



## Exploring Students' Perspective on Online Teaching-Learning Process: Opportunities and New Challenges

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### ABSTRACT

This study aimed to analyze students' perspectives on the nature, opportunities, and new challenges of the online teaching-learning process at the higher education level. A quantitative approach was used to collect survey data from 751 students (358 males and 393 females) across five public sector universities in South Punjab, Pakistan. The study employed a Likert-type scale questionnaire designed by the researcher. Data were analyzed using SPSS. The findings revealed no statistically significant differences based on gender, faculty, or program concerning perceptions of online learning. While students agreed on the opportunities provided by online learning, the challenges varied among different universities. Key opportunities included digital literacy enhancement, flexible learning, and exposure to global learning platforms. Challenges included lack of interaction, network connectivity issues, and technical difficulties. Higher education institutions (HEIs) should provide workshops on digital literacy and guidance services to support students in overcoming online learning challenges. An asynchronous learning mode is recommended for flexibility.



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## 1. Introduction

The transformation of education from traditional to online is not a new phenomenon. This concept has gained more recognition even during the time of the pandemic when the whole economy collapsed in terms of its GDP, production, education, etc. Everyone was stuck in their homes to maintain a social distance which was its first primitive measure. At that time, the continuity of education was not possible through brick-and-mortar activities. That's why educational ministers and higher authorities were forced to think about the distance mode of education that was already in practice in the United States from the 1860s in different forms. Recently, the latest version of distance education is online education in which knowledge is imparted from a mature mind to an immature one through some electronic means. These electronic means include iPads, computers, iPhones, interactive audio or videoconferencing, webcasts, instructional videos via CD-ROMs, DVDs or YouTube and computer-based systems transmitted through the Internet to strengthen online learning (Barr & Miller, 2013). These electronic gadgets offer a variety of learning platforms for online instructions to their users. These platforms provide an opportunity to their users for a great interaction with their fellows, peers and instructors around the globe (Kumar, et.al, 2020).

To highlight its significance (Arifiati et al., 2020) mentioned that an alternative form of traditional learning is online learning that goes beyond the emergency. A variety of online learning forms has been introduced up till now among which video-based learning is one of

them that has been in use since the 1990s. Recently, it has been considered an educational method that is similar to conventional classes. It allows two-way interaction. Several studies examined students' points of view regarding opportunities and challenges of the online teaching-learning process at the tertiary level, but only a few studies explored students' views regarding the nature, opportunities and new challenges of the online teaching-learning process collectively and thoroughly. According to the researcher's point of view, the main reason for the selection of the topic was that all these aspects could be assessed together comprehensively and their effects could be analyzed in a full-fledged way in the context of developing countries like Pakistan. Examining students' perspectives regarding these three aspects at the university level collectively will assist stakeholders and decision-makers in developing appropriate activities to strengthen the virtual learning environment. In this way, they can improve the quality of online learning.

The shift from traditional to online education has gained significant importance, especially during the COVID-19 pandemic. Despite its advantages, students face various challenges that affect their learning experience. This study explores students' perceptions of online learning by examining its nature, opportunities, and challenges. Understanding students' perspectives on online education is crucial for improving digital learning environments and policy-making in higher education institutions. The following research questions were drawn to achieve the objectives of the study:

- What is the nature of the online teaching-learning process at the university level?
- What kind of opportunities university students are going to attain during the online mode of teaching-learning?
- What are the new challenges that university students may confront while teaching and learning online?
- What is the difference in university students' responses based on demographic variables i.e. gender, faculty, program and university regarding the nature, opportunities and new challenges of the online teaching-learning process?

The following were the objectives of the study.

- To recognize the nature of the online teaching-learning process at the university level
- To acquire university students' opinions about the opportunities that they may gain during the online mode of teaching-learning
- To examine university students' views regarding the new challenges that they may confront during the online mode of teaching-learning.

