



Problems faced by students during online classes due to COVID-19 lockdown: Comparison of public and private sector colleges

Dr. Nazma Bibi, Assistant Professor, Government Degree College (W) Kot Khawaja Saeed, Lahore, nazma.bib@gmail.com
ORCID: 0000-0002-0884-6233

Dr. Gulshan Fatima Alvi, Assistant Professor, Leads University Lahore, gulshan_fatima_alvi@yahoo.com ORCID: 0000-0001-9681-5914

Dr. Crystal J. Davis, Cloud County Community College USA, crystal.davis@cloud.edu ORCID: 0000-0002-3325-7748

Muhammad Mohsan Ishaque, University of Gujrat Pakistan, mmohsinishaq@gmail.com ORCID: 0000-0002-8141-9596

Abstract- The purpose of this study was to examine the issues faced by college students as a result of online learning during COVID-19. The study took a comparison approach of public and private sector college online portal usage. A sample ranging of 1000 students would provide sufficient power to detect a significant relationship among interest variables based on the sample size information. A total of 805 surveys were returned (N= 805). Four factors were used to quantify online learning's adequacy: availability of infrastructure, home environment, students' knowledge, and skills about the internet. Cronbach alpha test quantified the dependability and inner consistency of the related elements. Confirmatory factor analysis is used to separate the factors and to quantify the study's components. The conclusions extrapolated from the research suggested that colleges should organize orientation workshops for students and parents to overcome the challenges faced during online learning. It is also recommended that the government should provide free internet service in the country.

Keywords: COVID-19, online learning, Cronbach alpha, confirmatory factor analysis

I. INTRODUCTION

COVID-19 started in China (Wuhan City) and is spreading quickly worldwide, and countries are severely affected by this virus. It is a transmittable disease. The World Health Organization confirmed COVID-19 as an epidemic on 30th January 2020 (Sohrabi, Alsafi, O'Neill, Kerwan, & Al-Jabir, 2020) and reported that social distancing is the solution to control the spread of this virus. The COVID-19 epidemic is influencing individuals everywhere in the world. Due to this pandemic disease, a lockdown was imposed in many countries. Lockdown is a condition of the government's crisis convention (public authorities) to restrict individuals from leaving their homes, which results in isolation and stay-at-home over the world since March 2020 (Mishra, Gupta, & Shree, 2020). There is a critical need to ensure and spare our pupils, staff, academic staff, groups, communities, and country. Therefore, all organizations, including schools, colleges, and universities, are affected worldwide and moved to online classes instead of on-campus classes (Toquero, 2020). In the education sector, a revolution came after COVID-19 through online lectures, video conferencing, and google classrooms, etc. (Kapasias et al., 2020).

In Pakistan, educational institutions were closed on 14th March 2020 due to the COVID-19 lockdown, and on 15th September 2020, educational institutions were reopened after the first lockdown. However, online classes were taken during the first lockdown. After the reopening of institutions, this pandemic disease spread widely and the situation worsened, so, on 26th November 2020, educational institutions were closed and moved to online mode for conducting classes. While online learning was not regular in Pakistan before COVID-19. In Pakistan, HEC (2020) permitted academic institutes to educate and learn through various distance learning methods. This study was led to know the degree of acknowledgment of online classes in Pakistan. Learners find it hard to adjust to an online learning model after traditional classroom learning. Because of the abrupt change, they cannot adapt to computer-based learning. It is significant for them to acknowledge the new learning climate with a receptive outlook. But it is difficult for less developed countries like Pakistan to switch to online learning after conventional classroom learning. Some students of low-income families face problems in taking online classes due to the non-availability of gadgets like android mobile phones or laptops (Qazi et al., 2020). In an underdeveloped country like Pakistan, numerous students cannot

manage the cost of a stable web association or the essential devices required for online availability. Many students cannot operate basic programs of computer due to lack of computer knowledge. In addition, if they find difficulty in online learning, they start losing hope, and due to less motivation, they don't take an interest in an online class.

