



Research article

The impact of COVID-19 pandemic on students' learning in higher education in Afghanistan



Abdul Qawi Noori*

Faculty of Language and Literature, Takhar University, Taloqan, Afghanistan

ARTICLE INFO

Keywords:

COVID-19 pandemic
Impact of COVID-19
Students' learning
Higher education

ABSTRACT

COVID-19 pandemic has been a global serious issue that adversely impacted humans' life. This study aimed to investigate the impact of the COVID-19 pandemic on students' learning in higher education in Afghanistan. A mixed method research design was employed in conducting the study. The quantitative data were gathered using an online survey questionnaire from 592 randomly selected students and 6 semi-structured interviews were conducted to collect qualitative data. Statistical Package for Social Sciences (SPSS) was used to analyse the quantitative data and the qualitative data were coded and analysed thematically. The quantitative finding showed that the students did not experience a constant online teaching and learning during the COVID-19 pandemic. It also revealed that the COVID-19 pandemic devastatingly affected students' learning in higher education in Afghanistan. In addition, the qualitative finding revealed that the students had problems with Internet and technological facilities in their learning and they suggested that the Ministry of Higher Education should design and introduce a practical online platform which will be free and accessible with a poor Internet connection because some of the students live in areas where the Internet speed is very slow. The finding of the study will help educational managers and higher education leaders to review and adopt policies for teaching and learning in emergency cases. It will also help lecturers to design a proper plan and improve their instruction.

1. Introduction

Afghanistan is one of the war affected countries that has been experiencing conflicts, instabilities and civil unrest for decades. These events have devastatingly crippled and destroyed the higher education system in the country (Noori et al., 2020, 2021). During the Taliban regime, libraries were burnt out, campuses were changed to ruins, buildings were destroyed by missiles and bombs and well qualified people left the country (Hadi, 2016). As a result, the universities remained in absolute ruin (Tierney, 2005). After the collapse of the Taliban regime, the international community came to Afghanistan in 2001 to help and change the situation of the country. Many efforts were made to reopen schools and universities and a growing number of students have been enrolling in the educational institutions (Orfan et al., 2021a,b). For example, the recent number of students enrolled in schools increased to 8.4 million, only 39% of whom are girls (Katawazai, 2021). The Afghanistan Ministry of Higher Education took different initiatives to improve the quality of education and service delivery in the country. They asked international organizations to facilitate financial support for higher education; however, the government is still dependent on foreign aid (Romanowski

et al., 2007). For instance, more than 40% of government expenses still come from foreign aid agencies (Crane and Rerras, 2009, p. 99). However, serious issues like corruption, weak governance, security problems, lack of adequate facilities, infrastructure and funding, inadequate number of qualified lecturers, low level of female participation in higher education and lack of adequate technological facilities still remain as a big challenge for higher education in Afghanistan (Katawazai, 2021). In addition, the spread of the COVID-19 created more challenges for higher education in the country.

The infectious disease of the COVID-19 pandemic affected all aspects of human life including business, research, education, health, economy, sport, transportation, worship, social interactions, politics, governance and entertainment (Orfan and Elmyar, 2020). In fact, the world has been stressful for everyone and the outbreak of the virus caused problems in education. Afghanistan as a post-conflict country is not an exception in Asia (Rahim and Chandran, 2021). To avoid the spread of COVID-19, the Afghan government took certain measures. They closed all the educational institutions, locked down the cities and banned people from traveling from a city to another city (Orfan and Elmyar, 2020). Later, the Ministry of Higher Education asked the educational institutions to

* Corresponding author.

E-mail address: noori@tu.edu.af.

conduct their classes online. It is when the resources and technological facilities are limited compared to other countries (Jogezai et al., 2021; Noori et al., 2020), which impacts students' learning.

It is understandable that the spread of COVID-19 caused school closures and lockdown around the world. Meng et al. (2020) argued that almost all countries experienced changes in education. Since the spread of the COVID-19 pandemic, the universities have transformed teaching and learning and the lecturers have been conducting online classes (Rahim and Chandran, 2021). The Ministry of Higher Education introduced an online learning system called "Higher Education Learning Management System" (HELMS). Moreover, the instructors have also used other platforms like, Zoom, Google Classroom, WhatsApp, and WebEx to deliver their lectures (Danish, 2020)

Studies show that the significance of online education is not as good as the in-person learning (Thai et al., 2020; Widodo et al., 2020; Berga et al., 2021). Abbasi et al. (2020) stated that the majority of students did not prefer online teaching compared to face-to-face learning in Pakistan. In their study, they found that 86% of respondents felt that online teaching has little significance on students' learning in higher education. This study also revealed that the experience of online learning was not engaging enough because limitations have caused lack of practical aspects in teaching. Mukhtar et al. (2020), Snoussi (2019), Almaiah et al. (2020), Almanthari et al. (2020), Alqahtani and Rajkhan (2020) and Dhawan (2020) argued that insufficient resources, problems in maintaining academic integrity, issues in policy, lack of students' self-discipline, technical issues and lack of confidence were the main challenges in implementing online learning during the COVID-19 pandemic.

Shenoy et al. (2020) conducted a study and found that almost all educational institutions started virtual classes and their experience was positive, but they faced lack of integration in online learning that adversely affected students' learning in Indian higher education. Studies indicate that there were many challenges delivering online lectures in Afghanistan higher education (Salih and Taniwall, 2020; Khaliq et al., 2020; Noori and Orfan, 2021). Mohammadi et al. (2021) and Khlaif et al. (2020) argued that lack of guidelines, policies, and linguistic skills were the key challenges of online teaching during the COVID-19 pandemic in Afghanistan. Furthermore, Hashemi (2021) added that lack of infrastructure and resources was the challenge of online teaching and learning in Afghanistan.

Many studies have examined the impact of the COVID-19 pandemic on students' learning. For instance, Byrnes et al. (2020) exposed that the pandemic of COVID-19 has created tremendous changes almost in all aspects of society which has negatively affected students' learning in higher education. This study also revealed that the students' learning was suspended and they did not have classes for months. Onyema et al. (2020a) claimed that school closure badly impacted students' motivation and engagement in learning. It in turn could affect the quality of education. This research also revealed that school closure has created many problems for students and teachers in countries where the resources are limited. In addition, teachers and students in developing countries have struggled with limited access to educational technological tools. Winters and Patel (2021) also stated that the outbreak of the COVID-19 pandemic has negatively affected students' education worldwide and the universities need to adjust their teaching and learning policies.

