FORMAN CHRISTIAN COLLEGE
(A Chartered University)

By Love Serve One Another

Estd. 1864

Effects of online learning on the performance of students during

the COVID-19 pandemic

Name: Aiman Ashraf

Roll Number: 21-10416

SOCL 499: Final Year Independent Research Project

2022

Thesis supervisor: Dr. Jawad Tariq

Department of Sociology

Forman Christian College (A Chartered University)

Table of Contents

Abstract

In this study, the effects of online learning on the performance of students during the COVID-19 pandemic were explored. Literature shows that when students are more satisfied with their online classes, then their academic performance is positively affected. The self-efficacy theory was used to examine how online classes affect students, whether positively or negatively. The research was a cross-sectional quantitative study. For the collection of data, convenient sampling was used. A total of 125 students from FCCU were sampled. The sampled students were of different age groups. The questionnaire was sent through online platforms like WhatsApp, Facebook, and Instagram. For the analysis of the data, SPSS was used. To show the reliability of the scale, factor analysis was used. Next, to present the study variable frequency and percentages, descriptive statistics were used, and to present the relationship between study variables, regression was used. Multilinear regression analysis was carried out to predict academic performance using age, gender, academic year, and a key independent variable, that is, satisfaction with online classes. The Durbin-Watson statistic was very close to 2 (value = 1.87), which showed that there was independence of residuals. The tolerance values for all the variables were greater than 0.8, and the VIF (Variance Inflation Factor) values were less than 2 for all the variables, which showed that multicollinearity was not a problem. The academic performance prediction model was statistically significant: $F (4, 120) = 31.31$, adj. $R^2 = 0.49$, $p < .001$. The only significant variable in the model was satisfaction with online classes. Results showed that a one-unit increase in satisfaction with online classes resulted in a 0.440-unit increase in academic performance. The findings of this research have strong implications for the level of satisfaction and academic performance of the students during online classes. This study attempted to highlight various issues that the students were facing and the components that

fundamentally influenced their online learning experience. There were many positive and negative effects that the students faced during online classes.

Keywords: *Online learning, Student performance, Satisfaction, Covid-19 pandemic*

Introduction

Technology today has become of much importance for any sector of a country. Today, due to the COVID-19 pandemic, the use of technology has increased. In order to prevent the spread of this pandemic, the government of Pakistan has taken a number of steps to prevent as much social contact as possible. Many countries around the globe closed their offices, restaurants, hotels, airlines, and even educational institutes along with the examinations. The advent of this pandemic prevented the board examinations from being conducted as well. Seeing the situation, the government brought forth the idea to conduct tasks online so that the economy doesn't get worse (Gonzalez et al., 2020).

Online learning refers to the type of learning process where knowledge is gathered through the utilization of internet facilities (Fauzi & Khusuma, 2020). Many tools had been in use before the outbreak of the pandemic in the institutes for the purpose of learning. The use of projectors to display visual footage of any scholarly lecture or PowerPoint slides, etc, had already been in use. However, due to COVID, many other challenges have merged (Gonzalez et al., 2020). One of these challenges is the lack of direct supervision by the teacher during a lecture or exam, which is a major drawback nowadays. Children may easily apply cheating methods during the conduct of their exams, and the teacher will be unaware of their act (Gonzalez et al., 2020).

The sudden outbreak of the coronavirus pandemic has affected almost every sector of the country. The usage and shift to online working were driven by the need of the hour (Hashemi, 2021). Today's data survey reveals that almost every sector has fallen prey to the corona pandemic in one way or another. To avoid the spread of the pandemic to the greatest extent possible, institutes and many other areas of work shifted to online working (Hashemi, 2021). Like many other countries around the globe, Pakistan too has shifted to online classes and

teaching schedules (Hashemi, 2021). According to Green, online teaching works on saving time and cost of an individual (Green, 2010).

Learning or gaining knowledge using online mediums has been in use for years, but with the pandemic on the rise, it has now become a necessity for educational institutes (Hashemi, 2021). In online teaching, the basic feature under study has been the satisfactory level of the students and teachers in this online education system. Their satisfaction level has been based on a number of factors, which include teacher-to-student interactions, student-to-student interactions, internet quality and availability, the assessment standard of the courses, etc. (Hashemi, 2021). Despite its many disadvantages, online education has grown in popularity and repute among the general public in the country (Hashemi, 2021). This study aims at identifying the effects online teaching has had on the educational performance of the students in Pakistan in light of the COVID pandemic.

