EFFECTIVENESS OF ONLINE LEARNING STRATEGY IN HIGHER EDUCATION LEVEL: STUDENTS' PERSPECTIVE

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Original Article

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Abstract

The online learning strategy was used as the substitute of traditional learning strategy during Covid-19 conditions. Due to suddenly transferred of learning mode from traditional to online learning mode, there was a need to find the effectiveness of online learning strategy in higher education under Covid-19 situation. So, the objective of current research was to discover the effectiveness of online mode of learning for students studying in undergraduate and postgraduate programs at Ghazi University, Dera Ghazi Khan.The data collected from 200 male and female students was analysed by using SPSS-25 package. The outcomes of the research showed that online mode of learning strategy in higher education proved very effective learning strategy during Covid-19 conditions. The male students perform better than female students by this online learning strategy during Covid-19 conditions.

Keywords: Effectiveness, Online Learning, Higher Education, Students Perspective

Introduction

Covid's abrupt breakout in China in 2019has completely altered the techniques of learning in educational institutions. The majority of the universities and colleges are required to transfer their learning system from traditional to online (Agormedah et al., 2020). To reduce the direct effect of the Covid-19 pandemic disease and save pupils becoming sad, universities and colleges have started instructing pupils by using numerousapproaches and modalities consisting onsocial and material assetsaccessible in the setting (Rohman et al., 2020). Wang et al., (2021) noted in this context that the infectious sickness has caused pupils to retain at their houses andhas driven a number of universities and collegesto construct numerous online learning stratigies to support and guarantee that the students loss will be kept minimized and courses will be completed on time. The learning system based on technology, especially online learning has appeared as the most feasiblealternative for continuing of academic activities active in variousareas of the globe throughout the epidemic (Adnan and Anwar, 2020).

Stating the importance of applying online learning system in universities and colleges around the globe, Tang et al., (2021) stated that in order to address the two mainencounters of terminating social interactions while maintaining educational process, universities and colleges implemented online educational activities. Online teaching and learning during Covid-19 conditions proved an efficient

approach to keep academic activities to be continued and avoid the academic lossproduced by lockdowns in severalregions of the globe including Pakistan (Adnan and Anwar, 2020; Unger and Meiran, 2020; Laili and Nashir, 2021; Hafeez et al., 2021; Syam and Achmad, 2022). This online learning policy must be acceptable to all parties in order to decide on the propagation of this virus.This transformation in the remote learning system has a significant influence on numerous educational circles, including instructors, students, and institutions that must continue to carry out distance learning despite the various constraints that exist (Laksana, 2021).

Problem Statement and Objective of the Study

Due to sudden outbreak of Covid-19 pandemic, all the educational institutions have to close to prevent the students from this pandemic disease. Ultimately, all the academic process transferred from traditional learning mode to online mode of learning (Jiang et al., 2021). Due to this large scale shifting of leaning process, the effectiveness of online mode of learning is under question especially in higher education (Yudiawan et al., 2021). So, there is a need to determine the efficiency of online mode of learning in higher education context. Therefore, the objective of this study was to determine the effectiveness of online mode of learning strategy in higher education under Covid-19 conditions from student's perspective.

Review of Literature

Online or E- Learning

Online learning is an educational process delivered through the Internet. It is often referred to as online or e- learning (Hafeez, 2021). The advancement of ICT tools has enabled online academic activitivities to be effective. Distance learners often have access to ICT tools by connecting to a network, enabling them to take part in learning process from home at any time (Ali, 2020; Hafeez et al., 2022). Online learning is a method of improving learning system by leveraging a variety of learner-centered, advanced, and even Internet-based devices to provide learning experiences in a contemporary or asynchronous context (Chung et al., 2020; Kaisara and Bwalya, 2021).

The successful learning-teaching environment is built so that students may engage in online lectures, have direct contacts with professors, and receive rapid replies (Dumford and Miller, 2018). The availability of learning materials is not possible as in traditional learning but these are accessible through various online applications like LMS. In such an environment, it is impossible to respond fast and effectively (Deming et al., 2015; Coman et al., 2020). Modern education provides several opportunities for social contact. The emergence of these internet settings are critical in the propagation of this lethal virus (Basilaia and Kvavadze, 2020). The advancement of ICT toolshas made online learning more effective and accessible. An online learning system is defined as a method of providing a contemporary and asynchronous learning environment in order to encourage learning via the use of a range of learner-centered, creative, and internet-based technologies (Babović, 2017; Li, 2018; Paudel, 2021). Online learning must adapt swiftly Google products such as Google Hangout, Open board, Calendar, G-Drive, Gmail, and Google Form are unquestionably advantageous in such demanding circumstances (Muftahu, 2020; Hasan and Khan, 2020).

