A Study on the Impact of COVID-19 on students' learning achievements

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During this pandemic, all the educational institutes of Pakistan (schools, colleges, universities) are using online education platforms to continue academics. However, online teaching is still in the developing stages due to which the students complain about ineffective learning. This investigation aims to identify the issues faced by the students in terms of learning and the recommendations for the educational institutes. The quantitative method was selected. A survey with 200 students studying in different educational institutes of Pakistan was selected. To find results, the regression method was applied for testing the hypotheses. The results obtained indicate that the online education platform in Pakistan is weak and demanding the development of a more robust infrastructure for the educational institutes. The educational institutes need to focus more on the development of a robust educational infrastructure to resolve the issues of a poor learning environment.

Key words: *COVID-19, Student's learning achievements, Pakistan, Online Education*

Introduction

Since November 2019, it has been observed that the world started to see the spread of the COVID-19 pandemic, which was confirmed by the World Health Organisation (WHO), which is an international body handling all the issues related to human health. Since then, almost all the companies started operating in remote conditions to maintain the social distancing parameters (Putra et al., 2020). Since then, the management of different educational institutes have been operating and teaching online to their students to ensure that this disease does not spread to other cities. The pandemic has increased the challenges for the management of

educational institutes to maintain the effectiveness of students' learning and ensure that quality does not get compromised (Dorn et al., 2020). Especially in Pakistan, the challenges for maintaining quality education have increased because the management has been unable to promote students' learning effectively.

The closure of different educational institutes was valid for all, which included schools, colleges and universities. The research article of Di Pietro et al., (2020) argued that in order to maintain the quality of education many universities have started operating online due to which they are facing issues to improving students' learning. Since the induction of online education has taken place, this investigation aims to identify the perspectives involved in online education, and how online education has influenced students' learning in Pakistan. Putra et al., (2020) argued that online education demands synchronised timing between the students and teachers. In addition, the teacher needs to be collaborative to ensure that his students keep learning by remaining engaged. Due to this, this study aims to identify how students' learning during this time period has been influenced.

Research question

Based on the above identified issue following research question is developed:

- What is the impact of COVID-19 on students' learning achievements in Pakistan?

Research objectives

The research objectives identified in this investigation are:

- To identify the issues faced by the students with respect to adapting to technology for effective learning.
- To evaluate the impact of COVID-19 pandemic on the learning achievement of the students in Pakistan.

Literature review

Online learning in this time period can be challenging because it is believed that performance of the students is significantly influenced. In an investigation of Basilaia and Kvavadze (2020), it is argued that online learning is effective in developed nations, but Pakistan is not one of them. Before this pandemic, most of the educational institutes were operating online, because the challenges for ensuring quality education during this pandemic significantly elevated. The results obtained in the investigation indicates that learning of the students was significantly influenced, because of this pandemic. Supporting the statement, Salam et al., (2017) argued that lack of access, lack of fast and affordable internet in different cities has influenced the

performance of students and teachers both. Students who are taking online classes from mobile phones during this pandemic have significantly faced the challenges because not all the content being taught in the online class can be accessed from smartphones.

Due to unexpected changes in online learning, educational institutes are adopting agile practices (Wu, 2020). It has been observed that most of the educational institutes are focusing on transferring the educational content by taking it from the internet and not developing a syllabus on their own. Hence, the methods of online teaching have significantly changed. However, this indicates that most of the educational institutes are not having enough educational resources, which can increase organisational learning effectively. Supporting the argument, Zhong (2020) argued that insufficient access to the latest technology has resulted in the lack of students' participation within digital learning. For example, most of the students are not taking online classes because of poor teaching methods or internet connectivity issues; lack of proper interaction with the teachers is also reported as one of the major problems in the context of online learning, which has resulted in poor students' learning behaviour (Zhong, 2020). In addition, most of the instructors are addressing concerns of the students online, which requires a quick response time. Although online classes shall attract many students, it is believed that most of them are tactile learners. Within the context of Pakistan, conventional socialisation is also a major factor missing from the online learning platform.

