



Assessing the Quality of Post-COVID Online Teaching for Higher Education Students in Pakistan

Dr. Zehra Habib¹  | Nawaz Ahmad^{2*}  | Aisha Yusuf Mesiya³ 

Abstract

From the global scholastic perspective, the most formidable challenge of Coronavirus (COVID-19) has been the closure of educational institutions and the shift to online learning platforms. Even in developing countries like Pakistan, where face-to-face teaching was generally the norm, an emergency move had to be made to online teaching in mid-March 2020. Considering that students are the most relevant stakeholders in this regard, the researchers of the current study employed a quantitative strategy to gauge the standpoints of Pakistani higher education students regarding the quality of online teaching. For the analysis, the Wilcoxon W test is used as a non-parametric statistical technique on a sample of 167 higher education students obtained through Non-Probability Purposive and Convenience Sampling. The instrument used for gathering the data was a "ServQual" instrument for measuring the service quality of online teaching. Responsiveness and web content are significant for below expectations at a 5 per cent significance level.

Keywords: Higher education, online teaching, pandemic, expectations, SERVQUAL

JEL: C12, I21, O14,

Author's Affiliation:


Institution: Institute of Business Management ¹⁻³ | Shaheed Benazir Bhutto University²

Country: Pakistan

Corresponding Author's Email: * drnawazahmad@sbbusba.edu.pk

The material presented by the author(s) does not necessarily portray the view point of the editors and the management of the ILMA University, Pakistan.

2790-5896 (Online) 2709-2232 (Print) ©2022, published by the ILMA University, Pakistan.

This is open access article under the  license. <https://creativecommons.org/licenses/by/4.0/>

INTRODUCTION

Starting in China as an epidemic in December 2019, Covid-19 quickly spread across the globe. On March 11th, 2020, the director of the World Health Organization declared the coronavirus disease to have acquired the status of a pandemic (World Health Organization, 2020). In Pakistan, the first two cases infected with the virus were confirmed on February 26th 2020 (Ali, 2020) thereafter, leading to a rapid spread of the disease in all four provinces. Besides aggressively impacting the health sector, Covid-19 has wedged the entire world brutally into different spheres, the most affected of these being the economic, social and educational sectors due to the lockdown restrictions and social distancing standard operational procedures (Nicola et al., 2020).

With the rapid spread of the pandemic, educational establishments closed down in all the affected countries, and higher education institutions particularly had to take emergency measures to facilitate and continue the unhindered dissemination of learning via online platforms. Online education is managed via the internet and has different classifications, contingent on the aspects and degree of online learning assimilated into courses (Schinkten, 2016). Online platforms such as Zoom, Google Meet, Skype and other available forums are generally used for learning via the internet. In the wake of the pandemic, the transition to online learning platforms affected students, faculty, and administrators equally; in the early transition stages, this was described as “emergency online education” (Marinoni, van’t Land, Jenson, 2020, p. 6). For the first time, it became mandatory for students internationally to study all their courses online (Zimmerman, 2020).

Rozak et al (2022) made an attempt to evaluate the quality of educational services in the higher education systems of Indonesia and Russia during the Covid-19 pandemic by adopting the SERVQUAL model that measures the service quality across five service dimensions: tangibility, reliability, responsiveness, assurance, and empathy. A snowball technique was used to recruit students from Indonesian and Russian universities as participants in the study to assess the educational services of their universities based on their initial expectations and current perceptions. The findings of the study show that Russian students’ perception regarding the education provided by their universities is better than Indonesian students.

Purba et al (2022) worked on how to improve teachers’ competence through the implementation of 21st-century competencies in the post-COVID era. A lecture method was used to impart such skills which resulted in a good understanding of the 4C 21st Century Learning Skills among the participants.