Conceptual Definitions

Online learning is a term used to depict an emerging method to manage learning at a student's own explanation through state-of-the-art information correspondence progressions (like Moodle, Blackboard, Virtual Reality, YouTube, and many more) either non-concurrently or at the same time. An educational mode that prohibits individual gatherings and may fuse facilitated, unique movement of direction with some nonconcurrent and some synchronous online sessions. A learning experience using a web affiliation. The term may incorporate any kind of learning using a web-based relationship, for instance, E-learning, blended learning, distance learning, and more (Prifti, 2020). Online learning uses the Internet to get to learning materials, to interface with the substance, teachers, and various students and to get support during the learning framework, to acquire data, to assemble individual importance, and to create from the learning experience.

Academic performance is the assessment of a student's achievement across various educational subjects. Teachers and guidance specialists conventionally measure achievement using class execution, graduation rates, and results from standardized controlled tests. GPA (grade point average) is used to assess a student's performance. The GPA of a student is consistently assessed on a scale of 0–4, and higher GPAs tend to lead to higher grades in the class. Graduation rates are accumulated by standardized and government tutoring specialists as a standard assessment of helper guidance execution. Each state conducts yearly tests at the simple, focused, and optional school levels to determine a student's capacity in different subjects. These tests are also used to follow government preparation standards. School districts also track students' execution on the ACT and SAT to choose groundwork for high-level education.

Satisfaction is a tendency toward happiness obtained when an individual fulfills their necessities and needs. It is a state felt by a refined individual or an outcome that fulfills their suspicions. As expected, satisfaction can be described as an experience of accomplishments with ordinary outcomes. Satisfaction suggests the vibe of enjoyment or disappointment coming about due to differentiating clear execution regarding the supposition (Kotler & Keller, 2012). Student satisfaction is a transient mindset that comes about due to an evaluation of a student's informative experiences. It is a positive precursor of a student's immovability and is the result and consequence of an enlightening structure. Elliott and Shin (2002) portray student satisfaction as a student's disposition based on enthusiastic evaluation of informational outcomes and experiences. Thus, student satisfaction can be described as a part of relative level of experiences and perceived execution of educational assistance during the survey time period (Carey, et al, 2002). By pondering all of this, student satisfaction can be portrayed as a transient mindset coming about in light of an evaluation of a student's informative facilities, services, and experiences.

Study Aims

The purpose of this research was to highlight various issues that the students were facing because of their online studies during the COVID-19 pandemic and the components that fundamentally influence their online learning experience. The students were facing many difficulties because of online learning, and that had an effect on their academic performance.

Objectives

1. To know about the existence of any impact of online classes on the performance of students during the covid-19 pandemic.
2. To assess the level of satisfaction of students with online classes.

Significance

In my research, I took the student's level of satisfaction with online classes as my independent variable and academic performance as my dependent variable, as online learning is affecting the student's performance. Due to the usage of educational technology in online learning, the students may not be satisfied with their performance, which may be affecting their CGPA very negatively. The reason to conduct this study was to gather a broad understanding regarding the impact of online teaching methodologies on the academic performance of the students with regard to the ongoing COVID-19 pandemic. This research specifically focuses on students from universities.

Literature Review

Coronavirus is basically defined as a cluster of viruses that are the main cause of diseases such as coughs, colds, sneezes, fever, and a few other respiratory symptoms. Coronavirus has proven to be a contagious disease that spreads very quickly among humans. COVID-19 is a new wrench that originated in the city of Wuhan from China in December 2019. The coronavirus basically circulates amongst animals, but in some cases, germs of these viruses can be transmitted from animals to humans (Gopal et al., 2021).

COVID-19 has led to the closure of schools around the world. Globally speaking, almost more than 1.2 billion children are not in class (Li & Lalani, 2020). As a result of this lockdown, education has taken a dramatic turn, with a notable rise in e-learning, where education or learning is delivered on a remote basis and on platforms that are digital in nature (Li & Lalani, 2020). Research shows that learning or gaining knowledge online increases knowledge retention and takes less time, which means the changes caused by the coronavirus may remain (Li & Lalani, 2020).

Education has become a basic necessity in any one's life today. However, the ongoing pandemic has affected the education sector badly. A study conducted on Afghanistan universities revealed that this pandemic has affected the educational sector badly. The online classes have affected the student's performance as a whole and also their level of satisfaction (Hashemi, 2021).

In today's world, in order to improve the standard of education, the use of technology has increased to a great extent. The students in Afghan universities were highly dissatisfied with their online classes (Hashemi, 2021). With the growth in the usage rate of the internet and other features of information technology, E-learning has increased to a great extent. Online

meetings and class platforms like Zoom have contributed hugely to the E-learning sector (Gonzalez et al., 2020). Covid-19 has geared up the use of all these facilities in just these 2 years. Learning with the help of mobile phones has become a substitute suitable for some students who have fewer technological resources. In terms of student feedback on eLearning courses, some studies indicate that students were happy with the way the instructor lectured and that the main problem or hurdle was a poor internet connection (Gonzalez et al., 2020).