When students used to go to the classroom before the pandemic most of the learning took place physically, but now it is not. Now students only communicate online with other students, and never see other fellows in person, due to which real time sharing of knowledge, ideas and information is missing from online learning (Pace, Pettit, & Barker, 2020). Currently, the issues faced by the students are unique, unlike other normal digital learning situations, because some people might argue that it is more of a crisis learning instead of effective learning. The academicians need to organise the activities related to the use of curriculum, by introduction of new methods to teach and engage with the students (Toquero, 2020). Toquero (2020) argued that educational institutes have also faced issues of meeting social activities' and interactions' requirements. If the management of educational institutes will keep facing the issues of online learning then students will miss how they used to interact with others.

Students who are continuing to learn, are mostly belonging to urban areas. People living in rural areas are unable to afford laptops, due to which their children are unable to learn effectively. In an investigation of McCarthy (2020), it is reported that students living in rural areas are mostly hard working but during this pandemic lack of access to technological things resulted in ineffective learning in the classroom. In support of the statement, Abbas et al., (2017) argued that the adoption of ICT is considered necessary in this time period to ensure good higher education. However, due to a low education budget enforced by the government of Pakistan, the special funds are not allocated for induction of new technologies in the educational institutes. Hence, Ali (2020) argued that just after this pandemic, all the educational

institutes of Pakistan were closed, and enforced with Learning Management Systems (LMSs) to ensure online classes. Most of the educational institutes were not allowed to carry on their education because they did not have LMS, hence only a few universities started their online education. Due to this reason, the learning environment in many universities started after 2-3 months.

In recent times, a few studies have tried to explain the opportunities and challenges required with the development of the e-learning platform, but it is important that the perception of students should be noted (Mailizar et al., 2020). The students are not enjoying the online education due to which it has been seen that challenges related to e-learning platforms have increased. The students learning is weak, because they believe that the communication gap is too big considering the online education platform. However, in the context of Pakistan, more investigation is needed related to students' personal perspective of online education and its impact on online learning. Basilaia and Kvavadze (2020) have also argued that more research is needed on this variable.

Hypotheses

Based on the above literature review, the following hypotheses were tested:

H1 – The students' perception of the online classes is that it does not support their learning.
H2 – Classroom learning is preferred instead of online because online teaching is not meeting students' learning expectations.
H3 – Personal perspective of online teaching by students is that it does not allow effective students' learning.

Method

Participants

The methods play an important role in presentation of the arguments and reporting the findings. During this pandemic, finding the research respondents was a difficult task because social distancing issues were being operated. Hence, the participants in this investigation were online. This investigation selected the quantitative research method. The participants of this investigation were 200 students, from different public and private universities of Pakistan. It was observed that most of them were male. These participants were selected based on purposive sampling method because only those students enrolled in semesters and taking online classes were selected. These students were enrolled in different degree programs at all bachelors, masters and PhD levels.

Instruments

The instrument used in this investigation is one only. The instruments used was the 5-point Likert scale questionnaire which comprises of 5 options given below:

1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly disagree

The questionnaire developed is segmented according to the selected variables. The variables investigated in this study are, students' perception of the online classes, online vs classroom teaching, personal perspectives of online teaching and their influence on students' learning pace (dependent variable). The relationship between the dependent and independent variables was tested in this investigation; the questionnaire designed comprised of 12 questions (3 for each variable). In addition, the demographic characteristics were also analysed in this study.

Data Analysis

The data analysis part of this investigation deployed the quantitative method because it was best suited to test the hypotheses. This investigation made use of the regression and correlation analysis method on the SPSS. The reason to select this method was to identify the p-value and accept or reject the hypotheses based on that. The regression analysis method was selected to test the hypotheses, while frequency analysis was used for interpreting demographics. This assisted in generating the best results on the basis of hypothesis acceptance and rejection.

Results

The results in this section are presented in the form of different headings and subheadings, which are developed in a sequence. First, the results related to the demographics, with assistance of frequency tables followed by regression analysis. On the basis of the p-value, hypotheses were accepted or rejected.