Gonzalez et al. (2020) conducted a quantitative study and found that the students' achievement before and during the COVID-19 pandemic was very different. They compared students' test results in 2017, 2018 and 2020 and found that there were statistically significant differences in students' performance across the years particularly their achievement in 2017 and 2018 was much better than the one in 2020. Ardan et al. (2020) conducted a study in Indonesia and found out that the students were spiritually and psychologically impacted by the COVID-19 pandemic. They reported that almost all of the respondents have experienced high and moderate level of anxiety.

Day et al. (2021) reported that the students were stressed during the COVID-19 pandemic which negatively impacted their learning. They also stated that the universities and test centers concealed exams which

suspended students' entrance to college and universities. Many instructors have reduced the amount of instruction and practice or the duration of the online lecture was less than the scheduled one and the learning was not significantly enough for the students. Goldsteinal et al. (2020), Hamilton et al. (2020) and Wyse et al. (2020) indicated that many students did not have access to the materials shared by their instructors. In many cases, students even did not log into online learning system which shows a low level of student engagement in online learning. They also pointed out that the COVID-19 pandemic devastatingly impacted students' learning.

Most of the previous studies were conducted in countries where the resources and facilities are much better than the Afghanistan and very limited studies were conducted related to health services, medical problems, public knowledge about COVID-19, teaching during the COVID-19 and students' satisfaction and achievement during the COVID-19 pandemic (Shah et al., 2020; Khudadad et al., 2021; DELSOZ & HOLLANDS, 2021; Breeze et al., 2021; Bhagavathula et al., 2021; Orfan and Elmyar, 2020; Hashemi, 2021) and no study was found to investigate the impact of the COVID-19 pandemic on students' learning in Higher Education in Afghanistan. Therefore, this study attempts to fill the gap by investigating the impact of the COVID-19 pandemic on students' learning in Higher Education in Afghanistan. It will contribute to the body of knowledge and represents novel research on this topic for Afghanistan. It may contribute to the development of policies and strategies for teaching and learning in emergency cases like the Coronavirus situation so that it will assist educational managers to improve the quality of education in post-war counties. It will also help lecturers to improve instruction and follow a proper plan for teaching in emergency situations. This research will address the following research questions.

- What is the impact of COVID-19 pandemic on students' learning in higher education?
- Do the participants' demographic variables, i.e., gender, class and age have a significant impact on their responses?
- Is there any relationship between students' perception of teaching and learning and the impact of COVID-19 pandemic on students' learning?

1.1. Theoretical framework

This study is supported by Mezirow (1997) theory of transformative learning. This theory explains that the learning begins when the learners experience an anticipated situation or a discomfort position. The outbreak of the COVID-19 pandemic created dissonance in the education system around the world, and caused paradigm shifts and transformation in higher education. Transformative learning is the expansion of conscience through self-adaptation to a changing situation. Mezirow believes that disorienting dilemma causes alterations that leads to cognitive differences and dramatic changes in the education. This theory is suitable for the current paper because it examines students' experience of teaching and learning during a sudden transformation in Afghan higher education. The theory of transformative learning focuses on experiences of a person to the learning situation. It states that when students experience learning, they create meaning which causes transformation in their attitudes, behavior and understanding. This theory proposes that learners experience challenging tasks during the paradigm shifts so that they should be encouraged to think critically and rationally to measure their understanding of the learning process (Hashemi et al., 2021). Mezirow points out that transformative learning happens when the learners interact with the environment and integrate with the learning process. Learners may face problems to access the resources in developing countries because the facilities are limited. This restrict is understandable and highly affects students' learning outcome in higher education. In order to enhance students' learning during a cognitive dissonance, educators should utilize useful techniques and shift the learning process to new norms. This change will lead to sense of control and self-awareness

among the learners. As a result, these variations will lead to innovation and transformation in the learning process.

2. Methodology

The study has employed a mixed method research design to collect both quantitative (numerical) and qualitative (descriptive) data. Creswell (2012) indicated that an equal emphasis should be given to both quantitative and qualitative approaches in the mixed method studies. Data were collected using an online survey questionnaire and a semi-structured interview. The researcher first collected quantitative data and then the qualitative data. He interpreted and reported the results of the study accordingly.

2.1. Quantitative research

2.1.1. Participants

The respondents of the quantitative part were 592 undergraduate students from Takhar University whose population was estimated to be around 5600 students for the academic year of 2021–2022. Based on the (Krejcie and Morgan, 1970) table for determining sample size from a given population, 700 students were selected as the sample of the study. From 700 selected respondents, only 592 of them filled out the survey questionnaire which shows a high response rate (85%). A sample is a group of people who are taken from a given population for measurement. The sample of the study will be the representative of the population to assure that the researchers can generalize the finding of their studies to the whole population. Creswell (2012) stated that random sampling gives the chance for every member of the population to be selected as the participant of a study. The researcher estimated that some of the students may not fill out the questionnaire so he selected a high number of students as the sample to reduce sampling error of the study. It is important to mention that the missing data do not have any effect on the interpretation and finding of the data because the participants' response rate is high. As Table 1 shows, 307 of the respondents were male and 285 were female. They were from different classes, i.e., 115 first-year students, 123 sophomores, 161 juniors and 193 seniors. In addition, 379 of them aged between 18–22 years, 185 of them aged between 23–27 years, and only 28 of them aged between 28 and above (see Table 1).

2.1.2. Instrumentation

The researcher has carried out a thorough literature review to develop the research instrument (Noori, 2021). The items of the questionnaire were adapted from the relevant literature (e.g., Baloran, 2020; Owusu-Fordjour et al., 2020; Marinoni et al., 2020; Shin and Hickey, 2020; Arribathi et al., 2021; Guo et al., 2020; Balkhi et al., 2020). An online survey Questionnaire

Table 1. Demographic information of the respondents.