## **2. Literature Review**

The literature review includes studies from the past five years, arranged chronologically. Kamraju et al. (2024) found that online learning enhances accessibility and flexibility but also presents challenges like technical issues and social isolation. Al Rawashdeh et al. (2021) highlighted both motivational benefits and increased screen time as key aspects of digital learning. Dhawan (2020) emphasized students' struggles with attention and technical difficulties.

The significance of the online teaching-learning process can never be denied due to its multifaceted nature. Different studies were conducted at different times to explore learners' perspectives regarding the nature, opportunities and challenges of the online teaching-learning process at the university level. Kamraju et al. (2024), conducted a study to investigate the impact of web-based learning on higher education. The findings of the study showed a positive impact of online teaching-learning on higher education due to its accessibility, flexibility and convenient nature. The study also mentioned several opportunities that students can avail during online learning i.e. wider access to online educational resources, geographical flexibility and learning according to their own pace. It also provides an opportunity to the students through which they can maintain equilibrium in their academic and personal affairs. The study also highlighted some challenges that students have to face during online learning which of them are lack of interaction, technical issues and self-discipline issues. Similarly, Al Rawashdeh et al. (2021), also highlighted some advantages and disadvantages of using online learning in university education. According to them, it is used to boost motivation among learners and enhance interaction. On the negative side, it is a

source of enhancing social isolation, boosts screen time and diminishes parental involvement due to technical illiteracy.

Moreover, Mushtaha et al. (2022), also elaborated on some opportunities and challenges of online teaching-learning in their study. According to them, online learning provides flexibility in time and place. They also mentioned that it is also an accessible and effective mode of learning. Contrary, it is a source of rising health issues and social isolation. Furthermore, Coman et al. (2020), also highlighted some challenges that can create hindrances in the way of online learning i.e. technical issues, technical illiteracy and inappropriate teaching methodology. In addition, Ashraf et al. (2021), also elaborated on the problems students may encounter during online instruction i.e. network connection issues, technical problems, economic problems, health issues and managerial issues. The results of the study also showed that all students, irrespective of their gender, face similar problems during the online mode of learning.

Additionally, Dhawan (2020), also pointed out some issues that students may encounter during a transformative learning environment. These issues may be downloading errors, matter of installation, network connection issues, lack of interaction, lack of attention, issues of loneliness, insufficient time, lack of interest, technical issues and understanding issues. The study also mentioned that it was very difficult for students to maintain equilibrium among academic, personal and social affairs.

Furthermore, Adnan (2020), highlighted some issues that students may face during online instruction. According to them, these issues were related to technology, the economic condition of parents, societal isolation and lack of student interaction with instructors. In addition, Naik et al. (2021), also elaborated on students' perspectives regarding the challenges of online learning. These challenges may be a lack of resources, poor infrastructure, insufficient technical tools and internet access issues. Again, Hafeez, Kazmi and Tahira (2022), study on the online teaching-learning process indicated some challenges that students may encounter during online instruction were network connection issues, economic problems, time management issues etc.

While prior studies have investigated students' perspectives on online learning, limited research comprehensively explores the combined aspects of nature, opportunities, and challenges in developing countries like Pakistan. This study aims to bridge this gap.

### **3. Research Methodology**

The study is based on the quantitative approach of research design. According to HEIs (higher education institutions), there are a total of nine public sector universities in South Punjab Province, Pakistan. Out of these nine (09) universities, only five public sector universities including Bahauddin Zakariya University Multan, The Women University Multan, The Emerson University Multan, Islamia University Bahawalpur and The Government Sadiq College Women University Bahawalpur from South Punjab were chosen for study. These universities were chosen from only two divisions (Multan and Bahawalpur) of south Punjab for the data collection procedure.

So, the overall population of the present study was 135,824 students both (male & female) session (2022-2023) from HEIs. A sample of seven hundred and fifty-one (751) students was drawn from accessible populations using proportionate and disproportionate stratified random sampling techniques. Out of seven hundred and fifty-one (751) students, 358 (48%) were male students while 393 (52%) were female students using a proportionate stratified random sampling technique. Out of 358 (48%) male students, 179(50%) male students were from the Faculty of Natural Sciences and 179(50%) were from the Faculty of Arts and Social Sciences according to a disproportionate stratified random sampling technique. Similarly, out of 393 (52%) female students, 196 (49.8%) female students were from the Faculty of Natural Sciences and 197(50.2%) female students were from the Faculty of Arts and Social Sciences according to disproportionate stratified random sampling technique.