Self-education means relating to the process in which people take the initiative in understanding their training needs, setting learning goals, defining learning resources, selecting and applying an appropriate learning plan of action, and measuring learning outcomes. These factors are important when it comes to the concept of internet education (Naji et al., 2020). Typically, many online classes are self-paced, and students can choose a time slot to study. In some cases, these classes also have a specific timetable, and the student must be available to maximize their learning (Vallikat, 2021).

Due to the growing spread of the Corona pandemic, the government of Pakistan declared a full lockdown. That is when online or at-home working came to light. In order to carry out online classes, facilities like internet availability and access, parent collaboration, and the availability of teachers and students are required (Fauzi & Khusuma, 2020). Research revealed that many of the teachers were not satisfied with the online learning system as it gave rise to many problems like internet availability, sharing of content, etc. (Fauzi & Khusuma, 2020).

Alliance and virtual communities can be created in the context of online learning. Online schooling, which means using information technology such as laptops, iPads, tablets, and mobile phones, is mostly used and well-accepted in higher education (Yu, 2021). Several concerns are noted in the current literature, including an increasing burden for teaching personnel, student resistance, a lack of chance for urgent issues, technological problems, a

shortage of resources, as well as decreasing interest and abandoned content. (Naji et al., 2020). One of the components of academic performance is academic performance itself, or, in other words, academic success. Academic success is influenced by a variety of factors, including socioeconomic position, student temperament and motivation, as well as peer and family support (Masud et al., 2019).

There are few studies that have been conducted on the effects inflicted by the COVID pandemic. According to research conducted by Gonzalez et al. in the year 2020, it was revealed that COVID-19 has had a positive influence on the academic performance of the students and has also played a role in the enhancement of their learning strategies. And on the other hand, a study conducted by Realyvásquez-Vargas et al. in 2020 concluded that other external and internal environmental factors had also affected the academic performance of the students at different levels due to the rising situation of the COVID-19 pandemic.

Further studies conducted showed that COVID-19 has affected the academic performances of Turkish students in the sciences and social sciences to some extent. However, on the whole, students as well as teachers are well pleased with the online learning process in Turkey (Hashemi, 2021). Online learning has had a significant impact on academic performance and on their level of satisfaction during the COVID pandemic (Loton et al., 2020). These studies have revealed the existence of a correlation between online classes and the academic performance of the students in the age of the coronavirus (Hashemi, 2021). Another study revealed that there is a weak correlation between technology and student level of satisfaction in the COVID-19 pandemic during their online courses (Hashemi, 2021).

A study conducted in China on the student market showed a relation between students' level of satisfaction and their academic performance in the COVID-19 outbreak. Their findings showed that there is an effect of personal factors on the student's level of satisfaction, while on

the other hand, online courses have had a significant impact on their satisfaction level (Alanazi et al., 2020).

Afghanistan is a low-income country. Such is the reason that the introduction of online teaching and working strategies remained low, as there was low usage of information technology and other technological infrastructure in universities specifically (Hashemi, 2021). Lack of schooling training in the use of technological gadgets and applications, the rising costs of Wi-Fi, the shortage of electricity, and a lack of devices for creating an environment for online learning are the main obstacles to online learning (Hashemi, 2021). Despite this, it was also reported that female students were reluctant to participate in online sessions and they were unable to complete the task due to troublesome culture and/or inequality in logic of having enough cash to buy any sort of electronic devices such as a computer or mobile phone as well as pay for Internet access (Hashemi, 2021). Such situations arise due to the social and cultural norms that prevail in the society.

According to research, a large number of teachers continued to resist using an online schooling strategy and believed that online schooling could reduce student engagement, resulting in less commendable academic success than traditional face-to-face teaching (Yu, 2021). The reason behind this is that in online teaching methodology, the teachers and students will not be able to hold onto their strict schedule and working way (Yu, 2021).

Conducting feedback from students helps in developing a strong relationship between the student and faculty of the institute. Another factor in this research is the expectation factor. The expectations students have from their teachers, apart from that, their expectations from themselves, if the student is satisfied and happy when he or she lives up to the expectations he or she has set for themselves, then their overall academic performance also increases. Similarly, when their expectations are not fulfilled, they lose interest in education, which ultimately results in low academic performance. (Gopal et al., 2021).

A study of the literature shows that while a number of researchers examined the factors that influence student satisfaction levels, none of the studies focused on the impact of course design, teacher quality, operational feedback, and student expectations on student satisfaction with online classes during the COVID-19 pandemic (Gopal et al., 2021). Like traditional classes, online classes can have different workloads depending on the complexity of the course. Online classes also allow the user to take more than one course at a time. This allows them to maximize their productivity. Thus, the user can plan his time, which will allow him to balance work, school, and family (Vallikat, 2021).