Demographic Variables		Frequency	Percentage
Gender	Male	307	52%
	Female	285	48%
	Total	592	100%
Class	Freshman	115	19%
	Sophomore	123	21%
	Junior	161	27%
	Senior	193	33%
	Total	592	100%
Age	18–22	379	64%
	23–27	185	31%
	28 & Above	28	5%
	Total	592	100%

was used in data collection. The questionnaire consisted of three main sections. The first section sought the demographic background of the respondents. The second section with 2 sub-parts aimed to elicit students' experiences of teaching and learning during the COVID-19 pandemic and the last section composed of 3 sub-sections sought the impact of COVID-19 on students' learning in higher education. The respondents of the research were asked to indicate to what extent they agreed or disagreed with the statements on a 4-points Likert Scale (1 = Strongly Disagree, 2 = Disagree, 3 = Agree and 4 = Strongly Agree). The questionnaire was translated into Persian language because English is taught as a foreign language in Afghanistan and most of the respondents cannot speak English (Orfan and Noori, 2021; Orfan et al., 2021a,b). To check the questionnaire's validity, feedback was obtained from 3 lecturers in Takhar University. The questionnaire was pilot tested with 30 students who were not included in the actual study. It was modified after receiving comments from the pilot study. A reliability test of Cronbach alpha was conducted to determine the reliability of the questionnaire. The results showed that each category of the items had an overall alpha value of over 0.75 which indicates a high reliability of the instrument (see Table 2)

2.1.3. Data collection procedure

First, the researcher meet with the dean of the faculties and shared the aim of the research to take their agreement asking the students to cooperate with the researcher and participate in the study. After the permission was taken from the authorities, the researcher shared the link of the survey with the respondents' WhatsApp and asked for their voluntary participation to fill out the questionnaire. The respondents required to express their consent by ticking a box that contained agree to participate in the study before filling out the survey. The link of the questionnaire was open from 1–30 April 2021 for the respondents. It took around 10–15 min of participants' time to fill out the questionnaire.

2.1.4. Data analysis

This study has employed a mixed method study and the data were analyzed statistically and thematically. For the quantitative part, the researcher used Ms. Excel and SPSS to analyze the data. First, the data was downloaded from Google form and then converted to Ms. Excel file. The data then imported to SPSS and statistically analyzed using SPSS. Both descriptive and inferential statistical analyses were conducted. Descriptive analysis was carried out to find frequency, percentage and mean. Independent Samples T-test and One Way ANOVA tests were conducted to find out the differences in participants' responses by their demographic variables, i.e., gender, class, and age. Moreover, Regression analysis was carried out to examine the relationship between students' perception of teaching and learning and the impact of COVID-19 pandemic on students' learning.

2.2. Qualitative research

The population of the study were undergraduate students in Takhar University Afghanistan. The participants of the qualitative parts were students from the third and fourth year classes, three of them were females and three of them were males. Two of the participants were living

Table 2. Reliability value of questionnaire items.

Category	Number of Items	Cronbach's Alpha
Teaching	8	0.842
Learning	10	0.880
Students' Achievement	5	0.781
Students' Goals	5	0.758
Students' Feeling	4	0.817
Overall	32	0.93

Table 3. Descriptive statistics on teaching and learning during the COVID-19 pandemic.

Teaching					
Statements	SD	D	A	SA	Mean
My lecturers were teaching normally during the COVID-19.	29%	42%	26%	3%	1.94
I had contact with my lecturers through online platforms.	31%	43%	24%	2%	2.05
I was aware of platform (HELMS) introduced by MOHE.	45%	36%	15%	5%	1.98
I received constructive feedback from my lecturers.	32%	52%	14%	2%	2.04
I received support from my lecturers.	33%	52%	8%	7%	1.85
I received support from my faculty.	36%	34%	25%	4%	1.89
I was engaged in online classes.	43%	47%	8%	2%	1.97
Overall, online teaching was very effective for me.	48%	44%	6%	1%	1.69
Learning					
I had access to online classes during the COVID-19 pandemic.	36%	39%	19%	7%	1.96
I had Internet facility during the COVID-19 pandemic.	22%	34%	37%	7%	1.97
I had electricity facility during the COVID-19 pandemic.	26%	46%	24%	4%	2.29
I had technology facility during the COVID-19 pandemic.	27%	56%	14%	3%	2.06
I used different resources during the COVID-19 pandemic.	25%	48%	24%	3%	2.02
I had better knowledge of using technology.	21%	35%	31%	12%	1.79
I had contact with my classmates through online platforms.	37%	46%	14%	3%	2.34
I worked with my groupmates and classmates.	31%	58%	10%	1%	1.83
I was receiving feedback from my peers	47%	39%	11%	3%	1.81
My peers supported me during the COVID-19 pandemic.	27%	44%	26%	3%	1.71

SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree.

in the districts and 4 of them were living in the cities. The researcher has purposefully selected 6 students as the participants of the study because they had the better experience of teaching and learning before and after the COVID-19 and were more knowledgeable than the first year and second year students. In addition, they experienced teaching and learning activities in the district and cities. Semi-structured interviews were conducted to collect the data from the respondents. The interview questions were adapted from the previous literature (Owusu-Fordjour et al., 2020; Marinoni et al., 2020; Shin and Hickey, 2020), and shared with 2 of my colleagues for revision. The questions were revised based on their feedback and suggestions. The researcher has recorded the interview sessions and transcribed the recordings to help him to recall the results in the discussion (Gibson, 2017). Before the interview, the researcher asked for voluntary participation of the respondents and they were asked to sign the consent form to indicate their agreement to participate in the study. The interview session lasted for 15–20 min. The qualitative data were first transcribed and then verified, coded, sorted and analyzed thematically using NVivo software, version 12.0.

3. Results

3.1. Quantitative results

3.1.1. Teaching and learning during the COVID-19 pandemic

The data were gathered from 592 participants. Table 3 shows descriptive statistics of students' experiences of teaching and learning during the COVID-19 pandemic. It shows that the majority of the

respondents disagreed and strongly disagreed with the statements which indicates that they did not experience a constant access to online teaching and learning during the COVID-19 pandemic in Afghanistan.

3.1.2. The impact of COVID-19 pandemic on students' learning in higher education

Table 4 shows descriptive statistics of students' perception about the impact of the COVID-19 pandemic on different aspects of students' learning in Afghanistan higher education. It indicates that almost 90% of the respondents strongly agreed or agreed with the statements indicating that the COVID-19 pandemic affected students' learning in higher education.

3.1.3. Participants' demographic profile

The researcher has conducted independent sample *t*-test and One-way ANOVA tests to determine the impact of respondents' demographic variables, i.e., gender, class, and age on their responses. As Table 5 shows, the mean was used to compare the differences in the responses of the participants for each variable. The results indicate that P-value for gender is 0.13, which is greater than 0.05 (Significance value). Therefore, it can be concluded that the students' gender does not have any significant impact on their responses. However, the results of One-Way ANOVA tests for both class and age demonstrate that P-value for class is 0.002 and for age is 0.049, which are less than 0.05 (Significance value). Therefore, it is concluded that the respondents' class and age had a significant impact on their responses (see Table 5).