Coronavirus lockdown has essentially hampered instructional learning by using online modules (Kapasia et al., 2020). In any case, the application of e-learning isn't generally feasible and practical. In the COVID-19-19-19 outburst, schools and colleges have quickly executed e-learning. Along these lines, institutes with restricted or no involvement in e-learning and schools that are not prepared for e-learning assets experience challenges, particularly when educators don't see how to utilize online applications (Zaharah&Kirilova, 2020). Many types of research all over the world have been conducted during COVID-19 to know the impact of this disease on different fields, especially in education due to the sudden shift from conventional teaching to online mode (Kapasia et al., 2020; Qazi et al., 2020; Toquero, 2020). Many studies were done at the university level, but no specific study was conducted to find the college-level challenges during online classes amid pandemic COVID-19. Furthermore, this study aims to compare the public and private sector problems faced during online courses due to the lockdown of COVID-19.

Rationale of the Study

There is a race of technology going on in the world. Underdeveloped and developing countries are switching over to information technology in different fields. In the wake of COVID-19 lockdowns, educational institutions worldwide have switched over to online classes. This changing scenario requires shifting to new settings that pose a challenge to education in Pakistan. Many studies have been conducted on e-learning in developing nations at the university level. The current research was conducted to examine college-level students' problems during online classes at the college level, and the issues students face. The present research result help college administration monitor their online learning process or make changes as necessary. Moreover, this study considered the public and private college students' opinions.

Objectives

The research's pivotal point was to find the students' challenges at the college level during online classes in the COVID-19 situation. Moreover, this study investigated the challenges between students enrolled in government and private sector colleges and their challenges in taking online courses during this pandemic tenure in year 2020. Also included in this research was the challenges since March 2020 after the lockdown.

Research Questions

The research includes the following research questions:

1. What are the challenges faced by students at the college level during online classes in government colleges?
2. What are the challenges faced by students at the college level during online classes in private sector colleges?
3. Is there a significant difference in the challenges faced by students in government and private sector colleges during online classes?

II. LITERATURE REVIEW

Coronavirus is an infectious virus and one of the deadliest viruses in the world of the present century. Still, at the end of December 2020, it is spreading quickly worldwide. Now, no country or race is safe from the COVID-19 pandemic internationally. The world as a whole appears to be overpowered by the speed of the spread and the staggering influences of COVID-19. The COVID-19 pandemic has no restrictions, and the effect is enormous and brisk. In just a few short months, COVID-19 has unquestionably changed the entire world's lifestyles, with billions of people being constrained to 'stay at home,' notice self-isolations, and work and gain from home. Not just has COVID-19 caused an all-out lockdown in numerous nations over the world, yet it likewise caused the demise of thousands of individuals including, ladies and the old. It was more

troubling to realize that reports from different landmasses, including America, Africa, Asia, and Europe, showed a daily increase in the number of new cases and mortality because of COVID-19 (Onyema1, Eucheria, Obafemi, Sen, Atonye, Sharma, & Alsayed, 2020). To oversee the COVID-19 pandemic, different preventive measures can be taken. For example, keeping up social distancing, following isolated restorative cycle and grasping cleanliness and sterilization, and avoid going in areas where there are too many people (Shehzadi, Nisar, Hussain, Basheer, Hameed, & Chaudhry, 2020). All cases of Corona positive cases in Pakistan are displayed in Table 1.

Table 1. COVID-19 Cases in Pakistan (December, 2020)

Overall Cases of COVID-19-19-19 in Pakistan	Deaths	Recovered Cases
426,142	8,547	372,271

Source: *Official reports from the National Institute of Health*

The ongoing period of the Coronavirus pandemic expanded the breaks in the schooling area all around the world. In Pakistan, many life fields were affected by this pandemic, and the same is the case with education. To control this disease, the government has taken different steps in all areas of life. The education sector is already an ignored sector in many underdeveloped and developing nations like Pakistan, and currently, it is also adversely affected due to lockdown amid COVID-19. E-learning is not an easy phenomenon in education as teachers face many problems during online classes. The education sector is adversely affected from primary to tertiary level and switched from conventional classroom learning to online learning. According to Di Pietro, Biagi, Costa, Karpiński, and Mazza's JCR (2020), online education has adversely affected students who have difficulty adjusting to new learning environments.