Theoretical framework

Self-efficacy is an enormous factor in learning, just as it is for determining a student's learning satisfaction (Alqurashi, 2019). In his self-efficacy theory, Bandura (1977) portrays it as an individual's own personal judgment with respect to their ability to accomplish testing tasks at a huge level or to gain ground in an action in a specific space (Tseng et al., 2020). So, I applied this theory of self-efficacy to my research because this theory has huge ramifications for online learning. Thus, students with self-efficacy can absolutely appreciate basic academic tasks, set standards for the accomplishment of gigantic tasks, and be more responsible for ensuring progress towards the achievement of educational objectives (Alghamdi et al., 2020). Past research on electronic learning conditions in tertiary guidance settings has routinely been based on the mechanical part of self-efficacy, which is very similar to internet self-efficacy (ISE) (Alqurashi, 2019). ISE implies an individual's confidence in their capacity to facilitate and perform activities to make a fundamental showing using the Internet. ISE guides individuals on how to use the Internet to deal with issues and achieve expected targets. Likewise, those students who have low ISE may have less responsibility with online structures or content as a result of a shortfall in assurance (Kuo et al., 2014). Students' faith in the usability of the Internet

affects online learning satisfaction. Besides, Alqurashi (2019) distinguished that online self-efficacy was an incredible indicator, just as an essential patron, to see students' satisfaction in online-based learning.

Research Questions

1. Is there an effect of online teaching on the academic performance of students?

2. Are the students satisfied with online learning during the COVID-19 pandemic?

Hypothesis

H 1: The higher the level of satisfaction due to the online classes, the higher the academic performance of the students will be.

H2: There will be a statistically significant mean difference in the student's GPA in SPRING21 (online), FALL21 (hybrid), and SPRING22 (in-person).

Methodology

Ethics of Research

The researcher followed all ethical considerations when conducting this study. The main purpose was to keep the personal information of the respondents secure. For any respondent, there was no physical or emotional harm caused. A consent form was provided for signatures prior to the start of the project. They were given proper information regarding the research goals and main objectives. They were assured that their privacy or the information that they provided would not be shared with anyone. They could also leave the study if they want, whenever they want.

Research design

The research was based on a quantitative methodology. To collect data using standardized tools, a closed-ended survey questionnaire was used. The study was cross-sectional in nature.

Sampling size

In order to conduct the study, a quantitative data analysis technique was used. For the collection of this quantitative data, Google-based survey questionnaires were designed. The questionnaires were based on a five-point Likert scale model. The five-point Likert scale is based on five measuring points. These are strongly agree, agree, neutral, disagree, and strongly disagree. A sample of 125 respondents was gathered for quantitative data analysis.

Procedure

A Google survey, along with a consent form, was distributed to Forman Christian College University's course and society groups via online platforms such as Facebook and WhatsApp.

The survey was online. When the Google surveys were sent, the records of emails or contact numbers were not transferred due to confidentiality and anonymity.

Variables

The variable used in order to carry out this research are as follows:

Student academic performance and GPA

Satisfaction with online classes

Dependent Variable

For the research, students' academic performance (measured through a self-constructed scale) and their GPAs for SPRING21, FALL21, and SPRING22 were used as a dependent variable. The academic performance was measured by the five-point Likert scale, which had 8 questions. The scale was based on five measuring points. Those were strongly agree, agree, neutral, disagree, and strongly disagree.

Independent Variable

For the research, satisfaction with online classes was used as an independent variable. The student's satisfaction was measured by the five-point Likert scale, which included 15 questions. The Likert scale was based on five measuring points. Those were strongly agree, agree, neutral, disagree, and strongly disagree.

Data analysis

For the analysis of the data, SPSS software was used. Descriptive statistics were generated for all the variables used in the study. Construct validity using factor analysis and reliability using Cronbach's alpha were assessed for independent and dependent variable scales. A multiple linear regression analysis was conducted to assess the effect of satisfaction with online learning

on a student's academic performance. In order to see mean GPA differences between students with respect to SPRING21 (online), FALL21 (hybrid), and SPRING22 (in-person) semesters, pairwise comparisons were used.

Results

The variable gender showed that approximately males cover the frequency of 70, which is about 56.0%, while females cover 55, which is approximately 44.0% of the total cases. The frequency for the age of respondents between 20-23 was 70 which is 56.0 % and 24 was 55 which make them 44.0% of the total respondents. In the academic year, 13.6% of respondents were sophomores, 24.8% were juniors, and 58.4% were senior students who participated in the case study. Results have been mentioned in Table 1.