Table 4. Descriptive statistics about the impact of COVID-19 pandemic on different aspects of students' learning.

The impact of the COVID-19 pandemic on students' achievement					
Statements	SD	D	A	SA	Mean
COVID-19 pandemic impacted my learning performance.	2%	7%	60%	30%	3.31
COVID-19 pandemic impacted my subject knowledge.	2%	7%	57%	34%	3.28
COVID-19 pandemic impacted my class projects.	3%	5%	57%	36%	3.24
COVID-19 pandemic impacted the quality of my learning.	4%	7%	42%	47%	3.26
COVID-19 impacted the load of my class assignments.	2%	3%	44%	51%	3.38
The impact of the COVID-19 pandemic on students' goals					
COVID-19 impacted my future educational goals.	2%	6%	52%	41%	3.23
COVID-19 pandemic impacted my educational activities.	3%	5%	57%	35%	3.31
COVID-19 pandemic delayed my graduation.	2%	1%	44%	53%	3.52
COVID-19 impacted my out-of-university courses.	2%	1%	44%	53%	3.49
The impact of the COVID-19 pandemic on students' feelings					
Due to the COVID-19, I feel I did not study for years.	8%	4%	54%	34%	3.26
I feel I lost educational opportunities during the COVID-19.	1%	7%	53%	40%	3.14
COVID-19 pandemic impacted me psychologically.	2%	6%	51%	40%	3.33
COVID-19 pandemic impacted me spiritually.	1%	5%	45%	49%	3.3
COVID-19 pandemic impacted my motivation for learning.	2%	3%	49%	45%	3.41

SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree.

3.1.4. The relationship between students' experiences of teaching and learning and the impact of COVID-19 on students' learning in higher education

The author conducted inferential statistical analysis (Regression) to examine the relationship between students' experience of teaching and learning and the impact of COVID-19 pandemic on students' learning in higher education (see Table 6). The results of the analysis showed that P-value is 0.001, which is less than the significance level (0.05). Thus, it can be concluded that there was a statistically significant relationship

Table 5. Analysis based on participants' demographic profile Variables.

Variables	N	Mean	SD	P-value
Gender	Male	307	2.57	0.13
	Female	285	2.53	
Class	Freshman	115	2.54674	0.002
	Sophomore	123	2.46519	
	Junior	161	2.5295	
	Senior	193	2.62678	
Age	18–22	379	2.56398	0.049
	23–27	185	2.51807	
	28 and Above	28	2.5971	

between teaching and learning towards the impact of COVID-19 pandemic on students' learning in Higher education of Afghanistan.

3.2. Qualitative results

The qualitative data were gathered using a semi-structured interview from 6 participants. Table 7 shows the themes extracted from the interview recordings. The raw data showed that almost all the participants were not satisfied with online teaching and learning during the COVID-19 pandemic and they faced different challenges such as lack of a stable Internet connection and electricity, lack of adequate technological facilities and financial problems, which negatively affected their learning experience during the COVID-19 pandemic. Participant 1 stated that

Table 6. Inferential statistical analysis (regression).

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.489	1	5.489	32.729	.000 ^b
	Residual	98.942	590	.168		
	Total	104.431	591			

^a Dependent Variable: Impact of COVID-19 Pandemic on Students' Learning.

^b Predictors: (Constant), Students' Experiences of Teaching and Learning.

Table 7. The finding of the interview of the participants.

Themes	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6
Students' experiences of teaching during COVID-19	Our lecturers created chat groups and used to share some materials.	I was living in a district and most of the time could not manage to follow my lectures.	Online lectures were not effective for every one because many students did not have smart phone and computer.	Our lecturers used to communicate through WhatsApp and messenger and share some recorded lectures with us.	Teaching was not satisfactory for me because we did not have lectures for months.	Lecturers used to communicate and share some learning materials through social media.
Students' experiences of learning during COVID-19	Online lectures were stopped after few sessions because most the students did not have access to Internet.	Due to lack of Internet and technological problems, online learning was not effective for me.	I just used to contact with my classmates through mobile calls and ask them for the assignments given by the lecturers.	The learning experience did not have a positive result because our lecturers were not serious in their teaching.	COVID-19 damaged my learning style and concentration for gaining new knowledge. I worked with my classmate to prepare class projects.	I used to review my chapters and notes, but my learning outcome was very low because there is no pressure from the lecturer, so we did not study enough.
Challenges	Sometimes I did not have electricity and usually I had Internet problem.	I had Internet and electricity problem.	Personally, I had financial problem and could not buy a smart phone in 2020 and failed to study effectively.	We had very weak Internet and could not manage to download the shared materials.	Our university was closed and we did not have class for months	I personally had problem with the Internet, power and my computer.
Suggestions/Solutions	The Ministry of Higher Education should design an effective software for learning.	The Ministry should introduce a software which will be free for all and work with slow Internet because in the districts we have 2G Internet only.	The Ministry should make a policy for needy students and prepare a good platform for online learning. HELMS is not applicable for all.	Teaching and learning should not be stopped at any circumstances and the Ministry can design a practical and effective learning application for teaching.	The faculty and lectures should support the students and monitor their learning progress in the emergency cases, like the COVID-19.	The Ministry of Higher Education should design and implement an online platform which will be accessible and free of charge to all students.
The impact of COVID-19 on Students' Learning	COVID-19 had both positive and negative impacts, but the negative ones devastatingly effected my learning.	I had the worst learning experience because of the poor Internet, even I could not manage to read messages in messenger and WhatsApp.	I was very stressful and feel that I did not study for years.	Achieving low grades because of COVID-19, my graduation was postponed and I was worried psychologically for my health and future.	The positive impact is that we experienced online learning for the first time which introduced us with online learning.	COVID-19 delayed my graduation, I lost my teaching job in an educational center and felt very stressful during the COVID-19.