STATEMENT OF THE PROBLEM

In developed countries, online education has been progressively emerging along with face to face interaction in classrooms. In 2016, 6.3 million students enrolled in at least one online course in the United States (National Center for Educational Statistics, 2018; Zimmerman, 2020). However, in developing countries like Pakistan, except for a couple of virtual universities, online learning at other universities

countrywide was either not introduced or conducted very sparingly prior to the pandemic (Khan et al., 2020). After the closure of Pakistani educational institutions from the second week of March 2020 due to the COVID-19 pandemic, there was an urgent shift, and higher education faculty have been using online forums to facilitate learning. The initial stages of this shift posed several hurdles for both faculty and students, including power failures and poor or no internet connections, which are a common feature in major Pakistani cities and more so in remote rural areas. Moreover, students complained of teachers being unprepared to teach online and their lack of understanding of what was being taught. In fact, in the Swabi district of Khyber Pakhtunkhwa, students protested against the discontinuation of online classes (Bari, 2020; “Students ask varsities to stop online classes” Dawn, April 2020). Interestingly, though very familiar with online gaming and other technological skills, young Pakistani adults found it difficult to adjust to online learning.

Among the mandatory requirements set forth by the Higher Education Commission of Pakistan for online teaching, the two most relevant factors pertained to the availability of a Learning Management System (LMS) and trained faculty for online teaching (Rehman, 2020); yet, many faculty members in our higher educational institutions taught online courses for the first time, without prior knowledge of virtual teaching. The issue thus is to investigate whether students are learning or acquiring the knowledge they should be attaining via online teaching. Although teams of technology experts were available on campus, it was not possible to cater to all faculty inexperienced in virtual teaching, and several faculty members found the transition very challenging (Hodges et al., 2020). Without fail, it is evident that the students bear the impact of the teaching. One of the significant factors contributing to students learning outcomes is hugely dependent on the quality of teaching they encounter. Students’ voices need to be heard and heeded in this context. Faculty and management must comprehend the challenges they face in this sudden transition to online learning systems (Malizar et al., 2020).

RESEARCH QUESTION

Does there exist a significant difference between expectations and experiences of higher education students relating to reliability, responsiveness, assurance, empathy and content of online education service quality?

PURPOSE OF THE STUDY

Since students are significant stakeholders in the process of online learning, it is very relevant to examine their perspectives regarding the transition to full-time online forums. Analysing their standpoints will contribute not only to an understanding of their perspectives but will also highlight if the transition has been a constructive one for students or not. Thus, both students’ positive and negative experiences, the problems they have encountered, and their issues need to be studied to make relevant adjustments and changes in the current online learning system. Moreover, with global technological advancement, not only is online learning relevant during a pandemic, the time is not far when the internet and its related applications will

become the norm for learning. Online learning is no longer a temporary solution in crises because renowned universities such as Harvard, Yale, Cambridge and Oxford, to name just a few, are transitioning from a face to face setting to online teaching, and the day is not far when most universities will be adopting technology for remote teaching (Bao, 2020; Picciano, 2017). Students' satisfaction is the most crucial variable for the success of online education; it is imperative to understand their standpoints in this respect. Based on the findings, this research study makes recommendations regarding how university management and faculty may tackle the issues quickly and proactively.

SCOPE OF THE STUDY

This study considers the quality of online teaching or e-learning in higher educational institutes in Pakistan. These institutes include colleges, learning centres and universities offering degree-level programs after high school. Out of all the institutions, the study will extend to those engaged in online teaching for a substantial and continuous period of at least two months. The service quality of their learning procedures will be gauged quantitatively through the parameters of reliability, responsiveness, assurance, and empathy of the teachers conducting classes and the online content made available to the students.

LITERATURE REVIEW

Since the study examines higher education students' attitudes regarding online learning during the COVID 19 pandemic and their perceptions regarding the beneficial aspects and the challenges in this regard, the literature review focuses on defining online learning and its components and exploring its advantages and disadvantages of the system. Furthermore, the review highlights the global impact of Covid 19 on higher education and how different countries, including Pakistan, have responded to the challenge.