A self-made instrument was used by the researcher for the data collection procedure. A model of a five-point Likert-type Scale was used to develop the instrument. To grasp the dimensions of the research topic, 40 items were selected and included within the instrument. The instrument was categorized into two major parts. The 1<sup>st</sup> part of this scale was designed to ask basic demographic questions while the 2<sup>nd</sup> part was further divided into three subsections to ask the opinion of the respondents about different dimensions. The Cronbach’s Alpha was used to check the reliability of the tool. The value of alpha was found 0.898 indicating the authenticity of the instrument. To obtain 100% responses, a questionnaire was distributed and collected by the researcher herself. Furthermore, there are two variables in this study.

- Independent Variables: Gender, faculty, program, university
- Dependent Variables: Students’ perceptions of the nature, opportunities, and challenges of online learning

#### **4. Results and Discussion**

##### **4.1 What is the nature of the online teaching-learning process at the university level?**

The following table shows the descriptive statistics about the perception of students regarding the nature of the online teaching-learning process at the university level.

**Table 1: Overall Students’ Responses Regarding the Nature of Online Teaching-Learning Process (N=751)**

<b>Statement</b>	<b>Mean</b>	<b>S. D</b>
<b>Nature</b>		
The online teaching-learning process is an independent way of learning	3.56	1.278
Information and communication technologies are used to carry out this process	3.70	1.139
It is a feasible, accessible and flexible way of Learning	3.71	1.836
It is more efficient than traditional methods	3.19	1.236
It is Cost-effective	3.49	1.226
<b>Overall Mean</b>	<b>3.53</b>	<b>1.343</b>

According to the results of Table 1, a series of items were given to measure the responses of students regarding the nature of the online teaching-learning process at the university level. According to the revealed findings, it is observed that the overall mean score regarding nature was 3.53 with SD=1.343. The results of the study elaborate that the online teaching-learning process is an autonomous way of learning that is efficient in terms of time and cost-effective in terms of finances. It also allows flexible learning.

##### **4.2 What are the opportunities that university students gain during the online teaching-learning process?**

The table 2 shows the descriptive statistics about the perception of university students regarding the opportunities that they may gain during the transformative mode of learning. The results of Table 2 indicate that a series of items were given to the university students to measure their responses regarding the opportunities of the online teaching-learning process. According to the revealed findings, it is observed that the opportunities have an overall mean score = 3.51 (SD=1.170) showing that students availed many opportunities of online learning to enhance new skills of learning. The results of the study also indicate that the major benefits that students avail during transformative mode of learning were: source of digital data collection, create ability to learn new and innovative methods of learning, develop new skills of learning, develop creative learning ability, bring innovation in research areas, source of removing geographical boundaries and so on.

**Table 2: Overall Students’ Responses Regarding the Opportunities during Online Learning (N=751)**

<b>Statement</b>	<b>Mean</b>	<b>S. D</b>
<b>Opportunities</b>		
Online Teaching - The learning process provides me with an opportunity to enhance my interaction with my teachers	3.02	1.328
I can enhance my learning capacity through this mode of learning	3.59	1.133
It is used to develop my critical thinking skill	3.44	1.213
It provides me with a customized learning opportunity	3.58	1.089
I can access a diverse range of Programs through this mode of learning	3.54	1.076
I can retain information for a longer period while using this mode	3.49	1.203
I can gain varied learning Experiences through this mode of learning	3.60	1.155
It helps me to develop more career Opportunities	3.38	1.265
It is a source of developing a flexible learning environment for me	3.53	1.134
It is a source of reducing my educational expenditure	3.53	1.202
It is a source of developing a greater sense of responsibility in myself	3.45	1.188
It provides me with an opportunity for global awareness	3.51	1.145
I can maintain discipline and direct myself while using this mode of learning	3.36	1.183
It is a source of enhancing my confidence level	3.16	1.280
It is used to mitigate geographical boundaries	3.60	1.146
It can bring innovations in research areas	3.61	1.133
I can learn more refined and updated methods of learning through this mode	3.69	1.139
It is a source of raising creative learning ability	3.66	1.097
It is a source of digital data collection	3.83	1.097
It helps me to learn new skills and techniques for learning	3.75	1.096
It is a source of building a better future for me	3.48	1.166
<b>Overall mean</b>	<b>3.51</b>	<b>1.17</b>