According to Aparicio, Bacao, and Oliveira (2016), the e-learning/online learning idea was not the initial concept in conceptualizing the utilization of computerized frameworks to empower or encourage the learning cycle. They distinguished 23 ideas that have a place with the utilization of PCs for learning purposes (e.g., internet learning, virtual learning, distance schooling, learning the board frameworks). Sangrà, Vlachopoulos, and Cabrera (2012) discovered four general classifications of meanings of e-learning: (a) Technology-driven: Use of innovation to convey learning and preparing programs; (b) delivery framework: Use of electronic methods in education or training; (c) communication-based: Learning encouraged by the utilization of advanced apparatuses and substance that includes some sort of intelligence, which may incorporate online collaboration between the student and their instructor or friends; and (d) instructive paradigm based: Information and correspondence devices used to assist students with improving their learning. Rodrigues, Almeida, Figueiredo, and Lopes (2019) characterize e-learning as, "a creative electronic framework dependent on advanced developments and different types of instructive materials whose essential objective is to give pupils a customized, student-focused, open, pleasant, and cooperative learning climate supporting and upgrading the learning measures" (p. 95). Another view is that e-learning is a problematic innovation that is currently changing how learning is possible in an educational setting (Garrison, 2017, p. 21). Four generations of e-learning were presented by Dron and Anderson (2016): The behaviorist/cognitivist, the connectivist, the social constructivist, and the all-inclusive generation. The importance of each educational methodology relies upon the mechanical abilities that it uses. The all-inclusive generation incorporates: Learning investigation, aggregate innovations, profound learning, and man-made brainpower, disaggregated instruments and administrations, portability and gadget variety, the web of things and omnipresent processing, virtual and expanded reality, and 3D printing.

Earlier, e-learning, distance schooling, and postal studies courses were included in non-formal education. Still, nowadays, it seems that it will progressively substitute the proper schooling framework if the conditions perpetually continue throughout the time. The well-known online correspondence stages that would alter the entire training framework's purpose and practice over the world in post-COVID-19 situations are Zoom meeting, emails, Pluralsight, Google Classroom, Classwize, Moodle, Start.me, Neo, G Suite, and some more.

Research conducted by Mailizar, Almanthari, Maulina, and Bruce (2020) revealed limitations that data extrapolated from teachers. In contrast, students also face some challenges during online classes so, students' perspective is also essential, and the present study has given importance to their voice.

Challenges during online learning

When E-learning is used instead of traditional classroom learning, students and teachers face many challenges. As, they may be classified by Ertmer (1999) into two groups, 1st level barriers, and 2nd level barriers. 1st level barriers include hardware, access, and specific help, while the second level barriers include teaching method, faith, or individual likings. Moreover, Pelgrum (2001) suggested two categorizations for e-learning boundaries: material and non-material obstacles. Material obstacles indicate to lack of Information and Communication Technologies (ICT); however, non-material obstacles identify with instructors' information and skills. Balanskat, Blamire, and Kefafa (2006) sorted hindrances into student level, school level, instructor level, and framework level.

Assareh and Bidokht (2011) identified e-learning obstructions into four parts: students, curriculum, instructors, and schools. In detail, e-learning obstructions related to students include financial concerns, evaluation, inspiration, disconnection from class fellows, lacking e-learning aptitudes and skill, friendship, and social space. Instructor's e-learning boundaries include different facets, i.e., information barriers and assessment challenges, curriculum hindrances of e-learning include uncertainty, quality, means, the process of teaching, and assessment. Lastly, limitations which schools have administrative and organizational aspects. Implementation of e-learning in education may confront various challenges, for example, technology set-up, pupils' capability, teachers' motivation, and satisfaction with technology (Surry, Ensminger, & Haab, 2005).