Online Learning

Online education has progressively grasped the attention of educational researchers' for more than two decades, and a variety of meanings have been attached to the term by scholars (Singh & Thuman, 2019). Initially, in 1995, the web-based system, Web Course Tools (WebCT), was introduced, considered the first Learning Management System (LMS). This is a software artefact which allows for online course administration by educational institutions and supports the uploading of course content, discussion forums, assignments and quizzes, facilitating learning opportunities for students. This system was later transformed into Blackboard, which has emerged as the leading e-learning software corporation despite several other e-learning tools (Bates, 2014). This is so because Blackboard Academic Suite affords an expedient and practical interface with students for online learning and interaction between students and faculty (Bradford et al., 2007; University of Toledo, 2018).

However, due to the rapid development in technology, there is a lack of clarity regarding the definition of online learning, and varied terms are denoted to define online learning. The proximity of education technology with education has generated terms such as ‘online learning’, ‘Web-based learning’, ‘cyber learning’ and ‘e-learning’ used interchangeably (Means et al., 2014; Singh & Thuman, 2019). Means et al. (2014) provide the definitions of online learning as the concept of “a learner’s interaction with content and people via the Internet for learning” (p.6). According to these authors, distance learning is a broader conception because it comprises learning wherein the instructor and learner are not in a face to face situation. Online learning for these authors is a subset of distance learning. The remarkable variety and array of online learning make it difficult to summarise or condense the definition of the term. (Horn & Staker, 2011).

Globally, online learning has become a key element in education and offers numerous prototypes and classifications, each model containing its definition, unique pedagogical structures and theories. This vast area of digital learning includes, amongst other platforms, MOOCs (Massive Open Online Courses) accessible to all and delivered for free (Bowden, 2020), blended or combined learning, web-based learning, synchronous (occurring at the same time) and asynchronous classes (information not restricted by place or time) and mobile learning (Barber, 2017; Hodges et al., 2020) and the platforms continue to grow.

Difference between Online Learning and Emergency Online Learning

If online learning is well planned and organised, its outcome is significant and productive instead of a switch to online learning in times of emergencies or calamities (Alexander, 2020). However, no matter how hasty, extraordinary or overwhelming the transition to online teaching was, the institutions responded promptly to the emergency (Alexander, 2020; Hodges et al., 2020; Zimmerman, 2020).

Besides the types of online learning described above, an explicit term that many online education researchers use to describe virtual teaching under current circumstances is ‘emergency remote teaching.’ The term establishes a sharp difference between the current emergency online education and the quality online education delivered by some institutions before COVID-19 (Hodges et al., 2020).

Quality online education comprises focused preparation of instruction based on a model that influences the quality of online learning (Branch & Dousay, 2015). However, technology and its models alone do not contribute to students’ achievements because a lot depends on the application, educational set up and aspects of learners interrelating with technology (Means et al., 2014).

The Impact of Covid-19 on Higher Education

Due to the coronavirus pandemic, schools, colleges and universities administrators were bereft of all possibilities and choices except making the most of remote learning via internet resources (Demuyakor, 2020). UNESCO reported on 1st April 2020 that due to the closure of educational institutions, including HEIs in

185 countries, 89.4% of learners were affected (UNESCO, 2020). The International Association of Universities propelled a Global Survey on the effect of COVID-19 on higher education globally, including regions of Africa, the Americas, Asia & Pacific and Europe. A total number of 424 survey responses were analysed from 109 countries. Among responses, 20 % were those of faculty, 17% responses were received from heads of institutions and 16% of respondents comprised heads of international offices (Marinoni et al., 2020).