Table 1: Frequency Distribution of Categorical Variables used in the study

Variable	Frequency	Percentage
Gender		
Male	70	56.0
Female	55	44.0
Age of respondent		
20-23	70	56.0
24-26	55	44.0
Academic year		
Freshmen	4	3.2
Sophomore	17	13.6
Junior	31	24.8
Senior	73	58.4

Mean and Standard deviation of the current CGPA was 3.43 ±0.37 which showed that approximately 68% of respondents a had 3.06 –3.80 CGPA. Mean and Standard deviation of GPA in spring 21 during online classes was 3.39 ± 0.36 which showed that approximately 68% of respondents haa d 3.03–3.75 GPA in spring during online classes. Mean and Standard deviation of GPA in Fall 21 was 3.37± 0.37 which showed that approximately 68% of respondents a had 3.00 – 3.74 GPA in Fall 21. Mean and Standard deviation of GPA in Spring 22 was 3.36± 0.36 which showed that approximately 68% of respondenta s had 3.00 – 3.72 GPA in spring 22. All the results have been mentioned in Table 2.

Table 2: Descriptive Statistics

Variable	Mean	S.D	Range
Current CGPA	3.43	0.37	2.2 - 4.0
GPA in Spring during online classes	3.39	0.36	2.2 - 4.0
GPA in Fall 21	3.37	0.37	2.4 – 4.0
GPA in Spring 22	3.36	0.36	1.7 – 3.9

Factor analysis was conducted to assess the construct validity of scales. Factor loadings for all the indicators of academic performance were greater than 0.4, which explained that approximately 48.10% variance in the construct of the academic performance scale. Mean and Sd of academic performance was -1.52 ± 6.04 which showed that approximately 68% of respondents lie between -7.56 – 4.54 range. The value of Cronbach's alpha is 0.831, which shows that internal consistency exists.

Factor analysis was conducted to assess the construct validity of scales. Factor loadings for all the indicators of the satisfaction scale were greater than 0.4, which explained approximately 37.84% of the variance in the construct of the satisfaction scale. Mean and S.D of Satisfaction

level was -2.94 ± 9.36 which showed that approximately 68% of respondents lie between -12.3 – 6.42 range. The value of Cronbach's alpha is 0.856, which shows that internal consistency exists. The results are summarized in Table 3.

Table 3: Psychometric

Variable	Factor loading	Variance %	Cronbach's Alpha	M (SD)	Range
Academic performance		48.10%	0.831	-1.52 (6.04)	-16.0 – 16.0
Enjoyed studying online courses.	0.68				
Online studies were a good way to advance studies.	0.68				
Tasks done successfully on organized time.	0.63				
Improvement of grades during online classes.	0.69				
Class performance improved after on-campus classes canceled.	0.65				
Communication skills improved during online classes.	0.59				
Difficult tasks were figured out without any help during online class.	0.44				
Online classes negatively affected CGPA.	0.78				
Satisfaction		37.84%	0.856	-2.94 (9.36)	-26.0 – 24.0
Satisfied with online teaching approaches of instructors.	0.69				
Satisfied by follow-up sessions during online classes.	0.61				
Satisfied with skills of using online platforms.	0.40				
Satisfied with learning	0.61				
	0.69				

Item	Value
outcomes of online classes.	
Satisfied with the teacher's work quality during online classes.	0.59
Satisfied with the teacher's work motivation during online classes.	0.58
Satisfied with online interactions with teachers.	0.41
Satisfied with the access to a wide range of resources online.	0.52
Satisfied with content quality during online classes.	0.60
Adequate support from the institute was given during online classes.	0.63
Satisfied with fair compensation during online classes.	0.63
Satisfied by internet speed during online class.	0.69
Difficulty in focusing during online classes than on-campus class.	0.75
Depressed due to online classes.	0.62
Overall, not satisfied with online classes.	

Multilinear regression analysis was carried out to predict academic performance using age, gender, academic year, and a key independent variable, that is, satisfaction with online classes. The Durbin-Watson statistic was very close to 2 (value = 1.87), which showed that there was independence of residuals. The tolerance values for all the variables were greater than 0.8, and the VIF (Variance Inflation Factor) values were less than 2 for all the variables, which showed that multicollinearity was not a problem. The model predicting academic performance was statistically significant, $F(4, 120) = 31.31$, adj. $R^2 = 0.49$, $p < .001$. The only significant variable

in the model was satisfaction with online classes. Results showed that a one-unit increase in satisfaction with online classes resulted in a 0.440-unit increase in academic performance. Results are summarized in Table 4.

Table 4: Multilinear Regression to Predict Academic Performance

Variable	B	SE_B	P-value	R^2	Adj.R^2
				0.511	0.494
Gender	-0.085	-0.007	.920		
Age	1.083	0.089	.209		
Academic year	0.063	0.088	.216		
Satisfaction with online classes	0.440	0.043	<.001		

Paired samples t-test was also carried out to see if the CGPAs of students during online classes (SPRING-21), hybrid classes (FALL-21), and in-person classes (SPRING-22) were statistically different or not. The results showed that there were no mean differences in the CGPA of students with respect to the three semesters. The results are summarized in Table 5.