their lecturers used to prepare some questions from each part of their lessons and ask students to digest and find answers for them. In addition, she indicated that the Internet packages were very expensive; therefore, she could not properly follow her lessons. Participant 2 indicated that he was living in a district and could not have a good learning experience during the COVID-19 pandemic. He also believed that the online learning platform (HELMS) introduced by MOHE was not effective because some of the students were living in districts where there was no 3G coverage and the Internet connection was very poor. In addition, he argued that the Internet bundles were very expensive and most students financially struggled to buy Internet bundles. He suggested that the Ministry of Higher Education should launch an online platform which is free for students and work with very weak Internet connection (like 2G). Furthermore, participant 3 declared that she had problems accessing technological facilities. She asserted that she did not have a personal computer. Due to financial problems, she could not buy a smartphone in 2020 and her learning outcome was negatively affected. In addition, participant 4 added that his lecturers used to communicate through social media, but they were not taking the teaching and learning seriously. He suggested that teaching and learning should not be stopped in any circumstances. He also indicated that the COVID-19 impacted him psychologically, For example, he could not achieve good grades like he did in 2018. Moreover, participant 5 said that teaching and learning was not satisfactory because the COVID-19 affected her concentration and the universities were closed for months. She also argued that the COVID-19 had both positive and negative impacts on students' learning, but the

negative impacts were twofold of the positive ones. Participant 6 believed that teaching and learning was not enough during the COVID-19 and he just used to review his notes and do some self-studies at home. He also claimed that it is like a habit in our community that when there is no push from the lecturers' side, the students do not study well. Consequently, it affects their learning outcome. In conclusion, almost all the participants were not satisfied with online teaching and learning and they had problems with Internet and technological facilities, which negatively affected their learning outcome.

4. Discussion

COVID-19 pandemic has impacted all spheres of human life and students' learning in higher education is not an exception. The impact of COVID-19 pandemic on students' learning in a country with limited resources varies from those with better resources. This study aimed to find out the impact of the COVID-19 pandemic on students' learning in higher education in Afghanistan. It also attempted to explore whether students' demographic variables such as gender, class, and age had any significant influence on their responses. The finding of the study revealed that the majority of students have not experienced constant and effective online learning and teaching during the COVID-19 pandemic because they were facing lack of enough facilities and resources. These limitations have hindered students' engagement in learning in higher education. The finding of this study is aligned with UNESCO (2020) report and earlier studies conducted by Onyema et al. (2020a), Khlaif et al. (2020), Guo

et al. (2020), Onyema et al. (2020b), Khaliq et al. (2020) and Mohammedi et al. (2021) who reported that students experienced an ineffective learning and they faced different challenges in teaching and learning activities during the COVID-19 pandemic because of lack of enough resources hindered their learning. However, it contradicts the findings of the studies by Zhang et al. (2020), Shahzad et al. (2020), Aristovnik et al. (2020), König et al. (2020) and Lapitan et al. (2021), who found out that students were satisfied with online learning because it was effective for them during COVID-19 pandemic. Research shows that online teaching and learning is effective when all the students equally have access to facilities and lectures (Khlaif et al., 2020; Owusu-Fordjour et al., 2020; Onyema et al., 2020b; Khaliq et al., 2020; Khawar et al., 2021), As an example, most households did not have facilities for online learning in Ghana which led to suspension of students' learning in higher education (Owusu-Fordjour et al., 2020).

The finding of the qualitative part showed that almost all the students were not satisfied with online teaching and learning during the COVID-19 pandemic. They stated that most of the students had problems with the Internet and technological facilities. For example, participant 2 said that the 3G network was not working in his district and he could not manage to follow his lectures with the use of 2G Internet. In addition, the participants believed most of the Internet bundles were very expensive and they had financial problems buying Internet bundles. Furthermore, the Internet from the mobile companies was not stable and they could not experience effective online teaching and learning during the COVID-19 pandemic. Therefore, they suggested that the Ministry of Higher Education of Afghanistan should review their policies, design and launch an online platform which is applicable in Afghanistan. For instance, participant 2 suggested a learning management system which is free for the students and work with slow Internet. The finding supports the study by Agormedah et al. (2020) who found that due to lack of enough facilities, online teaching and learning was not satisfactory. This study also found that the COVID-19 pandemic has negatively affected students' learning in higher education.

The results of data analysis disclosed that almost 90% of the respondents indicated that the virus outbreak and lockdown severely influenced their learning. The participants of this study ascertained that the COVID-19 pandemic has affected different aspects of students' learning such as, class projects, load of their assignments, quality of their learning, their motivation for learning, educational activities, goals, knowledge of subjects, learning performance, educational opportunities, and the duration of their studies. This result supports the finding of the earlier studies conducted by Khlaif et al. (2020), Onyema et al. (2020a), Guo et al. (2020), Khalili and Xyrichis (2020), Bakshi et al. (2020), Byrnes et al. (2020), and Owusu-Fordjour et al. (2020), who concluded that the COVID-19 pandemic has negatively impacted students' learning. Pragholaipati (2020) argued that because of COVID-19 pandemic, many students have experienced anxiety which badly affected their learning outcome and academic achievement. This researcher recommended that the educational institutions should provide psychological and counseling services to support students' learning in higher education. Furthermore, the result of the study showed that the respondents' gender did not have any significant effect on their responses, although a small number of female students had access to the Internet connection compared to male students (Orfan, 2021). However, it revealed that the respondents' class and age had an impact on their responses.

In addition, the study found that there was statistically a significant relationship between teaching and learning and the impact of COVID-19 pandemic on students' learning in higher education of Afghanistan. It is indicated that the association between students' perception of online teaching and learning on the impact of COVID-19 pandemic with regards to students' learning is significant. Qazi et al. (2020) believed that when students do not have access to enough facilities in online learning activities, they achieve low grades and experience negative effects with regards to their achievement. Therefore, universities should try to provide enough resources for online teaching and learning.

The qualitative finding also revealed that the COVID-19 affected students' learning in higher education. The participants believed that the COVID-19 had both positive and negative impact on students' learning. In terms of positive impact, students experienced online learning for the first time and this provided an opportunity for them to learn knowledge easily. The students also indicated that the COVID-19 pandemic badly affected their learning. For example, it postponed their graduation, they lost their job and they faced financial problems. This finding is in line with the studies conducted by Dutta et al. (2020) and Tamrat (2021) who found that the COVID-19 had both positive and negative impact on students' learning.