Despite 91% of universities reporting that set-ups were in place for online communication with students, there were enormous challenges faced regarding technological issues, lack of online pedagogical expertise, and fulfilling the demands of various subjects in online teaching. Private HEIs also conveyed that the universities would have to incur financial losses. However, 60% of the institutions involved in the survey also indicated that the increase in virtual learning forums had provided the opportunity for online collaborative learning (Marinoni et al., 2020). Online Collaborative learning pivots around the internet as the leading resource for acquiring knowledge through nurturing online fellowship, thus redesigning education (Harasim, 2017).

An aspect very close to students' hearts is evaluation, and they look forward to the grades achieved. However, many universities internationally simply awarded a pass/fail to students who studied a course/courses during the spring semester. It is evident that this system of grading affected their cumulative GPA and simultaneously limited postgraduate offices to evaluate students' performance with precision (Persky et al., 2020).

Considering the international academic post- COVID- 19 scenario, in China, where the pandemic initially started as an epidemic towards the end of 2019, the Ministry of Education gave directives for conducting online teaching. By February 11, 2020, the users of Ape Tutoring online reached a massive 400 million (Qi, 2020). Even though the Chinese Education Ministry had launched the 'Internet + Education' plan before the emergence of COVID-19, there were numerous problems that HEIs had to face, such as setting up online courses, particularly in remote areas, assuring not only that resources for online teaching are available but also ensuring the quality of teaching and most importantly, coping with the bottleneck congestion of networks (Tiejun, 2020).

Peking University in China offered about 100 courses online before the COVID-19 epidemic. However, after the virus outbreak, it launched a total of 2,613 undergraduate and 1,824 graduate courses online to cater to 44,700 students (Lei, 2020). Conducting a case study at Peking University (Bao, 2020) found that 60% of students prefer spending in-class time for study than out of the class study. Moreover, grounded on an investigation of students' answers on social media, it was found that students lacked positive learning attitudes toward online learning because they were not provided with proper learning resources and a proper setting to learn. In in-home environments, students do not discipline themselves as they would during a face to face session, which offers various recommendations regarding what needs to do to promote successful online learning.

Thus based on students' feedback from social media and observations of online teaching at Peking University, (Bao, 2020) recommends practical strategies for avoiding the issues mentioned above and promoting healthy online learning commitment. The first recommendation is from the perspective of being prepared with a backup plan for emergencies because computer servers may not be able to bear the load of such vast numbers of users, and online study learning management systems may collapse. Next, Bao (2020) recommends allocating small teaching units to students rather than burdening them with too much content. She recommends instructional modules of about 20-25 minutes.

Bao (2020) also underscores "the use of voice in teaching" (p.114) as students are unable to see the body language or facial expressions. Faculty should therefore speak slowly and clearly so that students can grasp what is being said. Because most faculty members are not trained to teach online, a further recommendation put forward by the researcher based on her observations of Peking University is that teaching assistants should be hired for faculty who are inexperienced in online pedagogy. Furthermore, students are more prone to miss online classes; as such, to ensure they acquire learning, teachers should give some homework and readings so that students remain involved in their studies. Finally, the opportunities for class participation may be limited if the faculty is not well trained in offering online education; therefore, students should be given readings from the literature on which they could write short papers offline, and in online teaching, faculty could encourage discussion on the reading, thus devising a combination of online and offline learning may be very fruitful for students learning.

Huliatunisa et al (2022) focus on the strategy in assignment management as the implementation of academic service quality to write books with ISBN as an implementation of the quality of academic services during the Covid-19 period. The data was collected via a cross-sectional questionnaire whereby 128 samples were collected from the same semester of a university which concluded that writing books with ISBN are very appropriate to do as a lecturer strategy to maximize the quality of academic services in curriculum development courses during the Covid-19 period.

Rahmat et al (2022) conclude that adopting LMS by the universities during COVID time is overcoming the challenges of the industrial era 4.0. The paper stresses the quality of LMS used which is gauged through testing the user satisfaction response using the E-ServQual variable consisting of tangible, empathy, reliability, responsiveness, and assurance (TERRA). The study found that the use of LMS has shown good performance whereas there was a significant gap between expectations and reality which demands improvement in the appearance of the LMS homepage, i.e., more attractive, operators must be easily contacted by users, work quickly and respond to the complaints.