#### 4.3 What are the new challenges that university students may confront while teaching and learning online?

Table 3 shows the descriptive statistics about the perception of university students concerning the challenges of the online teaching-learning process.

**Table 3: Overall Students' Responses Regarding New Challenges of Online Learning (N=751)**

<b>Statement</b>	<b>Mean</b>	<b>S. D</b>
<b>New challenges</b>		
I feel hesitant to interact with my teachers through this mode of learning	3.43	1.272
I face network connection issues while studying online	3.63	1.206
Multiple tasks and assignments provide me with insufficient time for online learning	3.45	1.165
Lack of guidance and support services is an issue for me to manage and install digital equipment	3.38	1.175
Lack of vivid explanation regarding the topic creates a hindrance for me to comprehend and command the concepts	3.49	
Miscellaneous tasks and assignments create anxiety issues for me		1.161
The absence of printed material also creates hurdles in the way of online learning	3.58	1.158
My parents' economic condition restricted me from purchasing a high storage equipment for learning online	3.58	1.150
I feel difficulty maintaining self-discipline during an online session	3.38	1.248
I feel concentration issues due to outsiders' intervention during online learning	3.43	1.221
I feel concentration issues due to outsiders' intervention during online learning	3.59	1.161
I have a piece of limited knowledge about the use of ICT tools	3.32	1.251
Spending most of the time on screen creates eye-sight or backbone Problems	3.76	1.173

Limited access to online library resources creates hindrance in the way of learning	3.51	1.171
Sometimes online learning is boring for me	3.68	1.191
<b>Overall mean</b>	<b>3.52</b>	<b>1.193</b>

The results of Table 3 elaborate that a series of items were given to the university students to measure their responses concerning the new challenges of the online teaching-learning process. According to the revealed findings, it was observed that students face multiple challenges during online learning i.e. health issues, network connection issues, lack of motivation, outsiders' intervention, and so on. The results of the study indicate that the overall mean score=3.52 and SD (1.193) regarding new challenges of online learning. The study's findings also highlight that all of the students face similar problems while studying online.

#### 4.4 What is the difference in university students' responses based on demographic variables i.e. gender, faculty, program, and university regarding the nature, opportunities, and new challenges of the online teaching-learning process?

Table 4 shows the descriptive statistics about the perception of university students regarding nature, opportunities, and the problems that they may face during online instruction.

**Table 4: Gender-wise t-test to measure the nature, opportunities, and new challenges of the online teaching-learning process**

Dimensions	Gender	N	Mean	Std. Deviation	t	Df	P-value
Nature	Male	358	17.8073	3.71751	.998	749	.319
	Female	393	17.5140	4.28338			
Opportunities	Male	358	74.7542	13.49514	1.875	749	.061
	Female	393	72.9059	13.48804			
New Challenges	Male	357	48.8011	9.31998	-1.080	747	.280
	Female	392	49.5281	9.08945			

**Significant (p < 0.05)      Not Significant (p > 0.05)**

Table 4 shows that an independent sample t-test was applied to find out the differences between gender-wise distributions of the sample regarding the three dimensions of the instrument. According to the revealed findings, the existence of some difference between male (M=17.8073, SD=3.71751) and female (F=17.5140, SD=4.28338) students' responses was found superficially due to differences in their mean score regarding the nature. Whereas, P-value (0.319) >  $\alpha$ -value (0.05) depicts the insignificant difference between the genders was the distribution of the sample concerning the nature of the online teaching-learning process at the higher education level. Similar results were also attained regarding opportunities and new challenges of online learning between genders as P-value >  $\alpha$ -value in both cases.