Table 5: Mean GPA Differences

Variable	GPA FALL 21 (MD ± SD, p-value)*	GPA SPRING 22 (MD ± SD, p-value)
GPA SPRING 21	0.02 ± 0.29, .423	0.03 ± 0.33, .362
GPA FALL 21		0.01 ± 0.34, .843

*, MD = Mean Difference; SD = Standard deviation

Discussion

The whole study was conducted to observe how online learning affects the academic performance of students. It was also observed that the level of satisfaction also plays a vital role in the academic performance of the students. Researchers have examined the fact that students are more committed to their majors and encouraged to use a variety of learning strategies as a result of online instruction, both of which contribute to their learning experience. The virtual world is an effective learning environment because users can learn through experience. It is thought that we have reached a turning point at which, for a number of different reasons, it is unavoidable to alter the current method of learning. Students today have instant access to information and can manage their own studies through online learning, thanks to technology and the internet. Traditional educational strategies are becoming less effective at engaging students because they no longer rely solely on the teacher as a source of information. Additionally, students were able to effectively communicate their findings and share their ideas with peers both locally and globally thanks to online learning, which helped them overcome the time and space constraints imposed by conventional learning. globally. If we reevaluate the delivery method, content redesign, and new assessment system, for instance, online learning will undoubtedly have a greater impact on learning outcomes. E-learning is here to stay and could significantly improve higher education in the future.

However, there are some disadvantages to taking classes online, such as the fact that they require more time and leave students with less accountability, as well as the inability to interact

in person with instructors. Students also face a lot of issues online, such as not always being motivated and sometimes feeling completely exhausted. Additionally, teachers feel powerless to enforce classroom discipline or control students' cheating. What's more, low-income students battle to acquire the electronic means they need to get to this new technique for guidance so as to connect with their educator, pose inquiries to explain ambiguities and questionable articulations, and get fitting criticism. It is also believed that incorporating E-learning into the classroom can be challenging because there are a number of other problems with E-learning, such as the following: Students who do not have a high level of motivation for learning tend to fail; not all locations have internet facilities related to issues with the availability of electricity, telephones, and computers; the role of lecturers has changed from previously mastering conventional learning techniques to now being required to master learning techniques using Information Communication Technology (ICT); and the learning and teaching process tends toward training rather than education. The inclination to disregard scholarly or social viewpoints and on second thought support business or business angles are also among challenges that the students face during online learning (Mandasari, 2020). The hypothesis of my study was that the lower the level of satisfaction due to the online classes, the lower will be the academic performance of the students, and the higher the level of satisfaction due to the online classes, the higher will be the academic performance of the students during online classes. Results showed that satisfaction is a significant predictor of positive academic performance. There was a strong positive correlation between the level of satisfaction with online learning and the academic performance of the students during their online classes. Self-efficacy theory was used in the study. Students with self-efficacy can absolutely appreciate basic academic tasks, set standards for the accomplishment of gigantic tasks, and be more liable for ensuring progress towards the achievement of the educational objectives. The level of satisfaction with one's academic performance and good CGPA is also somewhat the result of

the self-efficacy of the student in coping with the challenges that come with online learning. Some students showed signs of distress and depression due to online classes because they felt isolated, and the lack of face-to-face interaction made them feel stressed. Some students showed their dissatisfaction with online learning by complaining about the speed of the internet and the lack of resources from their institute. So, for the students who were dissatisfied with the lack of resources, there should be proper internet services and resources provided for them so that they could fit into that online learning environment.

Limitations

- For the data collection, more universities should have been selected. The data was acquired just from FCCU in Lahore.
- The size of the sample was smaller.
- There was no face-to-face interaction for data collection.

Implications

Online and in-class lessons for a course should be offered concurrently, which is an important thing to emphasize. Instructors in classrooms and online settings should use a variety of teaching strategies. When compared to instructors in-person, online instructors may not provide students with sufficient or detailed feedback. As a result, proper detailed feedback should be included to ensure student satisfaction with their in-class and online classes.

Future research

In future studies, more variables as well as the use of random sampling methods should be applied for better results. The limitations of this study's findings can be used as a foundation for subsequent future research on this subject. The use of larger samples for research and more

universities for study can also provide interesting findings in future research. For future results, face-to-face interaction should be used for the collection of data.

Recommendations

Based on this study's findings, I would suggest that the most important thing to do is to adopt the hybrid model of education to make online learning effective and avoid its negative effects on academic performance. This will make it easier to use both modes simultaneously. Another recommendation is that every student's video chat should be mandatory when taking online classes. This will prevent students from engaging in activities that could be distracting and will ensure that everyone attends class and actively participates in class. In my opinion, the online classes can be improved and their negative effects reduced by following these recommendations.