Is it an Online Learning Time?

A major portion of earth is in confined as a result of the devastating pandemic disease of Covid-19, and several cities throughout the globe have become ghost. Covid-19 has had an impact on all levels of educational institutions including universities (Ghazi-Saidi et al., 2020). The Covid-19 pandemic has given rise to firms dedicated to easing the shift from traditional to online schooling. Firms who were previously unwilling to accept modern technology are now changing their attitudes as a result of

this issue.This disaster demonstrated the interesting side of online schooling (Callo & Yazon, 2020). Using online learning technologies, instructors can connect with large number of pupils at any time and from wherever in the worldwide. Organizations should look at alternative online learning and education methods, as well as improve their IT practises (Alharthi, 2020). Several organizations including universities throughout the globe have totally shifted their activities into digital system in response to the dire demand in the current situation.In the midst of this upheaval, online work emerges victorious. As a result, in this perilous situation, it is critical to improve the efficiencyof online academic activities. To meet new situations and adapt to varied settings, teachers changed their whole teaching method from normal classrooms to overnight (Hebebci et al., 2020).

Online Teaching and Learning System of Pakistan

Learning Management System (LMS)

LMS, which has become a significant element of educational activities in Europe and America, addresses many issues and misunderstandings between professors and students. In Pakistan, the usage of a learning management system to increase communication between instructors and pupils has been found to be significantly efficient.The LMS provides a lot of services including grading systems, attendance, learning materials and quizzes to facilitate instructors and pupils to continue their academic activities with any obstacles from any location. It assists professors in better educating pupils and allows students to study ahead of time when they are kept up to speed on their academic task. Numerous students in Pakistan who are pursuing higher education have access to the internet for social purposes.It will resist a wide range of unfavourable situations for instructors and pupils if properly protected.The best part is that such online mode of learning management system is completely without any charge.If a vast network of instructors needs greater access to extra facilities, a price that is less expensive than traditional ways is frequently imposed (Hafeez et al., 2021; Ullah, Saeed, Ahmad, Khan, & Naz,2021).

In recent years, the use of learning management systems (LMS) has gained widespread acceptance in higher education institutions all around the world. Fidani and Idrizi, (2012) suggested that while such online management system allows students to access their course information regardless of place or time. They also use this communication tool in their academic activities, which improves their academic efficiency and work performance. Adzharuddin and Ling, (2013) strengthened this concept by describing that LMS as a basic tool for the pupils studying in university where they may receive quick information about their daily tasks and stay updated about their homework. Furthermore, teachers have a simple means to communicate with their pupils outside the classroom and may quickly alert them about issues relating to their assignments via the LMS. It's also a portal that allows professors and students to connect and conduct debates with one another outside of the classroom utilizing discussion boards, which would otherwise take up a lot of time and resources that might otherwise be focused on studying in the institution or in the classroom. During the Covid-19 epidemic, most Pakistani institutions employed the LMS to provide pupils with academic materials and for conducting online exams (Hafeez et al., 2022).

Zoom Cloud Meeting Application

Zoom Meeting Cloud Application is a video conferencing tool that allows many participants tocollaborate on a whiteboard, to share videos, and record. This programme was developed in the United States. It is widely applied for distance learning, teleconferencing, social networking, and telecommunications and provides chat services and video telephony byusing a cloud-based peer platform of application (McCoy, 2015; Suardi, 2020). After the breakout of the pandemic Covid-19 and

the proximity of Universities, Zoom's Cloud Meeting Application practise witnessed a substantial international surge (Muls et al., 2020; Fitriyani et al., 2020; Prasetya and Mahmudah, 2021). Zoom Cloud Meeting Application have been widely utilised in institutions at the undergraduate and postgraduate levels in the globe during the Pandemic COVID-19 (Rizaldi and Fatimah, 2020; Gunawan et al., 2021). The Zoom Meeting programme is also used by many Pakistani students and teachers for academic materials, for online M. Phil, PhD defenses, and viva versa. Online seminars and training courses were also held using the Zoom meeting application (Hafeez et al., 2021).