**Table 5: Faculty-wise t-test to measure the nature, opportunities and new challenges of the online teaching-learning process**

Dimensions	Faculty	N	Mean	Std. Deviation	T	Df	P-value
Nature	Science	377	17.7241	3.78101	.481	749	.631
	Arts	374	17.5829	4.25807			
Opportunities	Science	377	72.9655	13.76460	-1.674	749	.094
	Arts	374	74.6150	13.22344			
New Challenges	Science	375	49.7253	9.37951	1.621	747	.105
	Arts	374	48.6364	8.99814			

**Significant (p < 0.05)      Not Significant (p > 0.05)**

Table 5 shows that an independent sample t-test was also applied to find out the differences between faculty-wise distributions of the sample. Table 2 shows the existence of

some difference between the faculty of natural sciences ( $M=17.7241$ ,  $SD=3.78101$ ) and faculty of arts and social sciences ( $M=17.5829$ ,  $SD=4.25807$ ) students' responses superficially regarding nature. Whereas,  $P$ -value ( $0.631$ )  $>$   $\alpha$ -value ( $0.05$ ) depicts the insignificant difference between faculties regarding the nature of the online teaching-learning process at the higher education level. Similarly, opportunities for the online learning process were observed between the two faculties. The results showed a slight difference exists between the faculty of natural sciences ( $M=72.9655$ ,  $SD=13.76460$ ) and the faculty of arts and social sciences ( $M=74.6150$ ,  $SD=13.22344$ ). Conversely,  $P$ -value ( $0.631$ )  $>$   $\alpha$ -value ( $0.05$ ) depicts the insignificant difference between faculties-wise distribution of the sample regarding opportunities. Furthermore, the new challenges of the online learning process were also observed between the two faculties. The results showed a slight difference exists between the faculty of natural sciences ( $M=49.7253$ ,  $SD=9.37951$ ) and the faculty of arts and social sciences ( $M=48.6364$ ,  $SD=8.99814$ ). Conversely,  $P$ -value ( $0.105$ )  $>$   $\alpha$ -value ( $0.05$ ) depicts the insignificant difference between the faculties-wise distribution of the sample regarding new challenges.

**Table 6: Program-wise ANOVA to measure the nature, opportunities and new challenges of the online teaching-learning process**

Dimensions	Variance	Sum of squares	Df	Mean squares	F	P-value
<b>Nature</b>	Between Groups	111.893	3	37.298	2.316	.074
	Within Groups	12030.094	747	16.105		
	Total	12141.987	750			
<b>Opportunities</b>	Between Groups	730.482	3	243.494	1.335	.262
	Within Groups	136241.430	747	182.385		
	Total	136971.912	750			
<b>New Challenges</b>	Between Groups	147.809	3	49.270	.581	.628
	Within Groups	63177.497	745	84.802		
	Total	63325.306	748			

Table 6 reveals that ANOVA was applied to compare program (BS, M. Phil, Ph. D, and B.Ed) wise students' views regarding the nature, opportunities and new challenges of the online teaching-learning process. The results of the above table elaborate that the  $P$ -value ( $0.074$ )  $>$   $\alpha$ -value ( $0.05$ ) regarding the nature, the  $P$ -value ( $0.262$ )  $>$   $\alpha$ -value ( $0.05$ ) in case of opportunities and the  $P$ -value ( $0.628$ )  $>$   $\alpha$ -value ( $0.05$ ) in terms of new challenges during the online teaching-learning process. As it is obvious that the  $p$ -value is greater than the  $\alpha$ -value in the three cases that means a statistically significant difference doesn't exist among the respondents of different programs.