Conclusion

The study was conducted to find out how online learning affected the academic performance of the students. This study aimed at identifying the impact of online classes on the academic performance of the students. This also aimed to study to an extent students' satisfaction with the idea of online classes and also to examine the extent of damage or cure it has on their education and its performance. Online learning has a positive impact on students' academic performance in terms of learning motivation, learning achievement, and learning engagement, based on the findings and discussion above. Furthermore, students likewise showed that directing internet learning is applicable during the pandemic. Besides, adaptability, openness, learning independence, and supporting student achievement become the qualities of directing web based learning. However, financial issues and awful web access become issues that hamper internet learning. So, there should be proper resources for better internet facilities to overcome issues during online learning.

References

Alanazi, A.A., Frey, B.B., Niileksela, C., Lee S. W., Nong, A. (2020). The Role of Task Value and Technology Satisfaction in Student Performance in Graduate-Level Online Courses. *TechTrends*64, 922–930 (2020). https://doi.org/10.1007/s11528-020-00501-8

Alghamdi, A., Karpinski, A. C., Lepp, A., & Barkley, J. (2020). Online and face-to-face classroom multitasking and academic performance: Moderated mediation with self-efficacy for self-regulated learning and gender. *Computers in Human Behavior*, 102, 214–222. https://doi.org/10.1016/j.chb.2019.08.018

Alqurashi, E. (2019). Predicting student satisfaction and perceived learning within online learning environments. *Distance Education*, 40(1), 133–148. http://dx.doi.org/10.1080/01587919.2018.1553562.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Carey, K., Cambiano, R. & De Vore, J., 2002. Student to faculty satisfaction at a Midwestern university in the USA. pp. 93-97.

Elliott, K. & Shin, D., 2002. Student satisfaction: an alternative approach to assessing this Important Concept. Journal of Higher Education Policy and Management, pp. 97-109.

Fauzi, I., & Khusuma, I. H. S., (2020). Teachers' Elementary School in Online Learning of COVID-19 Pandemic Conditions. *JurnalIqra': Kajian Ilmu Pendidikan*, 5(1), 58-70. https://doi.org/10.25217/ji.v5i1.914

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. https://doi.org/10.1371/journal.pone.0239490

Gopal, R., Singh, V., & Aggarwal, A. (2021, April 21). Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19. *Education and Information Technologies*. doi: https://doi.org/10.1007/s10639-021-10523-1

Green, K. (2010). The campus computing survey. *the campus computing project*. Retrieved from https://www.campuscomputing.net/content/2010/10/17/the-2010-campus-computing-survey

Hashemi, A. (2021). Effects of COVID-19 on the academic performance of Afghan students' and their level of satisfaction with online teaching. *Cogent Arts & Humanities*, *8*(1), 1933684. https://doi.org/10.1080/23311983.2021.1933684

Kotler, P. & Keller, K., 2012. Marketing Management. NJ: Prentice Hall.

Kuo, Y.-C., Walker, A. E., Schroder, K. E. E., &Belland, B. R. (2014). Interaction, internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *Internet and Higher Education*, 20, 35–50. https://doi.org/10.1016/j.iheduc.2013.10.001

Loton, D., Parker, P., Stein, C., & Gauci, S. (2020, August 26). Remote learning during COVID-19: Student satisfaction and performance. *University Remote Learning*. Retrieved from https://edarxiv.org/n2ybd/

Mandasari, B. (2020, September 30). The Impact of Online Learning toward Students' Academic Performance on Business Correspondence Course. Retrieved December 04, 2022, from https://www.researchgate.net/publication/346004216_The_Impact_of_Online_Learni

ng_toward_Students%27_Academic_Performance_on_Business_Correspondence_Course

Masud, S., Mufarrih, S. H., Qureshi, N. Q., Khan, F., Khan, S., & Khan, M. N. (2019). Academic Performance in Adolescent Students: The Role of Parenting Styles and Socio-Demographic Factors - A Cross Sectional Study from Peshawar, Pakistan. *Frontiers in psychology*, *10*, 2497.https://doi.org/10.3389/fpsyg.2019.02497

Naji, K. K., Du, X., Tarlochan, F., Ebead, U., Hasan, M. A., & Al-Ali, A. K. (2020). Engineering Students' Readiness to Transition to Emergency Online Learning in Response to COVID-19: Case of Qatar. Eurasia Journal of Mathematics, Science and Technology Education, 16(10), em1886. https://doi.org/10.29333/ejmste/8474

Prifti, R. (2020). Self–efficacy and student satisfaction in the context of blended learning courses. *Open Learning*, 00(00), 1–15. https://doi.org/10.1080/02680513.2020.1755642