5. Conclusion

COVID-19 is a global serious issue that needs the world's cooperation and coordination for reducing its effects. The virus pandemic has completely changed people's way of life in any corner of the world. In March 2020, the world health organization (W.H.O) declared that the virus pandemic is worldwide whose threat caused transformation and changes in education. Ever since, teaching and learning experienced different paradigm shifts and variations in the time of Coronavirus. These changes have created barriers for students' learning in higher education. In the Afghan context, students' learning was negatively impacted more than any country around the world because the resources were limited and students did not experience stable teaching and learning activities. Among the limitations, students experienced unstable Internet, lack of technological facilities, inadequate resources, high costly Internet, lack of awareness, lack of linguistic skills, lack of full-time power supply, preparation issues for online teaching were the major barriers to teaching and learning during the COVID-19 pandemic. These challenges had the foremost effects on teaching and learning in higher education and they are felt by students, instructors, educational institutions and other stakeholders. Afghanistan as a post-conflict country has experienced the worst effects of COVID-19 pandemic on teaching and learning because other countries had better facilities and organized policies in managing online learning.

The study found that the majority of the respondents indicated that they have not experienced constant online teaching and learning during the COVID-19 pandemic in Takhar University, Afghanistan. It also revealed that almost all of the respondents agreed that the COVID-19 pandemic has negatively affected their learning and they felt that they did not study for years. Moreover, the results of data analysis showed that there was statistically no significant difference in the responses of the students by their gender. However, they revealed that there were statistically significant differences in students' responses by their class and age. In addition, the finding of the study exposed that there was a statistically significant relationship between teaching and learning and the impact of COVID-19 pandemic on students' learning in higher education of Afghanistan.

Therefore, educational managers and higher education leaders should adapt and change policies in emergency cases and consider all aspects of teaching and learning in higher education. Particularly, each part of the world might have experienced different problems in teaching and learning. For example, during COVID-19 pandemic, students experienced dramatic changes which negatively affected their learning in Takhar University. Consequently, the integration of emerging technologies in teaching is not only a case but educational leaders and higher education managers should consider changing environments, flexibility in methodologies and enhance students' involvement and creativity in higher education. This research suggests some implications. The platforms and policies for online learning in higher education in Afghanistan need critical evaluation and review because the students faced several challenges during the COVID-19 pandemic. Researchers may compare the findings of the current study with other studies and suggest policies for improvement at both school and university level.

Future research may investigate the impact of the COVID-19 pandemic on students' learning at the school level to explore the experiences of

teaching and learning during the COVID-19 pandemic in school context. The researcher has faced some limitations in conducting the research because COVID-19 pandemic limited access to respondents of the study and only 592 of the participants responded to the survey questionnaire.

Declarations

Author contribution statement

Abdul Qawi Noori: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability statement

Data included in article/supp. material/referenced in article.

Declaration of interests statement

The author declare no conflict of interest.

Additional information

No additional information is available for this paper.