Results to demographics

The results obtained from the demographics can be observed below:

Table 1 Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	135	67.5	67.5	67.5
	Female	65	32.5	32.5	100.0
	Total	200	100.0	100.0	

The gender statistics of this investigation indicate that 67.5% were male and 32.5% were female.

Table 2 Age

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16 to 18 years	28	14.0	14.0	14.0
	19 to 23 years	79	39.5	39.5	53.5
	24 to 27 years	66	33.0	33.0	86.5
	28 and above	27	13.5	13.5	100.0
	Total	200	100.0	100.0	

The age of respondents indicates that most of them comprised of 19-23 years with a percentage of 39.5%, followed by 24-27 years (33%), 16-18 years (14%) and 28 and above (13.5%).

Table 3 Education

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate	21	10.5	10.5	10.5
	Graduates	122	61.0	61.0	71.5
	Masters	36	18.0	18.0	89.5
	Others	21	10.5	10.5	100.0
	Total	200	100.0	100.0	

The results with respect to education indicate that most of the participants were graduates with a percentage of 61%, followed by Masters (18%), undergraduate (10.5%) and Others (10.5%). Others in the above table indicate students enrolled in college or polytechnic institutes.

Table 4 Type of educational institute

Type of Educational institute

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	College	52	26.0	26.0	26.0
	Public University	129	63.5	63.5	89.5
	Private institution	15	7.5	7.5	97.0
	Polytechnic Institute	6	3.0	3.0	100.0
	Total	200	100.0	100.0	

The above results indicate that highest percentage participating was of public university (63.5%) followed by college (26%), private institute (7.5%) and polytechnic institute (3%).

Results to the hypotheses

The results obtained with respect to the hypotheses can be observed in the tables below:

The first hypothesis investigated in this study was:

H1 - students' perception of the online classes is that it does not support their learning.

Table 5 results in the first hypothesis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.775[a]	.601	.599	.28473

a. Predictors: (Constant), Students' Perception

The value of R-square shows that it is equivalent to 0.601 or 60.1%. on the basis of this value, this variable is perfectly fitting the model.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.165	1	24.165	298.063	.000[b]
	Residual	16.052	198	.081		
	Total	40.217	199			

a. Dependent Variable: Students' Learning

b. Predictors: (Constant), Students' Perception

The above table is used for checking the value of F and significance. If the value of F is greater than and significantly less than 0.05, then the hypothesis is accepted; in the above table, both the F and significance are following this; hence the hypothesis is accepted.

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.599	.093		6.465	.000
	Students' Perception	.715	.041	.775	17.265	.000

a. Dependent Variable: Students' Learning

The coefficients table is used for checking the value of t and Beta. The value of t is positive and equivalent to 6.465; hence students believe that online teaching is not meeting their learning expectations. The value of beta is also positive and equivalent to 77.5%; hence there is a positive correlation between online learning and students learning.

Results of the 2nd hypothesis

The second hypothesis evaluated in this study was:

H2 – Classroom learning is preferred instead of online because online teaching is not meeting students' learning expectations.

Table 6 Results to the 2nd hypothesis
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.524ᵃ	.274	.270	.38399

a. Predictors: (Constant), Online Vs Classroom Teaching

The value of R-square in the table above indicates that the variable indicates moderate percentage, hence it moderately fits the model; the percentage obtained is equivalent to 27.4%.

ANOVAᵃ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.022	1	11.022	74.749	.000ᵇ
	Residual	29.195	198	.147		
	Total	40.217	199			

a. Dependent Variable: Students' Learning

b. Predictors: (Constant), Online Vs Classroom Teaching

The value of F is significantly greater than 1, and significance is also less than 0.05, on the basis of which this hypothesis is accepted.

Coefficients^a

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.219	.112		10.844	.000
	Online Vs Classroom Teaching	.430	.050	.524	8.646	.000

a. Dependent Variable: Students' Learning

The coefficients table above indicates the positive value of t, which is equivalent to 10.844, hence classroom teaching is preferred by students 10.844 times more as compared to online teaching because it is resulting in a weak learning environment.

Findings from 3rd hypothesis

The third hypothesis investigated in this study can be found below:

H3 – The personal perspective of online teaching by students is that it does not allow effective students' learning.