Qureshi, Ilyas, Yasmin, and Whitty (2012) indicated some barriers to e-learning include technical issues, computers' availability, English language, personal interaction, computer knowledge, awareness level. Technical problems/issues include connection of internet, accessibility of most recent innovation, quick Internet link, continuous power supply, maintenance, organization, security, lack of mechanical help, and resistance to change. Research by Noreen and Hafeez (2016) argued that online education application has some challenges that include competence or computer skill, various ICT resources, and technology availability. Other problems associated with online learning include installation issues, login issues, sound and video issues, etc. Students often do not take an interest in online education due to a lack of face-to-face interaction. Student learning cannot be possible until pupils practice what they learn. Students feel that technical issues, the absence of a network, and challenges in understanding instructional objectives are the significant hindrances for web-based learning (Song, Singleton, Hill, & Koh, 2004).

Pakistan is also encountering different problems in the practical usage of e-learning. Web access, social aspects, and absence of experienced staff, and social and political unrest are the massive obstacles of e-learning usage in Pakistan (Nawaz & Khan, 2012). Oyedotun (2020) noted that COVID-19 came unexpectedly with almost no warning in some agricultural nations. Other areas impacted by COVID-19, including instruction, have enormously been negatively affected by the pandemic. Online education in Pakistan is confronting various types of difficulties, some of which are arranged underneath current research:

- Availability of infrastructure

Infrastructure availability includes issues related to the presence of computer/tab/mobile, internet facility, expenses on internet, internet signal problem, quick internet link, electricity issues, and maintenance, etc. Computerized discrepancies among pupils and staff were abruptly uncovered. There is no web availability in many towns in the surrounding zones where a few pupils and faculty are domiciled. As per Curran (2001), inconsistent access to web-based learning not only shows disparity among the developed and developing nations, yet imbalance among the economic status of people in society also matters.

- Home Environment

In countries like Pakistan, middle-class people are not too spacious. Every child does not have a separate room to participate in online classes, and the home environment affects pupils' online learning. This factor includes interruption of the family during online classes, space in-home, and parents' attitudes.

- Knowledge-based problems

This factor includes students' knowledge of the usage of electronic devices. Students' understanding of how to use modern electronic devices in education and how they can best utilize them in learning is also a barrier in e-learning. Croxall and Cummings (2000) said the adequate capability level in PC innovation is a significant factor in effective innovation appropriation. The trust in aptitudes and capacity to utilize e-learning will contribute fundamentally towards the utilization of innovation. Undoubtedly the more

experience the clients have in using the Internet and PC, the more probable they will acknowledge and utilize e-learning (Picciano and Seaman, 2007).

- Skill-based problems

Skill-based problems include issues pertaining to students' expertise in internet usage related to online classes. Qureshi et al. (2012) affirm that many agricultural nations need quality specialists to execute and repair Information and Communication Technologies (ICT).

- Interpersonal Problems

This sub-factor includes Eye to eye contact, students' activeness during online classes, chances of cheating, assessment process of online learning, and parents and teachers' interaction. Students can be satisfied with their teachers' face-to-face interaction, which is not possible in online learning.

III. METHODOLOGY

The current research took a quantitative approach. The research was descriptive in nature as data was obtained through a Google form survey. The study is delimited to the colleges of Punjab only.

Population

The population involved students of the government and private colleges of Punjab. The total government colleges are 771 and 1400 private colleges in Punjab. The survey google form was sent to 1000 students by random selection, and the return rate was 805 (n=805). The data were collected from December 2020 to January 2021 from college students of Punjab.

Instrument

After reviewing the literature, the present research finalized four significant areas in which college students may face problems during their online classes. These areas include the availability of infrastructure, home environment, students' knowledge, and internet skills. In the light of these areas, a questionnaire consisted of 23 items on five points Likert scale was developed by the researcher. The validity and reliability of the questionnaire were validated. Necessary changes in the questionnaire were made after taking opinions from experts. Data were collected through Google form due to the closure of educational institutions. When 805 college students' data were received, it was analyzed and ensured the questionnaire's validity through confirmatory factor analysis (CFA). For this purpose, AMOS 24 software was used. Seven of the 30 items have weak factor loading ($\leq .50$) that were excluded from the analysis to make the model fit. The values used to determine the model fit, and their criteria are presented in the following table.