References

- Abbasi, S., Ayoob, T., Malik, A., Memon, S.I., 2020. Perceptions of students regarding E-learning during COVID-19 at a private medical college. *Pak. J. Med. Sci.* 36 (COVID-1919-S4), S57.
- Agormedah, E.K., Henaku, E.A., Ayite, D.M.K., Ansah, E.A., 2020. Online learning in higher education during COVID-19 pandemic: a case of Ghana. *J. Educ. Technol. Online Learn.* 3 (3), 183–210.
- Almaiah, M.A., Al-Khasawneh, A., Althunibat, A., 2020. Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Educ. Inf. Technol.* 25 (6), 5261–5280.
- Almanthari, A., Maulina, S., Bruce, S., 2020. Secondary school mathematics teachers' views on e-learning implementation barriers during the COVID-19 pandemic: The case of Indonesia. *Eurasia J. Math. Sci. Technol. Educ.* 16 (7), em1860.
- Alqahtani, A.Y., Rajkhan, A.A., 2020. E-learning critical success factors during the COVID-19 pandemic: a comprehensive analysis of e-learning managerial perspectives. *Educ. Sci.* 10 (9), 1–16.
- Ardan, M., Rahman, F.F., Geroda, G.B., 2020. The influence of physical distance to student anxiety on COVID-19, Indonesia. *J. Crit. Rev.* 7 (17), 1126–1132.
- Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., Umek, L., 2020. Impacts of the COVID-19 pandemic on life of higher education students: a global perspective. *Sustainability* 12 (20), 8438.
- Arribathi, A.H., Suwanto, Miftakhu Rosyad, A., Budiarto, M., Supriyanti, D., Mulyati, 2021. An analysis of student learning anxiety during the COVID-19 pandemic: a study in higher education. *J. Cont. High Educ.* 1–14.
- Bakshi, S.K., Ho, A.C., Chodosh, J., Fung, A.T., Chan, R.P., Ting, D.S.W., 2020. Training in the year of the eye: the impact of the COVID-19 pandemic on ophthalmic education. *PLoS One* 4 (9), 1181–1183.
- Balkhi, F., Nasir, A., Zehra, A., Riaz, R., 2020. Psychological and behavioral response to the coronavirus (COVID-19) pandemic. *Cureus* 12 (5).
- Baloran, E.T., 2020. Knowledge, attitudes, anxiety, and coping strategies of students during COVID-19 pandemic. *J. Loss Trauma* 25 (8), 635–642.
- Berga, K.A., Vadnais, E., Nelson, J., Johnston, S., Buro, K., Hu, R., Olaiya, B., 2021. Blended learning versus face-to-face learning in an undergraduate nursing health assessment course: a quasi-experimental study. *Nurse Educ. Today* 96, 104–122.
- Bhagavathula, A.S., Raghavan, V.R., Ahmadi, A., Srirag, D., Chattu, V.K., 2021. Frontline healthcare workers' knowledge, perception and risk prevention practices regarding COVID-19 in Afghanistan: a cross-sectional study. *Med. Sci.* 9 (1), 2.
- Breeze, J., Gensheimer, W.G., DuBose, J.J., 2021. Penetrating neck injuries treated at a US role 3 medical treatment facility in Afghanistan during operation resolute support. *Mil. Med.* 186 (1-2), 18–23.
- Bymes, Y.M., Civantos, A.M., Go, B.C., McWilliams, T.L., Rajasekaran, K., 2020. Effect of the COVID-19 pandemic on medical student career perceptions: a national survey study. *Med. Educ. Online* 25 (1), 1798088.
- Crane, M., Rerras, T., 2009. It becomes a river: Afghanistan at a crossroads. *World Pol. J.* 26 (1), 95–104.
- Creswell, J.W., 2012. *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*. Edwards Brothers, Boston.
- Danish, A., 2020, June 11. The Challenges of Remote Learning in Afghanistan. *Pajhwok Afghan News*. <https://www.pajhwok.com/en/opinions/challenges-remote-learning-Afghanistan>.
- Day, T., Chang, I.C.C., Chung, C.K.L., Doolittle, W.E., Housel, J., McDaniel, P.N., 2021. The immediate impact of COVID-19 on postsecondary teaching and learning. *Prof. Geogr.* 73 (1), 1–13.
- Delsoz, M., Hollands, P., 2021. Ophthalmology practice in Afghanistan during the COVID-19 pandemic. *Eur. Rev. Med. Pharmacol. Sci.* 25, 2726–2729.
- Dhawan, S., 2020. Online learning : a panacea in the time of COVID-19 crisis. *J. Educ. Technol. Syst.* 41 (1), 5–22.
- Dutta, S., Smita, M.K., 2020. The impact of COVID-19 pandemic on tertiary education in Bangladesh: students' perspectives. *Open J. Soc. Sci.* 8 (9), 53.
- Gibson, L., 2017. Virtual data collection. In: Braun, V., Clarke, V., Gray, D. (Eds.), *Collecting Qualitative Data: a Practical Guide to Textual, media and Virtual Techniques* [online]. Cambridge University Press, Cambridge, pp. 189–210.
- Goldstein, D., Popescu, A., Hannah-Jones, N., 2020 April 6. As Classes Go Online, many Students Just Aren't Showing up. *New York Times*. (Accessed 1 July 2020).
- Gonzalez, T., De La Rubia, M.A., Hincz, K.P., Comas-Lopez, M., Subirats, L., Fort, S., Sacha, G.M., 2020. Influence of COVID-19 confinement on students' performance in higher education. *PLoS One* 15 (10), e0239490.
- Guo, T., Kiong, K.L., Yao, C.M., Windon, M., Zebda, D., Jozaghi, Y., Hanna, E.Y., 2020. Impact of the COVID-19 pandemic on Otolaryngology trainee education. *Head Neck* 42 (10), 2782–2790.
- Hadi, H., 2016. *Afghanistan'S Experiences: the History of the Most Horrifying Events Involving Politics, Religion, and Terrorism*. Author House.
- Hamilton, L.S., Grant, D., Kaufman, J.H., Diliberti, M., Schwartz, H.L., Hunter, G.P., Setodji, C.M., Young, C.J., 2020. *COVID-19 and the State of K-12 Schools: Results and Technical Documentation from the spring 2020 American Educator Panels COVID-19 Surveys*. Creative Commons Attribution 4.0 International Public License, RR-A168-1.
- Hashemi, A., 2021. Effects of COVID-19 on the academic performance of Afghan students' and their level of satisfaction with online teaching. *Cogent Arts Human.* 8 (1), 1933684.
- Hashemi, A., Akramy, S.A., Orfan, S.N., Noori, A.Q., 2021. Afghan EFL students' perceptions of critical thinking and problem-solving skills. *Lang. India* 21 (8), 121–131.
- Jogezai, N.A., Baloch, F.A., Jaffar, M., Shah, T., Khilji, G.K., Bashir, S., 2021. Teachers' attitudes towards social media (SM) use in online learning amid the COVID-19 pandemic: the effects of SM use by teachers and religious scholars during physical distancing. *Heliyon* 7 (4), e06781.
- Katawazai, R., 2021. Implementing outcome-based education and student-centered learning in Afghan public universities: the current practices and challenges. *Heliyon* 7 (5), e07076.
- Khalili, H., Xyrichis, A., 2020. A longitudinal survey on the impact of the COVID-19 pandemic on interprofessional education and collaborative practice: a study protocol. *J. Interprof. Care* 34 (5), 691–693.
- Khaliq, A., Shams, M.S., Niazi, M.M., 2020. COVID-19 pandemic: challenges and opportunities for higher education in the Afghanistan context. *Kardan J. Econ. Manag. Sci.* 3 (3), 35–43.
- Khawar, M.B., Abbasi, M.H., Hussain, S., Riaz, M., Rafiq, M., Mehmood, R., et al., 2021. Psychological impacts of COVID-19 and satisfaction from online classes: disturbance in daily routine and prevalence of depression, stress, and anxiety among students of Pakistan. *Heliyon*, e07030.
- Khlaif, Z.N., Salha, S., Affouneh, S., Rashed, H., ElKimishy, L.A., 2020. The COVID-19 epidemic: teachers' responses to school closure in developing countries. *Technol. Pedagog. Educ.* 1–15.
- Khudadad, U., Safi, N., Aftab, W., Ali, A., Siddiqi, S., 2021. The COVID-19 pandemic: an opportunity to strengthen health systems in Afghanistan. *East. Med. Health J. = La Revue de Sante de la Mediterranee Orientale= Al-majallah Al-sihhiyah Li-sharq Al-mutawassit* 27 (3), 220–223.
- König, J., Jäger-Biela, D.J., Glutsch, N., 2020. Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *Eur. J. Teach. Educ.* 43 (4), 608–622.
- Krejcie, R.V., Morgan, D.W., 1970. Determining sample size for research activities. *Educ. Psychol. Meas.* 30 (3), 607–610.
- Lapitan Jr., L.D., Tiangco, C.E., Sumalinog, D.A.G., Sabarillo, N.S., Diaz, J.M., 2021. An effective blended online teaching and learning strategy during the COVID-19 pandemic. *Educ. Chem. Eng.* 35, 116–131.
- Marinoni, G., Van't Land, H., Jensen, T., 2020. *The Impact of Covid-19 on Higher Education Around the World*. IAU Global Survey Report.
- Meng, L., Hua, F., Bian, Z., 2020. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. *J. Dent. Res.*
- Mezirow, J., 1997. *Transformative learning: theory to practice*. N. Dir. Adult Cont. Educ. 1997 (74), 5–12.
- Mohammadi, M.K., Mohibbi, A.A., Hedayati, M.H., 2021. Investigating the challenges and factors influencing the use of the learning management system during the COVID-19 pandemic in Afghanistan. *Educ. Inf. Technol.* 1–34.
- Mukhtar, K., Javed, K., Arooj, M., Sethi, A., 2020. Advantages, Limitations and Recommendations for online learning during COVID-19 pandemic era. *Pak. J. Med. Sci.* 36 (COVID-1919-S4), S27.
- Noori, A.Q., Orfan, S.N., Nawi, A.M., 2021. Students' perception of lecturers' behaviors in the learning environment. *Int. J. Educ. Literacy Stud.* 9 (3), 64–69.
- Noori, A.Q., Said, H., Nor, F.M., Abd Ghani, F., 2020. The relationship between university lecturers' behaviour and students' motivation. *Univ. J. Educ. Res.* 8 (11C), 15–22.