Skype

Skype is a voice and video calling and video chat service that may be used on mobile devices, tablets, and PCs. We may also communicate over Skype. Video conference calls are also available using the Skype programme. There were over 660 million Skype users globally by the end of 2010, with over 300 million active each month, and Skype had 34 million active clients online in February 2012. Skype has a monthly user base of 100 million and a daily user base of 40 million as of the end of March 2020. The COVID-19 epidemic boosted the number of daily operators by 70% in just one month (Banskota et al., 2020; Boland et al., 2021). Most of the Pakistani academic institutions, professors, and students used Skype for online meetings, online viva voice, online undergraduate and graduate lectures, and online M. Phil PhD thesis defence during the Pandemic Covid-19 (Hafeez et al., 2021).

Effectiveness of Online Learning Strategy under Covid-19 Conditions

The global coronavirus Covid-19 epidemic compelled a transition in higher education settings throughout the world from traditional instruction to online learning (Tsang et al., 2021). Many researchers proved the positive effect of online mode of learning strategy in higher education context under Covid-19 conditions (Yu, 2020; Widodo et al., 2020; Kamble et al., 2021; Batdı et al., 2021; Hafeez et al., 2022).

Bahasoan et al., (2020) directed a research on the effectiveness of online mode of learning for undergraduate pupils in management courses during Covid-19. They concluded that online learning strategy proved to be good alternative for learning during Covid-19. Suprianto et al., (2020) investigated the effectiveness of online mode of learning under Covid-19 conditions by conducting online survey on undergraduate university students. They showed in their research that online learning strategy proved to be very effective and this learning strategy minimized the loss of study of undergraduate students. Satyawan et al., (2021) planned a research to find the effectiveness of online mode of learning by using Undiksha E-Learning Application in Health and Physical Education programs during Covid-19 pandemic in a google based online questionnaire survey. The outcomes demonstrated that online learning in Physical Education and Health Study curriculum by utilizing Undiksha's E-Learning was highly successful during the covid-19 epidemic.Using Undiksha's E-Learning application, the pupil's attentiveness was 90% throughout online learning during Covid-19.The pupils' understanding level for the educational materials was 88%, Students were 77% motivated to participate in online learning using Undiksha E-Learning, and student learning results were 88%.So, this online learning strategy proved to be very effective during Covid-19. Fajri et al., (2020) determined the effectivess of online mode of learningby means ofthe Zoom Cloud Meeting Application as an alternative online strategy to solve the challenges of pupils' academic activities at Nurul Jadid University under Covid-19 conditions. The instruments used for collecting the responses of the respondents were questionnaires, observation, and online interview. Based on questionnaire responses, the efficacy of online learning using the Zoom cloud meeting application reached 93.75 percent, followed by the results of interviews and observations that can improve student passion and

learning interest.Nadeak, (2020) analyzed the effectiveness of online mode of learning by employing the social media platform under Covid-19 conditions. A survey based on questionnaire was designed and data of 250 university students was collected by online distribution of the questionnaire. The collected data was then analyzed by using Multi-Attribute Utility Theory. The consequences of the research study directed that online mode of learning used during the Covid-19 pandemic proved very effective. In a conclusion, the literature reviewed indicated that online learning strategy proved very effective and best alternative option to continue the learning process and to minimise the loss of the students due to the closure of the educational institutions during Covid-19.

Hypothesis

Ho: Online learning strategy has a significant effect on learning process of higher education students during Covid-19.

Methodology

This survey based quantitative study was conducted to find the effectiveness of online learning strategy in higher education under Covid-19 from students' perspectives. A questionnaire based on 3-Likert Scale options (To large extent =3, To some Extent = 2 and Never= 1) containing 15-items of on the effectivess of online learning strategy from students' perspective during Covid-19 in higher education was formulated and distributed online by Google Survey form as suggested by Bhat, (2019) to collect the data from the students.