Perspectives of Pakistani Students Regarding the Shift to Online Learning

Findings from a descriptive cross-sectional study conducted by Abbasi et al. (2020), in which 382 from a College of MBBS and BDS participated, demonstrated that

overall, 77.4% of students had adverse standpoints regarding e-learning. Moreover, 86% of students expressed the view that e-learning had hardly any contribution to their learning and most of the students expressed the desire to return to a face to face teaching and learning set. One of the significant limitations students referred to concerning the absence of experiential learning they were exposed to in the clinical setting. Thus it is evident that Pakistani students in the higher education milieu are neither very responsive towards nor are they prepared for online learning. Similar findings have emerged from studies conducted with students in different countries such as China, Malaysia and Singapore regarding their perceptions of e-learning examples in many countries (Ali, 2020).

Another study was conducted at two Pakistani University Colleges of Medicine and Dentistry by Mukhtar et al. (2020) to explore the perspectives of students and faculty regarding the emergency shift to online education. The study being a qualitative one, had fewer participants, i.e. 12 faculty members and 12 students. The positive aspect of the findings showed that both students felt that they had become more independent in their learning during the COVID-19 lockdown. More students were also happy with the prospect of learning asynchronously at a time that suited them best. Teachers also thought that online teaching had stimulated a student-centred approach.

However, the negative hindsight of the same research (Mukhtar et al., 2020) from the teachers' perspectives reflects that they could only impart theoretical knowledge instead of a combination of theory and clinical work. Faculty also had the grievance that students misbehaved during online sessions and used several online resources during assessments. The students' responses indicated that their focus in an online class was limited both in the capacity of time and comprehension.

The recommendations offered by teachers and students in the study by (Mukhtar et al., 2020) included professional training of faculty for online preparedness and case study discussion rather than theoretical teaching so that the students got more room for discussion. Both faculty and students also strongly recommended the purchase of sophisticated software and including procedures for detecting plagiarism.

Adnan and Anwar (2020) conducted a study to examine the attitudes of Pakistani higher education students toward online learning during the pandemic. The authors only mention higher education undergraduate and postgraduate students participated in the survey, without specifying their field of study. The 126 students surveyed had either completed the Spring semester, partly held online (from March) or students currently attending online courses. Data were obtained through an online survey. As many as 51.6% of students' responses indicated huge internet accessibility problems, and 11.1% reported that internet services were very costly. A meagre 10.3% opined that online learning is motivating, whereas a majority of 71.4% thought it was not motivating. On the positive side, 71.4% of students responded that they were well versed in using technology and were comfortable. However, 11.1% of students reported that they were not comfortable using technology for learning. Moreover, 50.8% of students strongly felt that there was not enough time in a single online semester to complete an entire course. Only 18.1% said

that an entire course could be completed during the length of an online semester. A majority of 78.1% of students iterated that face to face learning is much more effective than online classes.

ServQual as a Measure of Online Teaching Service Quality

The SERVQUAL instrument was developed more than 30 years ago by Parasuraman, Zeithami & Berry (1988) over five years of study. The developers of the instrument claimed it to be the most reliable and valid instrument for assessing quality in the service sector and able to be used in varied fields such as hospitals, hotels, tourism, Information Technology, etc., which can be modified according to the context of the researcher's study area. The final version of the instrument went through several modifications and was later reduced from ten to five dimensions of service quality, namely Reliability, Assurance, Tangibility, Assurance and Empathy.