Table 2. Values of Model Fit of the Questionnaire

Indicators	Calculated Value	Criteria for Acceptance	Judgment
CMIN/DF	2.75	Less than 3	Accepted
Root Mean Square Residual (RMR)	.05	Less than .09	Accepted
Goodness of Fit Index (GFI)	.96	Greater than 0.9	Accepted
Adjusted Goodness of Fit Index (AGFI)	.94	Greater than 0.9	Accepted
Normed Fit Index (NFI)	.95	Greater than 0.9	Accepted
Comparative Fit Index (CFI)	.96	Greater than 0.9	Accepted
Root Mean Square Error of Approximation (RMSEA)	.04	Less than .08	Accepted

The values of model fit, which fall within the criteria, were considered the model fit. The AMOS diagram of model fit is given below. The remaining items are presented in the following table aligned with each factor, and the reliability is illustrated in the following table.

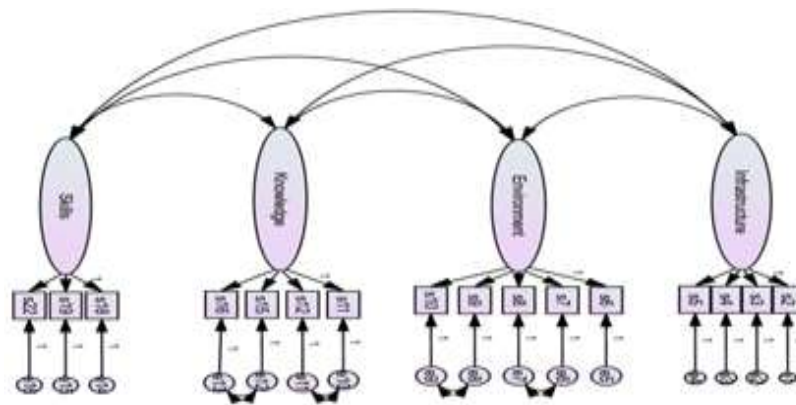


Figure 1. AMOS Diagram of model fit.

Table 3. Final Questionnaire with Reliability

Area of Problem	Items	Reliability
Availability of infrastructure	It is difficult for me to purchase accessories for online classes.	.81
	It is difficult for me to get landline internet facility.	
	It is difficult for me to afford extra expenditure on internet.	
Home Environment	There is signal problem with cellular companies in my area.	.85
	Attending online class is problem due to less separate place in my home for study.	
	My home environment does not support me to spare time for online classes.	
Students' Knowledge about Internet	My parents dislike me to use internet for extended period of time.	.79
	At home, there is interruption of family members during online class.	
	It is difficult for me to concentrate at my online class at home.	
Students' Skills about Internet	I know about the applications used for online teaching.	.67
	I know how to install the applications for online class.	
	I know about the authentic sources for data browsing.	
Scale Reliability	I know how to download the authentic material for reading.	.87
	I rejoin the class without any problem when it is quitted.	
	I easily respond to the teacher during online class.	
	I submit my online assignments in time.	

ANALYSIS OF DATA

Collected data was analyzed through SPSS 24. The total number of items included in the final analysis was 16. Moreover, eight items were negative in a sense and were reverse coded before analyzing the data. Results of data analysis are presented in the following tables.

Table 4. Challenges/problems faced by the college students during online learning

Challenges	Public			Private		
	N	M	SD	N	M	SD

Availability of Infrastructure	of	533	2.51	0.96	272	2.62	0.99
Home Environment		533	2.67	0.94	272	2.71	0.98
Students' knowledge about Internet		533	3.17	0.85	272	3.13	0.92
Students' skill about Internet	skill about	533	3.26	0.86	272	3.29	0.92

The above table demonstrated the mean scores of challenges faced by the both sector college students. Analysis of data revealed that the most prevailing challenge faced by the college students was availability of infrastructure (public; N= 533, M= 2.51, S.D. = 0.78 and private; N= 272, M= 2.62, S.D. = 0.99) as asked through the statements aligned with this factor. The other most frequently challenge was home environment (Public; N= 533, M= 2.67, S.D. = 0.94 and private; N= 272, M= 2.71, S.D. = 0.98). Moreover, public college students (N= 533, M= 3.17, S.D. = 0.58) faced the less challenge related to knowledge and private students (N= 272, M= 3.13, S.D. = 0.92) as well. Furthermore, public students (N= 533, M= 3.26, S.D. = 0.68) and private college students (N= 272, M= 3.29, S.D. = 0.92) faced very least challenge related to skills about internet. It was concluded that both sector college students faced similar challenges.