Sample Size

The main objective of current quantitative research was to find the effectiveness of online learning strategy during Covid-19 in higher education. The questionnaire containing items on effectiveness of online learning strategy under Covid-19 conditions were distributed online to approximately 400 students including 200 males and 200 females. The google survey form was distributed using emails, and WhatsApp online media. From total of 400 students, 200 students were respondent from which 150 were female and 50 were male. So, the sample size of the current study was consisted of 200 participants from which150 were female students and 50 were male students.The data and methodology have been triangulated to ensure validity and reliability of the findings.

Demographic Characteristics of Participants

The frequency distribution of demographic features of sample are shown in table 1, 2 and 3. From a total sample of 200 students, 150 were females (75%) and 50 were males (25%). 125 (62.5%) students were from rural areas and 75 (37.5%) students were from urban areas. The 154 (77%) students were studying in undergraduate courses and 46 (33%) students were undertaking their graduation courses. The frequency of total scores of respondents against each statement is also shown in graph 1.

Table 1: Frequency Distribution for Gender (Female=1, Male=2)

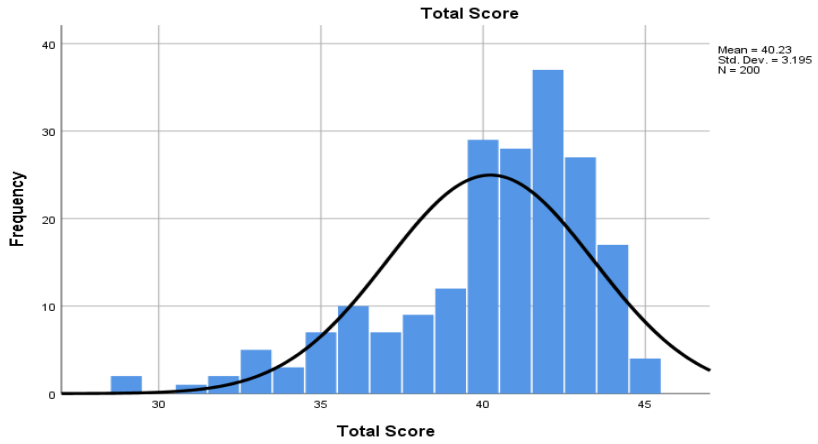
		Frequency	Percent
Valid	1	150	75.0
	2	50	25.0
Total		200	100

Table 3: Frequency Distribution for Locality (Rural=1, Urban=2)

		Frequency	Percent
Valid	1	125	62.5
	2	75	37.5
Total		200	100

Table 3: Frequency Distribution of Students Studying during Covid-19 (Under Graduate=1 Graduate=2)

		Frequency	Percent
Valid	1	154	77
	2	46	33
Total		200	100



Graph 1: Frequency of Total Scores of respondent Against Each Statement

Statistical Analysis

After all the responses were collected, the data was analyzed using descriptive statistical tools, t-test analysis and ANOVA to interpret the collected data and to find the significance level of the effectiveness of online learning strategy under Covid-19 conditions.

Results

The goal of current research was to find the effectiveness of online learning strategy studying in undergraduate and postgraduate programs of study during Covid-19. The results of descriptive statistics of respondents against each statement are shown in table 4. The descriptive statistics was applied on the responses of the 200 respondents (N=200) and there was no missing value exists. The scale was based on 3-Likert scale options (To large extent =3, To some Extent = 2 and Never= 1). The statements of the questionnaire are given in the Appendices. The mean value for statement 1 is 2.74 that shows most of the respondents agree with this statement up to the large extent. The standard error of mean for statement 1 is .046 and median is 3.00. The standard deviation for statement 1 is .657 and variance is .432. The skewness for statement 1 is -1.060 and standard error of skewness is .172. The mean valuefor statement 2 is 2.80 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 2 is .041 and