THEORETICAL INTEGRATION

The measurement of the quality of online learning from the perspective of students can be linked to the Cognitive Theory of Multimedia Learning (CTML) by Mayer (1997), which states that “people learn more deeply from words and pictures than from words alone” and emphasises that learning takes place best when both the means of visual and auditory channels are taken into account. This promotes lesser stress on cognitive pressure. The ideal way of carrying out such learning is through pictures, graphics, animations, and sound effects integration, all of which come in handy with the use of online platforms and websites.

Another theory that can be linked to this study is the Information Systems Continuance Model (ISCM), which states that when a user makes use of an Information Technology based program, the readiness and level of usage in the beginning are not the same as towards continuation (Bhattacharjee, 2001). In the same way as consumer behaviour in marketing, this theory examines users' intentions to continue using the program. If usage intentions are strong, the program or information system is considered successful.

Conceptual Framework

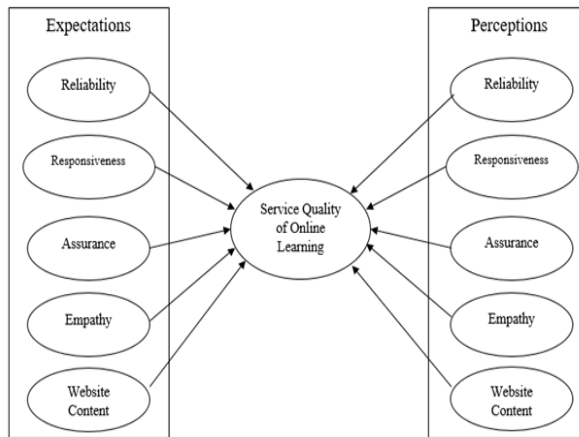


Figure 1. Source: SERVQUAL instrument by Parasuraman, Zeithami & Berry (1988)

RESEARCH METHODOLOGY

Data and Variables

Primary data is collected for the study from various higher education students studying in degree level programs in Pakistan. The respondents were approached online via formal procedures (University/Institute's administration or academic department) and informal procedures (social media communities and groups of students). These institutes include colleges, learning centres and universities offering undergraduate, graduate and postgraduate degree programs. Service quality of online learning is used as a formative construct, comprising five dimensions (variables) that cause the construct:

- Reliability
- Responsiveness
- Assurance
- Empathy
- Website Content

Data Collection Instrument

The instrument used to collect the data is a structured questionnaire adapted from the original SERVQUAL instrument developed by Parasuraman, Zeithami & Berry (1988) and the American study on e-learning quality by Udo, Bagchi, & Kirs (2011). The questionnaire is in two parts, expectations and experience (perceptions of experience by students), and each part has 22 items divided under the five dimensions of service quality. Each item is placed on a Likert scale ranging from 1 to 7. The unique number of items for each dimension is:

- Reliability: 3 items

- Responsiveness: 3 items
- Assurance: 4 items
- Empathy: 4 items
- Website Content: 8 items.

The original SERVQUAL dimension of Tangibles, which relates to physical facilities and appearance, is replaced with Website Content to reflect the online learning environment and serve the study's purpose (Udo, Bagchi, & Kirs, 2011).

Sample and Sampling Technique

The number of responses collected for the study was 167. The sampling technique used is a mix of Non-Probability purposive and convenience sampling, where elements to participate in the study are chosen by the researcher's judgment, and out of the fulfilling participants, the ones easily approachable are selected. The students, a minimum of 18 years of age and from institutions providing online learning for a minimum of two months, are included in the study.

Statistical Technique

To analyse the stand-alone significance of SERVQUAL dimensions, the questionnaire is assessed for reliability, followed by descriptive and later for normality. The data consists of a small sample (less than 200), and the test for normality shows a non-normal distribution. Therefore a non-parametric Wilcoxon W test is applied for the pair sample comparison, i.e., between the actual and expected quality of post-covid education.