**Table 7: University-wise ANOVA to measure the nature, opportunities and new challenges of the online teaching-learning process**

Dimensions	Variance	Sum of squares	Df	Mean squares	F	P-value
<b>Nature</b>	Between Groups	13.349	4	3.337	.205	.936
	Within Groups	12128.638	746	16.258		
	Total	12141.987	750			
<b>Opportunities</b>	Between Groups	287.169	4	71.792	.392	.815
	Within Groups	136684.743	746	183.224		
	Total	136971.912	750			
<b>New Challenges</b>	Between Groups	1049.038	4	262.259	3.133	.014
	Within Groups	62276.268	744	83.705		
	Total	63325.306	748			

Table 7 reveals that ANOVA was applied to compare the responses of sampled university students. The results of the table indicate that there is no statistically significant difference exists among the respondents of sampled universities while considering the nature of the online teaching-learning process as  $P$ -value ( $0.936$ )  $>$   $\alpha$ -value ( $0.05$ ). Similar results were also obtained in the case of opportunities as the  $P$ -value ( $0.815$ )  $>$   $\alpha$ -value ( $0.05$ ). Contrary, the opposite results were attained in terms of new challenges as  $\alpha$ -value ( $0.05$ )  $>$

the P-value (0.014) that showed the existence of a significant difference among the respondents of different universities.

## **5. Discussion**

The current study is conducted to identify the perception of students about the nature, opportunities and new challenges of the online teaching-learning process at the university level. This study is more related to the findings of Mathew and Ebelelloanya (2016) and Mushtaha et al. (2022) in the sense of its efficient and flexible nature. The study also highlighted the independent nature of online learning. Based on the findings of this investigation, it is obvious that the transformative mode of learning is a source of removing faculty-learner hesitation, enhances critical thinking ability, raises the pace of learning and provides customized learning experiences. The similar findings were reported by Mathew and Ebelelloanya (2016). Furthermore, the current study also explained the benefits of online learning in terms of wider access, geographical flexibility and global awareness. Similar results were also highlighted by Gaurav (2024). Additionally, the results of the (Mseleku, 2020) study are aligned with the results of the current study in terms of bringing innovation in research areas and a source of digital data collection. Moreover, the results of the present study elaborated on multiple challenges that students face during online sessions in terms of internet connections, lack of time, financial constraints, digital illiteracy and ambiguous explanations regarding the topic. Similar results were also explained by Hafeez, Kazmi and Tahira (2022), and Aisha and Ratra (2022).

Again, the findings of the current study are aligned with the findings of Ashraf et al. (2021) in the sense of similar challenges between genders. The present study's results also mentioned the existence of a non-statistically significant difference between faculty and program-wise distribution of the sample regarding the nature, opportunities and new challenges of the online teaching-learning process. The results of this investigation also highlighted that the same nature and opportunities of online learning were observed among the respondents of sampled universities while the nature of new challenges was observed differently among them.

## **6. Conclusions**

The study concludes that online learning offers various advantages but is accompanied by significant challenges. While the nature and opportunities of online education remain consistent across institutions, challenges vary among universities. The objectives of this investigation were to analyse students' views regarding the nature, opportunities and new challenges of the online teaching-learning process at the university level. The first research question was related to the nature of the online teaching-learning process. The explored views of the respondents suggested that the most effective way of learning is online learning which allows asynchronous mode of learning. The second research question addressed in this study was to inspect students' views regarding the opportunities that they gained during online learning. According to the explored views of the study, it was concluded that they gain maximum benefits during online learning and the nature of benefits remained the same irrespective of the demographic variables of the respondents. The third research question was related to the challenges that university students may confront to carry out this journey. The conclusion that was drawn from the findings this were: that lack of inspiration, health issues, limited accessibility to online library resources, network connection issues, lack of tangible material and attention issues were the major problems that university students confronted. So, HEIS must provide appropriate guidance and counselling services to their students, promote digital literacy culture within the institution and provide tangible material for a clear understanding of the topic to enhance online learning in the long run.