Realyvásquez-Vargas, A., Maldonado-Macías, A. A., Arredondo-Soto, K. C., Baez-Lopez, Y., Carrillo-Gutiérrez, T., & Hernández-Escobedo, G. (2020). The Impact of Environmental Factors on Academic Performance of University Students Taking Online Classes during the COVID-19 Pandemic in Mexico. *Sustainability*, *12*(21), 9194. https://doi.org/10.3390/su12219194

Tseng, H., Kuo, Y. C., & Walsh, E. J. (2020). Exploring first-time online undergraduate and graduate students' growth mindsets and flexible thinking and their relations to online learning engagement. *Educational Technology Research and Development*, 68, 2285–2303. https://doi.org/10.1007/s11423-020-09774-5

Vallikat, A. (2021). Five tips to increase student engagement in online classrooms. Retrieved December 7, 2022, from https://blog.teachmint.com/online-classrooms/

Yu, Z. (2021). The effects of gender, educational level, and personality on online learning

outcomes during the COVID-19 pandemic. *International Journal of Educational*

Technology in Higher Education, 18(14). Retrieved from

https://doi.org/10.1186/s41239-021-00252-3

Appendix A
Questionnaire consent form

Name of the Researcher:
Aiman Ashraf

Research title:

Effects of online learning on the performance of students during pandemic.

Please read and complete this form carefully. If you are willing to participate in this study, tick the appropriate responses and sign and date the declaration at the end. If you do not understand anything and would like more information, you are free to ask.

• I have had the research satisfactorily explained to me in verbal and/or written form by the researcher.

• I understand that the information I provide in the questionnaire will be kept confidential.

• I understand that I may withdraw from this study at any time without having to give an explanation.

• I understand that all information about me will be treated in strict confidence and that I will not be named in any written work arising from this study.

Signature of the respondent:

Dated: .

Appendix B

Survey questionnaire

Gender of respondent:

Male

Female

Other

Age

Below 19

20-23

24-26

Above 26

Academic year

Freshman

Sophomore

Junior

Senior

What is your current CGPA?

.

What was your GPA in Spring 21 during online classes?

.

What was your GPA in Fall 21?

.

What was your GPA in Spring 22?

.
Questionnaire

Academic Performance						
Sr No	Question	Strongly disagree	disagree	Neutral	agree	Strongly agree
1	Did you enjoy studying online courses?					
2	Did you feel that getting online education was a good way to advance your studies?					
3	Due to online classes, you organized your time to do everything the teachers asked you to do successfully.					
4	Due to online classes, your grades improved.					
5	Your performance in class as a student has improved since on-campus classes were canceled.					
6	By taking classes online, you have improved your communication skills.					

7	Due to online classes, you figured out how to do the most difficult class tasks on your own.					
8	Online classes have negatively affected your CGPA.					
	Level of Satisfaction:					
1	You were completely satisfied with the instructors' various online teaching approaches.					
2	You were completely satisfied with the instructor's follow-up in each session of online teaching.					
3	You were satisfied with your skills of using online learning platforms.					
4	You were completely satisfied with the online classes, as they helped you achieve the course learning outcomes successfully.					

5	You were completely pleased with the quality of the teacher's work in online courses.				
6	You were completely satisfied with the teacher's motivation in online courses.				
7	In online teaching, your interactions with teachers were very satisfying.				
8	Online courses allow students to access a wide range of resources.				
9	You were satisfied with the content quality of online courses during Covid-19 pandemic.				
10	Adequate technical support from your institute was given to you properly.				
11	You were completely satisfied with fair compensation or				

	incentives for online studies.				
12	You were satisfied with the speed of the internet for your online classes.				
13	You find it more difficult to focus during online learning in comparison to on-campus learning.				
14	You felt depressed due to lack of motivation during online classes.				
15	Overall, you are not very satisfied with online learning during Covid-19 pandemic.				

Appendix C
IRB Certificate Approval

FORMAN CHRISTIAN COLLEGE
(A CHARTERED UNIVERSITY)

INSTITUTIONAL REVIEW BOARD

IRB Approval Certificate

IRB Ref: IRB-311/10-2021

Date: 28-10-2021

Project Title: Effects of online learning on the performance of students during COVID-19 pandemic.

Principal Investigator: Aiman Ashraf

Supervisor: Dr. Jawad Tariq

Institutional review board has examined your project in IRB meeting held on 04-05-2021 and has approved the proposed study. If during the conduct of your research any changes occur related to participant risk, study design, confidentiality or consent or any other change then IRB must be notified immediately.

Please be sure to include IRB reference number in all correspondence.

Dr. Kauser Abdulla Malik HI,SI,TI
Chairman, IRB
HEC Distinguished National Professor (Biotechnology)
Dean Postgraduate Studies
Director, Research, Innovation & Commercialization (ORIC)
Forman Christian College (A Chartered University)
Lahore