The results obtained can be observed in the tables below:

Table 7 Results to the 3rd hypothesis
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.800^a	.640	.638	.27044

a. Predictors: (Constant), Personal Perspective

The value of R-square in the table above indicates that it is equivalent to 64%, hence variable personal perspective is perfectly fitting the model.

ANOVAᵃ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.736	1	25.736	351.899	.000ᵇ
	Residual	14.481	198	.073		
	Total	40.217	199			

a. Dependent Variable: Students' Learning

b. Predictors: (Constant), Personal Perspective

The ANOVA table above identifies the value of F and significance greater than 1, and less than 0.05, due to which this hypothesis is also accepted. Hence, it can be argued that the personal perspective of online teaching by students is that it does not allow effective students' learning.

Coefficientsᵃ

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.942	.068		13.894	.000
	Personal Perspective	.534	.028	.800	18.759	.000

a. Dependent Variable: Students Learning

The value of coefficients in the table above indicates that t is positive and indicating that effective student learning has decreased 13.894 times due to online education in place.

Summary of hypotheses

Based on the above hypotheses status, the following summary has been compiled:

Table 8 Status of hypotheses

Hypotheses #	Statement	Status
1	H1 - Students' perception of the online classes is that it does not support their learning.	Accepted
2	H2 – Classroom learning is preferred instead of online because online teaching is not meeting students' learning expectations.	Accepted
3	H3 – The Personal perspective of online teaching by students is that it does not allow effective students' learning.	Accepted

Discussion

Based on the observations done, it can be summarised that all the hypotheses have been accepted. The results obtained highlight that classroom teaching is more preferred by the students as compared to online teaching during this pandemic. The similar results were reported by the investigation of Dogar et al., (2020) arguing that even though online teaching is more convenient as compared to classroom teaching, students found it less effective in terms of learning as compared to online teaching. During the online classes, technical support by the institutes were found to be of significant value because learning significantly relies on it. Ahmed Abdullah and Sultana Mirza (2020) reported similar findings. They reported that students are highly concerned because their instructors do not provide technical support. In addition, students in this study reported dissatisfaction, when they were provided with limited technical skills.

One more important finding from this survey obtained which is found to be supported by Rehman (2020) is that when students take online classes, their feeling is that they cannot learn as effectively as they used to in the classroom. Hence, this dissatisfaction further influences their learning process. On the basis of these results, it is recommended that educational institutes should be providing a comfortable medium to students before online classes are held. Findings of this investigation indicate that students' perception related to online learning are valuable for the educational institutes, planning to include online teaching mode in the future. However, the findings of this survey are limited. For example, the sample size is small, hence it may not present the majority perceptions related to online teaching.

Conclusion

Based on the observations made, it can be concluded that the higher education sector of Pakistan is currently facing issues to find the best regulations with respect to online teaching. The students have argued that they are uncomfortable with the learning environment provided

to them. They complained that most of the time teachers are absent when support is needed, on the basis of which they face issues in completing their assignments and other tasks assigned for homework. Students also face the issues of low internet speed, due to which they prefer to study in a classroom environment instead of online. Online delivery of the lectures has created hinderance for both the students and teachers of educational institutes in Pakistan.

It is recommended to take assistance of various service providers because it can increase learning effectivity with seamless internet and good performance. The issues related to the support and communication gap can be eradicated by focusing on quality compliance by the educational institutes. Feedback of students in their online classes should be taken to see whether teachers are fulfilling their responsibilities during online classes. The issues highlighted in this study suggest more in-depth studies to be conducted on similar topics by involving professors and taking their reviews on online education. Structuring and developing a friendly environment between instructors and students, that is accessible for all without enforcing financial burden on both students and teachers, should be the main criteria in the management of universities and colleges of Pakistan. Even though the sample size of this study is too small to follow bigger assumptions, the information obtained can be used to list some general issues indicated by students taking online education. Online education is still in the development stage; therefore, it is important to have clarity about the issues being faced and resolving them. This would elevate the chances of quality education in the educational institutes.

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