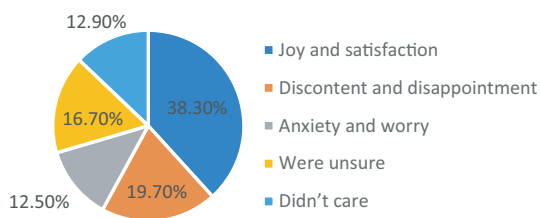


FIGURE 2 The reaction to virtual learning by the end of the first semester of 2020–2021 academic year

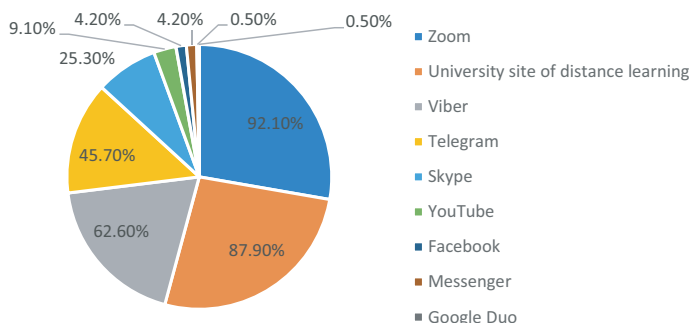


FIGURE 3 Tools, platforms, social networking sites and messengers used while learning or teaching distantly

following question: ‘What difficulties did you face while learning and teaching online?’ Both students and teachers (43.2%) pointed to the low quality of Internet connection or the absence of access to it. Some students (35.1%) felt the lack of teachers’ explanation of new issues under study and consequently the inability to comprehend them on their own. The same number of respondents (35.1%) experienced the desire to communicate with teachers (students) and peers face-to-face rather than online. Students referred to discrepancy between the amount of home assignments and the opportunity to do them; the teachers mentioned the lack of time to mark students’ home tasks. Moreover, 28.6% of participants considered the issue of low motivation for learning or teaching distantly to be a real challenge. Students proclaimed that they had received loads of emails every day and several assignments and requirements to cover, which made day-to-day living very stressful to deal with the heavy workload.

One of the main reasons that might have influenced the dissatisfaction with online learning can be technological difficulties (mentioned by 16.2% of respondents), where the telecommunication infrastructure is proven to be below average and connection can break down during a class. Students and teachers have to leave and then log back into sessions, may lose data, and sometimes they are unable to even catch the classes or their exams online. No less vital for the participants was the issue of the IT skills, as they considered them not to be properly developed. In the questionnaire, significant attention was also paid to the advantages of virtual learning and teaching. The participants (73.3%) said that first of all distance learning gave them an opportunity to plan their learning and teaching on their own; 51.1% of respondents also mentioned that distance learning saved their time. Among the advantages of distance learning, 40.1% of participants referred to the free choice of Internet tools and platforms to be used.

Due to the increased levels of stress and moral distress as a result of the change in the learning environment and the future prospects of teaching careers there appeared a higher need for psychological and technological counselling of both students and teachers. That

is why a number of training programmes for students and teachers were implemented in Bogdan Khmelnytsky Melitopol State Pedagogical University. The authors asked the respondents of the survey to what extent their attitude towards distance learning changed after their participation in the above-mentioned training programmes. The majority of people (29.3%) changed their attitude for the better, whereas 11.3% gave quite the opposite response. It should be said that students' and teachers' satisfaction with the learning process has a significant relationship with the learning outcomes, therefore the consequences of e-learning might affect the students' progress and academic achievement.

Taking into account the educational sphere in terms of quarantine/lockdown, symptoms of learning anxiety can result in a constant desire to skip online classes, difficulty to concentrate, a wish to postpone fulfilling the assignments, numerous mistakes in online tests, and, consequently, poor academic performance. Besides, it should be noted that university students are usually inclined to stressful situations, anxiety and depression because they feel the need to perform better than their groupmates, meet the expectations of their parents and educators, combine high academic performance with an active social lifestyle, work part-time in order to pay for their education now and get a good job in the future. Chandra (2021) describes these factors as scholarship requirements, family-related pressures and competition in the class. Other researchers (Fawaz & Samaha, 2020) point out that due to psychological challenges, social isolation and reduced activity university students face every day, these negative effects are expected to redouble in the times of COVID-19 quarantine/lockdown and cause procrastination, feeling of worthlessness, depression and anxiety while taking e-learning courses. Ajmal and Ahmad (2019) enumerate the reasons that cause students' anxiety in virtual learning, namely: lack of time given to prepare assignments, poor quality of books, lack of communication with tutors and groupmates, poor feedback from the tutors, lack of communication with the regional offices, due dates of assignments, understanding of assignments, assessment and tutor remarks.

Thus, in this study, the authors define anxiety in virtual learning as a psychological state of a person caused by unawareness of modern digital technologies, lack of properly developed ICT skills and misuse of virtual learning tools, which results in distress, dissatisfaction and uncertainty. Yet, not all students feel stressed when studying online. Some studies prove that mobile technology has a positive effect on students in higher education. According to Qi (2019), academic usage of mobile devices does not cause technostress as a type of disorder related to the implementation of technologies. On the contrary, due to extensive knowledge of technologies learners have an opportunity to promote mobile technology self-efficacy and enhance their academic performance.