median is 3.00. The standard deviation for statement 2 is .584 and variance is .341. The skewness for statement 2 is -.766 and standard error of skewness is .172. The mean value for statement 3 is 2.69 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 3 is .036 and median is 3.00. The standard deviation for statement 3 is .508 and variance is .258. The skewness for statement 3 is -.339 and standard error of skewness is .172. The mean value for statement 4 is 2.79 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 4 is .036 and median is 3.00. The standard deviation for statement 4 is .506 and variance is .256. The skewness for statement 4 is -.423 and standard error of skewness is .172. The mean value for statement 5 is 2.83 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 5 is .041 and median is 3.00. The standard deviation for statement 5 is .584 and variance is .341. The skewness for statement 5 is -1.183 and standard error of skewness is .172. The mean value for statement 6 is 2.78 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 6 is .030 and median is 3.00. The standard deviation for statement 6 is .430 and variance is .185. The skewness for statement 6 is -1.516 and standard error of skewness is .172. The mean valuefor statement 7 is 2.74 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 7 is .046 and median is 3.00. The standard deviation for statement 7 is .650 and variance is .422. The skewness for statement 7 is -.963 and standard error of skewness is .172. The mean value for statement 8 is 2.75 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 8 is .041 and median is 3.00. The standard deviation for statement 8 is .573 and variance is .328. The skewness for statement 8 is -1.189 and standard error of skewness is .172. The mean valuefor statement 9 is 2.77 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 9 is .031 and median is 3.00. The standard deviation for statement 9 is .434 and variance is .188. The skewness for statement 9 is -1.478 and standard error of skewness is .172. The mean value for statement 10 is 2.76 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 10 is .033 and median is 3.00. The standard deviation for statement 10 is .473 and variance is .224. The skewness for statement 10 is -.635 and standard error of skewness is .172. The mean value for statement 11 is 2.79 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 11 is .030 and median is 3.00. The standard deviation for statement 11 is .424 and variance is .180. The skewness for statement 11 is -1.596 and standard error of skewness is .172. The mean value for statement 12 is 2.88 that shows most of the respondent strongly agree with this statement up to the large extent. The standard error of mean for statement 12 is .041 and median is 3.00. The standard deviation for statement 12 is .584 and variance is .341. The skewness for statement 12 is -1.183 and standard error of skewness is .172. The mean value for statement 13 is 2.79 that shows most of the respondent strongly agree with this statement up to the large extent. The standard error of mean for statement 13 is .030 and median is 3.00. The standard deviation for statement 13 is.420 and variance is .177. The skewness for statement 13 is -1.638 and standard error of skewness is .172. The mean value for statement 13 is 2.79 that shows most of the respondent strongly agree with this statement up to the large extent. The standard error of mean for statement 13 is .030 and median is 3.00. The standard deviation for statement 13 is .420 and variance is .177. The skewness for statement 13 is -1.638 and standard error of skewness is .172. The mean value for statement 14 is 2.59 that shows most of the respondent slightly agree with this statement up to the large extent. The standard error of mean for statement 14 is .046 and median is 3.00. The standard deviation for statement 14 is .420 and

variance is .177. The skewness for statement 14 is -1.638 and standard error of skewness is .172. The mean value for statement 15 is 2.79 that shows most of the respondent agree with this statement up to the large extent. The standard error of mean for statement 15 is.041and median is 2.00. The standard deviation for statement 15 is .574 and variance is .330. The skewness for statement 15 is -.466 and standard error of skewness is .172.

Table 4: Results of Descriptive Statistics for each Statement

	ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9	ST10	ST11	ST12	ST13	ST14	ST15	Total Score
Valid N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean	2.74	2.80	2.69	2.79	2.83	2.78	2.74	2.75	2.77	2.76	2.79	2.88	2.79	2.59	2.79	39.32
Std. Error of Mean	.046	.041	.036	.036	.041	.030	.046	.041	.031	.033	.030	.041	.030	.046	.041	.261
Median	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	40.0
Std. Deviation	.657	.584	.508	.506	.584	.430	.650	.573	.434	.473	.424	.584	.420	.649	.574	3.684
Variance	.432	.341	.258	.256	.341	.185	.422	.328	.188	.224	.180	.341	.177	.422	.330	13.575
Skewness	-1.060	-.766	-.339	-.423	-1.183	-1.516	-.963	-1.189	-1.478	-.635	-1.596	-1.183	-1.638	-.870	-.466	-.881
Std. Error of Skewness	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172

T-test Analysis

The t-test was performed to find the significant of the effectiveness of the online learning studying in undergraduate and graduate degree programs during Covid-19. There were total 200 participants from which 150 participants were female students and 50 were male students. The results of the t-test indicated that the mean value for female students was 39.83 and it was 41.40 for malestudents. The higher value of mean for male students indicated that male students feel online learning strategy more useful and effective than female students during Covid-19. The df value for female students was 198 and it was 161.083 for male students. The t value for female students was -3.066 and it was -4.105 for male students. The t value of both gender indicates that there is no much difference between the opinions of the male pupils and female pupils about the effectiveness of online learning strategy during Covid-19. The F value for both male and female is 15.951. The significance value is 0.000 that is highly significance and it accepts the hypothesis that Online learning strategy has a significant effect on the learning process of higher education students during Covid-19.