RESULTS AND DISCUSSION

Demographic Profile

Demographic		Respondents	Per cent
Gender	Male	92	58.6%
	Female	65	41.4%
Age	20-25 years	76	48.4%
	26-30 years	47	29.9%
	31-35 years	15	9.6%
	Above 35 years	19	12.1%
Education	Undergraduate	15	9.6%
	Graduate	77	49%
	Postgraduate	65	41.4%
Discipline	Business	119	75.8%

Engineering	13	8.3%
Medicine	5	3.2%
Humanities	8	5.1%
Education	12	7.6%

More male respondents (58.6%) compared to females (41.4%). Among the four age groups, the youngsters who fall between 20 and 25 were the highest (48.4%), followed by the next age group (29.9%). So far, the education and their electives are concerned; graduates (49%) with business electives (75.8%) are the major respondents to the survey.

Reliability Analysis

Construct	No. of Items	Cronbach's Alpha	
		Expected	Actual
Reliability	3	0.727	0.832
Responsiveness	3	0.880	0.908
Assurance	4	0.930	0.941
Empathy	4	0.931	0.946
Website Content	8	0.951	0.967

The survey consists of two parts; the service quality of post-pandemic online education, what students were getting and what it ought to be. All dimensions have at least three items, and the reliability statistics are greater than 0.7, which confirms the inter-item consistency of the survey instrument.

Descriptive Statistics

		Mean	Std. Deviation	Skewness	Kurtosis
Reliability	Expected	5.0807	1.15741	-.383	.012
	Actual	5.0892	1.22439	-.645	.607
Responsiveness	Expected	5.3737	1.36153	-.665	-.288
	Actual	5.1720	1.33259	-.632	-.003
Assurance	Expected	5.5876	1.28192	-.899	.033
	Actual	5.5096	1.31036	-.926	.637
Empathy	Expected	5.1290	1.40928	-.487	-.481
	Actual	5.0064	1.36284	-.631	-.109

Website Content	Expected	5.2205	1.19437	-.464	-.120
	Actual	5.0048	1.26187	-.665	.418

Data were obtained using a 7-point Likert scale questionnaire. All the average values are greater than four which depicts the higher side of the agreement. The variation in the data set is lesser than the average values. The coefficients of skewness and excess kurtosis are non-zero, describing a non-normal data distribution.

Normality Test

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Reliability_Expected	.086	157	.007	.972	157	.003
Responsiveness_Expected	.129	157	.000	.921	157	.000
Assurance_Expected	.148	157	.000	.899	157	.000
Empathy_Expected	.097	157	.001	.949	157	.000
WebContent_Expected	.068	157	.072	.965	157	.001
Reliability_Actual	.114	157	.000	.955	157	.000
Responsiveness_Actual	.124	157	.000	.946	157	.000
Assurance_Actual	.128	157	.000	.914	157	.000
Empathy_Actual	.113	157	.000	.954	157	.000
WebContent_Actual	.089	157	.004	.959	157	.000

Since the number of respondents to the survey questionnaire is 167, which is lesser than 200 and considered a small no of observations, therefore the test for normality is applied, which rejects the normality hypotheses (sig < 0.01) across the constructs. This suggests applying a non-parametric statistics test for further analysis.

Wilcoxon Test

	Reliability	Responsiveness	Assurance	Empathy	Web Content
	Actual - Expected	Actual - Expected	Actual - Expected	Actual - Expected	Actual - Expected
Z	-.130	-2.476	-1.408	-1.651	-2.065

Asymp. Sig. (2-tailed)	.897	.013	.159	.099	.039
---------------------------	------	------	------	------	------

The data set does not follow a normal distribution as per the normality test statistics. In order to compare paired samples, the Wilcoxon W test (counterpart of paired sample t-test for parametric statistics) is applied, which suggests that two constructs, i.e. responsiveness and web content, are statistically significant. In both cases, respondents have higher expectations than what they were delivered.