Currently, the most common coping strategies to overcome students' virtual learning anxiety include: designing a check-in quiz to orient students into online courses quickly (Clair, 2015); increasing coaching, counselling programmes and behavioural techniques (Lindasari et al., 2021); updating the system of online student support services, providing satisfactory feedback by tutors and developing and distributing instructional brochures and pamphlets (Ajmal & Ahmad, 2019); identifying the students experiencing anxiety and encouraging them to develop healthy practices (good sleeping habits, healthy diet and regular physical exercises); developing good study habits and good test-taking skills (Tuncay & Uzunboylu, 2010); increasing the frequency of breaks between online lectures or during teleconferences to prevent loss of interest and attention, and conducting wide cross-sectional surveys to extrapolate the actual levels of stress and anxiety (Mheidly et al., 2020); using emotional intelligence and distancing from boredom and depressive thoughts (Chandra, 2021); and creating online communities of students (Croft et al., 2010).

Anxiety associated with virtual learning is also characteristic for educators. Having faced the necessity to transmit knowledge to their students online, many teachers experience the lack of the necessary educational virtual tools and misunderstanding of

didactic possibilities that technology can offer. Besides, little practice and improper use of technologies, on one hand, and pressure to use them, on the other, often results in the avoidance of their use. Thus, educational technology stimulates the development of stress, anxiety, exhaustion, depression or even burnout syndrome in teachers, which reduces the quality of the teaching process and creates a stressful situation in their workplace. (Fernández-Batanero et al., 2021). In their study, Toto and Limone (2021) observe a negative impact of digital technologies (factor 1) on motivation (factor 2) and perceived stress (factor 3) experienced by educators. They come to the conclusion that these three factors are interrelated: on one hand, the necessity to transform teaching practices and personal instruction style causes stress, and on the other, mastering novel methods of teaching in a virtual environment promotes motivation and personal growth. A slow integration process in this case can be stimulated by careful planning and designing the training and education of teachers in a virtual classroom.

Another study by Hidalgo-Andrade et al. (2021) highlights a detailed description of the most effective coping strategies associated with anxiety in virtual teaching during the COVID-19 pandemic. Unlike negative coping strategies such as avoidance and throwing objects to reduce anger, positive coping strategies, according to the research results, include the following: (1) providing social support (active and ongoing contact with family and friends); (2) exercising (activities that maintain and improve physical health, such as taking part in sports, yoga, keeping to a healthy diet, and maintaining daily routines); (3) participating in leisure activities, namely watching movies, reading, playing music, dancing, knitting, family recreation and other hobbies; (4) maintaining and promoting psychological well-being, mental health and self-care (crying, talking about emotions and problems, focusing on oneself, thinking positively, having patience, laughing, being grateful, meditating, rationalising, etc.); (5) taking part in spiritual activities such as searching for the meaning in life, praying, reinforcing one's beliefs in God; (6) communicating with nature and pets. In addition, it should be noted that educators with previous experience in online teaching display lower levels of distress, perceived stress and higher levels of life satisfaction.

CONCLUSIONS

Since the beginning of quarantine, higher education institutions have not been fully prepared for online education, they have used only certain elements of online education. And online teaching methods have required development and clear regulation. The survey showed that the majority of participants had felt negative emotions concerning learning and teaching in a virtual environment during the first lockdown in Ukraine (March 2020). Quite opposite emotions (satisfaction, self-confidence, reduced level of anxiety) were experienced by students and teachers during the second lockdown (December 2020). Among the factors that create anxiety, the respondents highlighted the following: low quality of Internet connection or the absence of access to it, lack of teachers' explanation, inability to comprehend new learning issues, and the dominance of students' and teachers' wish to communicate face to face.

The results of the study showed that the majority of the students had not reported psychological symptoms, yet the situation started to give rise to moderate levels of anxiety among the students, where a significant relationship was found between the students' satisfaction with online learning and the prevalence of depression, anxiety and stress symptoms, where satisfaction was also found to be a predictor. So, in order to overcome the anxiety of university students and teachers about e-learning/teaching the following should be done: enhance the online transformation of higher education at a government level; organise training courses of developing students' and teachers' ICT skills; introduce online education methods for lecturers; organise in-depth training courses for teachers that deal with interactive

online teaching methods; form students' individual learning trajectories; develop online multidisciplinary courses; monitor the level of satisfaction of students and lecturers of the online education organisation for the accumulation of statistical data in the dynamics.

Academics are called upon to simulate and research certain scenarios in an attempt to create a suitable algorithm of action that educational institutions might be able to adopt in case similar circumstances arise again. Thus, producing evidence-based actions which would be able to reduce university closure and shifts in educational strategies, enhance students' and teachers' satisfaction and academic achievement as well as safeguard their health is recommended. Moreover, subsequent qualitative research should be done at the national level of Ukraine to profoundly evaluate the challenges that have been faced by students and teachers while studying and teaching in a virtual environment. Further perspectives of the research include design of a training programme which combines both psychological and technological components, and its implementation in the higher education institutions.

CONFLICT OF INTEREST

None.

ETHICAL APPROVAL

This article does not require approval by the ethics committee. The respondents gave their permission for the publication of survey results.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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