- Noori, A.Q., 2021. Students' experiences of their leadership development through the leadership subject taught in universiti teknologi Malaysia. *J. World Engl. Educ. Pract.* 6 (8), 1–9.
- Noori, A.Q., Orfan, S.N., 2021. The challenges of married female students in higher education: a case study of takhar university. *J. World Engl. Educ. Pract.* 3 (6), 9–19.
- Onyema, E.M., Eucharia, A.U., Gbenga, F.S., Roselyn, A.O., Daniel, O., Kingsley, N.U., 2020b. Pedagogical use of mobile technologies during Coronavirus school closure. *J. Comp. Sci. Appl.* 27 (2).
- Onyema, E.M., Eucheria, N.C., Obafemi, F.A., Sen, S., Atonye, F.G., Sharma, A., Alsayed, A.O., 2020a. Impact of Coronavirus pandemic on education. *J. Educ. Pract.* 11 (13), 108–121.
- Orfan, S.N., Elmyar, A.H., 2020. Public knowledge, practices and attitudes towards COVID-19 in Afghanistan. *Publ. Health Indonesia* 6 (4), 104–115.
- Orfan, S.N., Noori, A.Q., 2021. Afghan islamic religious scholars' attitudes and motivations towards learning English. *Lang. India* 21, 5. *May 2021* ISSN 1930-2940, 162.
- Orfan, S.N., 2021. Political participation of Afghan Youths on Facebook: A case study of Northeastern Afghanistan. *Cogent Soc. Sci.* 7 (1), 1857916. <https://doi.org/10.1080/23311886.2020.1857916>.
- Orfan, S.N., Akramy, S.A., Noori, A.Q., Hashemi, A., 2021a. Afghan lecturers' perception of problem-based learning: a case study of takhar university. *J. Prob. Based Learn.* 8 (1), 1–7.
- Orfan, S.N., Noori, A.Q., Hashemi, A., Akramy, S.A., 2021b. Afghan EFL instructors' use of teaching methods. *Int. J. Engl. Lang. Stud.* 3 (5), 31–38.
- Owusu-Fordjour, C., Koomson, C.K., Hanson, D., 2020. The impact of COVID-19 on learning-the perspective of the Ghanaian student. *Eur. J. Educ. Stud.*
- Pragholapati, A., 2020. COVID-19 Impact on Students.
- Qazi, A., Naseer, K., Qazi, J., AlSalman, H., Naseem, U., Yang, S., Gumaee, A., 2020. Conventional to online education during COVID-19 pandemic: do develop and underdeveloped nations cope alike. *Child. Youth Serv. Rev.* 119, 105582.
- Rahim, M.N., Chandran, S.S.C., 2021. Investigating EFL students' perceptions on E-learning paradigm-shift during COVID-19 pandemic. *Elsya: J. Engl. Lang. Stud.* 3 (1), 56–66.
- Romanowski, M.H., McCarthy, T., Mitchell, T.L., 2007. Rebuilding Afghanistan's higher educational system: observations from kabul. *Int. J. Educ. Pol. Leadership* 2 (3). Retrieved [DATE] from. <http://www.ijep.org>.
- Salih, S.K., Taniwall, N.J., 2020. Issues and challenges of E-learning system Adoption in a public university of Afghanistan: a case study of shaikh zayed university. *J. Human. Soc. Sci. (IOSR-JHSS)* 25 (1), 63–69.
- Shah, J., Karimzadeh, S., Al-Ahdal, T.M.A., Mousavi, S.H., Zahid, S.U., Huy, N.T., 2020. COVID-19: the current situation in Afghanistan. *Lancet Glob. Health* 8 (6), e771–e772.
- Shahzad, S.K., Hussain, J., Sadaf, N., Sarwat, S., Ghani, U., Saleem, R., 2020. Impact of virtual teaching on ESL learners' attitudes under COVID-19 circumstances at post graduate level in Pakistan. *Engl. Lang. Teach.* 13 (9), 1–9.
- Shenoy, V., Mahendra, S., Vijay, N., 2020. COVID-19 19 lockdown technology adaption, teaching, learning, students engagement and faculty experience. *Mukt Shabd J.* 9 (4), 698–702.
- Shin, M., Hickey, K., 2020. Needs a little TLC: examining college students' emergency remote teaching and learning experiences during COVID-19. *J. Furth. High. Educ.* 1–14.
- Snoussi, T., 2019. Learning management system in education: opportunities and challenges. *Int. J. Innovative Technol. Explor. Eng.* 8 (12S), 664–667.
- Tamrat, W., 2021. Enduring the impacts of COVID-19: experiences of the private higher education sector in Ethiopia. *Stud. High Educ.* 46 (1), 59–74.
- Thai, N.T.T., De Wever, B., Valcke, M., 2020. Face-to-face, blended, flipped, or online learning environment? Impact on learning performance and student cognitions. *J. Comput. Assist. Learn.* 36 (3), 397–411.
- Tierney, W.G., 2005. Transform, reform and renewal in Afghanistan. *Int. High. Educ.* 41 (fall). Retrieved April 14, 2006, from. www.bc.edu/bc_org/avp/soe/cihe/new_sletter/Number_41/p19_Tierney.htm.
- UNESCO, 2020. Global Education Coalition. UNESCO. <https://en.unesco.org/COVID-1919/educationresponse/globalcoalition>.
- Widodo, A., Nursaptini, N., Novitasari, S., Sutisna, D., Umar, U., 2020. From face-to-face learning to web base learning: how are student readiness? *Premiere Educandum: Jurnal Pendidikan Dasar Dan Pembelajaran* 10 (2), 149–160.
- Winters, N., Patel, K.D., 2021. Can a reconceptualization of online training be part of the solution to addressing the COVID-19 pandemic? *J. Interprof. Care* 35 (2), 161–163.
- Wyse, A.E., Stickney, E.M., Butz, D., Beckler, A., Close, C.N., 2020. The potential impact of COVID-19-19 on student learning and how schools can respond. *Educ. Meas. Iss. Pract.* 39 (3), 60–64.
- Zhang, W., Wang, Y., Yang, L., Wang, C., 2020. Suspending Classes without Stopping Learning: China's Education Emergency Management Policy in the COVID-19 Outbreak.