### **6.1 Policy Recommendations**

- HEIs should conduct digital literacy workshops to equip students with essential technical skills.
- Counseling and academic support should be provided to help students navigate online learning difficulties.
- Institutions should adopt asynchronous learning models to accommodate students' schedules.

## **References**



- Adnan, M. (2020). Online learning amid the COVID-19 pandemic: Students perspectives. *Journal of Pedagogical Sociology and Psychology*, 1(2), 45-51. <https://doi.org/10.33902/JPSP.2020261309>
- Aisha, N., & Ratra, A. (2022). Online education amid COVID-19 pandemic and its opportunities, challenges and psychological impacts among students and teachers: a systematic review. *Asian Association of Open Universities Journal*, 17(3), 242-260. <https://doi.org/10.1108/AAOUJ-03-2022-0028>
- Al Rawashdeh, A. Z., Mohammed, E. Y., Al Arab, A. R., Alara, M., Al-Rawashdeh, B., & Al-Rawashdeh, B. (2021). Advantages and Disadvantages of Using e-Learning in University Education: Analyzing Students' Perspectives. *Electronic Journal of e-Learning*, 19(3), 107-117. <https://doi.org/10.34190/ejel.19.3.2168>
- Arifiati, N., Nurkhayati, E., Nurdiawati, E., Pamungkas, G., Adha, S., Purwanto, A., Julyanto, O., & Azizi, E. (2020). University students online learning system during Covid-19 pandemic: Advantages, constraints and solutions. *Systematic reviews in pharmacy*, 11(7).
- Ashraf, M., Ashraf, S., Ahmed, S., & Ullah, A. (2021). Challenges of online learning during the COVID-19 pandemic encountered by students in Pakistan. *Journal of Pedagogical Sociology and Psychology*, 3(1), 36-44. <https://doi.org/10.33902/JPSP.2021167264>
- Barr, B. A., & Miller, S. F. (2013). Higher Education: The Online Teaching and Learning Experience. *Online submission*.
- Coman, C., Țiru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability*, 12(24), 10367.
- Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, 49(1), 5-22. <https://doi.org/10.1177/0047239520934018>
- Gaurav, N. (2024). Online Learning: Challenges and Opportunities amidst COVID-19. *Iris Journal of Educational Research*, 3(1). <https://doi.org/10.33552/IJER.2024.03.000551>
- Hafeez, M., Kazmi, Q. A., & Tahira, F. (2022). Challenges faced by the Teachers and Students in online learning during COVID-19. *Jurnal Cakrawala Pendidikan*, 41(1). <https://doi.org/10.21831/cp.v41i1.35411>
- Kamraju, M., Krishnaiah, J., Durgesham, G., Shaba, N., Begum, S. A., Fatima, N., & Madhuri, Y. (2024). Exploring the Impact of Online Education on Higher Education. *ASEAN Journal of Educational Research and Technology*, 3(1), 27-36.
- Kumar, G., Singh, G., Bhatnagar, V., Gupta, R., & Upadhyay, S. K. (2020). Outcome of online teaching-learning over traditional education during covid-19 pandemic. *International Journal*, 9(5), 77014-7711.
- Mathew, I. R., & Ebelelloanya, J. (2016). Open and distance learning: Benefits and challenges of technology usage for online teaching and learning in Africa.
- Mseleku, Z. (2020). A literature review of E-learning and E-teaching in the era of Covid-19 pandemic. In: Sage Los Angeles, CA, USA:.
- Mushtaha, E., Abu Dabous, S., Alsyouf, I., Ahmed, A., & Raafat Abdraboh, N. (2022). The challenges and opportunities of online learning and teaching at engineering and theoretical colleges during the pandemic. *Ain Shams Engineering Journal*, 13(6), 101770. <https://doi.org/10.1016/j.asej.2022.101770>
- Naik, G. L., Deshpande, M., Shivananda, D., Ajey, C., & Manjunath Patel, G. (2021). Online Teaching and Learning of Higher Education in India during COVID-19 Emergency Lockdown. *Pedagogical Research*, 6(1).