Table 2: T-test Analysis between Gender and Total Scores of the Respondents (Male=2, Female=1)

Variable	N	Mean	Df	t	F	Sig
1 Gender 2	150	39.83	198	-3.066	15.951	0.000
	50	41.40	161.083	-4.105		

Discussion

Online learning strategy has now become an effective and popular practise in higher education and trainings due to itsspeed, convenience, and efficiency in processing and handling information and using the web system (Korkmaz and Toraman, 2020). Various information and communication tools like LMS, Zoom Cloud Meeting application are now accessible to increase the effectiveness of online learning (Bahri et al., 2021). Despite the difficulties in adopting and digesting, online mode of learning is an effective and accessible learning strategy. Learners are not expected to attend face-to-face classes on a daily basis. Online learning is adaptable and can be arranged around your schedule (Rakerda et al., 2020). Despite the fact that Covid-19 has caused widespread concern, anxiety, and stress, social isolation has resulted and the formation of new conditions in response to its proliferation have prompted a significant shift in education throughout the world, including in Pakistan, particularly in delivery style. The sole face-to-face style of traditional classroom teaching and learning has been replaced by online learning, which has provided many professors and students in Pakistan's higher education with new experiences and techniques (Adnan and Anwar, 2020; Hafeez et al., 2021).

During the Covid-19 pandemic, most of the universities in the globe are closed to preserve social isolation and to reduce the risk of Covid-19 spreading. As a result, the majority of higher education institutions are currently operating through online means of learning. The transition from traditional to technology based learning has placed a significant strain on the universities information and technological system (Hafeez et al., 2022). In Covid-19 circumstances, Yates et al., (2021) did aninquiry to assess the effectiveness of online mode of learning. The study's findings revealed that an online learning technique is the good alternative to traditional learning under Covid-19 epidemic conditions.

Following the Covid-19 pandemic's circumstances, we directed the current study to determine the effectiveness of online learning strategy in higher education under Covid-19 from student's perspectives. We developed a questionnaire based on the items of the effectiveness of online learning strategy under Covid-19 situations. The questionnaire was distributed online through emails, Facebook and WhatsApp. The questionnaire was sent to 400 students from which 200 students were responded and recorded their responses. From 200 responded, 150 were female students and 50 were male students. The collected data was then analysed by using statistical tools to find out the significance of online learning strategy under Covid-19 situations in higher education. The results of the statistical analysis indicated that most of the responded were satisfied with the online learning strategy under Covid-19 situations. The t-test analysis showed highly significant results towards the effectiveness of the online learning strategy in higher education during Covid-19. The male students were more satisfied with the online leaning strategy as compared to the female students according to the statistical results of the study. The hypothesis of the study that online learning strategy has a significant effect on the learning process of higher education students during Covid-19 was also proved true. The results of our study were according to the many research studies conducted under

Covid-19 conditions in higher education (Dutta, 2020; Rohman et al., 2020; Al-Karaki et al., 2021; Tsang et al., 2021).

Conclusion

This research study tried to find the effectiveness of online learning strategy in higher education under Covid-19 situations from student's perspective. It was a quantitative study in which data was collected through an online questionnaire survey form. The collected data was then analysed by statistical tools to prove the hypothesis that online learning strategy has a significant effect on the learning process of higher education students during Covid-19. The t-test analysis indicated that online learning strategy has a significant effect in learning process in higher education under Covid-19 situations. The collected data indicated that most of the respondents were greatly agree with effectiveness of the online learning strategy during Covid-19. The male students were more satisfied than the female students as indicated by the results. The respondents of the study suggested that online learning strategy is an alternative to traditional learning during Covid-19 in higher education perspectives.

Conflict of Interest

The author/s declared no conflict of interest.

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