Table5. Comparison between the Challenges faced by Public and Private College Students

Challenges		Mean		SD		Mean Difference	df	t-value	Sig.
		Public	Private	Public	Private				
Availability of Infrastructure	of	2.51	2.62	0.96	0.99	-1.09	803	-1.49	.13
Home Environment		2.67	2.71	0.94	0.98	-.031	803	-.44	.65
Students' Knowledge about internet	about	3.17	3.13	0.85	0.92	.034	803	.52	.59
Students' skills about Internet	skills about	3.26	3.29	0.86	0.92	-.035	803	-.54	.58

An independent samples t-test was applied to find out the comparison between challenges faced by the students studying in public and private colleges during online classes. It was found insignificant difference between the mean score of availability of infrastructure challenges faced by the students of public colleges (M= 2.51, S.D. = 0.96) and the mean score of private college students (M= 2.62, S.D. = 0.99; $t(803) = -1.49, p = .13 \leq \alpha = .05$). Similarly, insignificant difference was also found between home environment challenges of public college students (M= 2.67, S.D. = 0.94) and the mean score of private college students (M= 2.71, S.D. = 0.98; $t(803) = -.44, p = .65 \leq \alpha = .05$). Moreover, there was also insignificant difference between mean score of public college students (M= 3.17, S.D. = 0.85) and private college students (M= 3.13, S.D. = 0.92; $t(803) = .52, p = .59 \geq \alpha = .05$) on students' knowledge about internet. Furthermore, same results were found on students' skills about internet of public colleges (M= 3.26, S.D. = 0.86) and private college students (M= 3.29, S.D. = 0.92; $t(803) = -.54, p = .58 \geq \alpha = .05$).

IV. DISCUSSION

This study was intended to investigate the challenges the college students faced during their online classes. A self-developed questionnaire aligned with four areas was used to collect the data from the college students. The questionnaire was made valid through Structural Equation Modeling (SEM). Table 1 presented the values of model fit. Sixteen out of a total of thirty items were finalized for the purpose of the final analysis. The reliability of the questionnaire was also ensured. The analysis revealed no significant difference between the challenges faced by the students enrolled in public and private colleges. It was concluded that both sector students faced almost similar challenges. The reason behind the insignificant difference of both sector students may be the - parents' socio-economic status. Parents enroll their children in well-reputed colleges but unable to afford extra/more expenses on their education. The most prevailing challenge was related to infrastructure. Students of both sector colleges faced economic problems as results of the analysis depicted that the students were unable to pay for additional internet facilities and accessories for online classes.

Moreover, they also faced the problem related to the unavailability of smooth networking of different cellular companies. Furthermore, both sector students have the challenge of the home environment. It was concluded through the data analysis that students have less separate space in their home for study; resultantly, they were unable to concentrate on their online classes due to the interruption of family members. Parents also dislike using the internet by their children for extended period of time. On the other hand, students faced fewer problems related to knowledge and skills of using the internet. The present research signaled that students faced problems of submitting assignments due to less knowledge about the technology. Moreover, they also have less experience and skills in data browsing from authentic sources. Furthermore, both sectors' college students experience problems in providing oral feedback to the teachers during online classes (Noreen & Hafeez, 2016; Qureshi, Ilyas, Yasmin, & Whitty, 2012).

V. RECOMMENDATIONS

The results of the data indicate that college students face the challenge of the availability of internet infrastructure. Based on this conclusion, it is recommended that the government should provide students internet access by signing MOUs with cellular companies to give a discount to the students. It was also concluded that the home environment does not support the students, so it is recommended that colleges should organize orientations for the parents and educate them about this technological shift so that they may facilitate their children for online classes at home. Moreover, students have problems in submitting online assignments and data browsing. It is recommended that colleges should arrange workshops to enhance students' knowledge and skills about e-learning.

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