CONCLUSION AND RECOMMENDATIONS

This study attempts to gauge the quality of higher education in the post-covid era. The study consists of the education quality that students observed against the education quality that the students expected. Two dimensions of the quality, responsiveness and web content, were found significantly below the expectations, whereas the remaining three dimensions, i.e., reliability, assurance and empathy, were found at par.

Improving the web content and providing a formal learning management system (LMS) with enhanced tailored options is recommended. Moreover, real-time alerts need to be built into the LMS to minimise the lead time in responding to the queries. Furthermore, the appearance of the LMS homepage is supposed to be more attractive and user-friendly.

REFERENCES

- Abbasi, S., Ayoob, T., Malik, A., & Memon, S.A. (2020). Perceptions of students regarding e-learning during COVID-19 at a private medical college. *Pakistan Journal of Medical Sciences*, 36, 557-561. <https://doi.org/10.12669/pjms.36.COVID-19-S4.2766>
- Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Journal of Pedagogical Sociology and Psychology*, 2(1), 45-51. <http://www.doi.org/10.33902/JPSP.2020261309>
- Ali, I. (February 27, 2020). Pakistan confirms first two cases of coronavirus: Govt. says 'no need to panic.' *Dawn*. <http://www.dawn.com/news/1536792>
- Ali, NA (April 2, 2020). Students disappointed with online teaching systems amid COVID-19. *Daily Times*. <https://dailytimes.com.pk/587446/students-disappointed-with-online-teaching-system-amid-covid-19/>
- Barber, W. (2017). Critical play in fully online learning communities. *Journal of Education Research*, 11(1), 89-99.
- Bao, W. (2020). COVID-19 and online teaching in higher education: A case study

- of Peking University. *Human Behavior and Emerging Technologies*, 2(2), 113-115. <https://doi.org/10.1002/hbe2.191>
- Bari, F. (April, 3, 2020). Online learning. Dawn.com. <https://dawn.com/news/1546047>
- Bates, T. (2014). A short history of educational2022 technology. Online Learning and Distance Education Resources. www.tonybates.ca/2014/12/10/a-short-history-of-educational-technology/
- Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation–confirmation model. *MIS Quarterly*, 25(3), 351–370.
- Bowden, P. (July, 22, 2020). Beginners guide to massive open online courses (MOOCs). Class Central. <http://classcentral.com/help/moocs>
- Bradford, P., Porceiello, M., Balkon, N., & Backus, D. (2007). The blackboard learning system: The be all and end all in educational instruction? *Journal of Educational Technology Systems*, 35(3), 301-314. <http://doi.org/10.2190/X73L-5261-5656>
- Branch, R.M. & Dousay, T.A. (2015). Survey of instructional design models. Association for Educational Communications and Technology (AECT).
- Dawn (April 7, 2020). Students ask varsities to stop online classes. Dawn.com. <https://dawn.com/news/1547038>
- Demuyakor, J. (2020). Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China. *Online Journal of Communication and Media Technologies*, 10(3), e202018, 1-9. <https://doi.org/10.29333/ojcm/8286>
- Harasim, L.M. (2020). Learning theory and online technologies. <https://ebookcentral.proquest.com/lib/ulaval/detail.action?docID=4865772>
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (March, 27, 2020). The difference between emergency remote teaching and online learning. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Horn, M.B. & Staker, H. (2011). The risk of K-12 blended learning. Innosight Institute. [http://www.innosightinstitute.org/innsight/wp-content/uploads/2011/01/The-Rise-of-K-12-Blended-\(Learning\).pdf](http://www.innosightinstitute.org/innsight/wp-content/uploads/2011/01/The-Rise-of-K-12-Blended-(Learning).pdf)
- Huliatunisa, Y., Suhardan, D., Permana, J., Nurdin, D., Yohamintin, Y., Rasyid, S., & Sabban, I. (2022). Lecturer Strategy in Assignment Management as the Implementation of Academic Service Quality in the Covid-19 Period. *Kelola:*

Jurnal Manajemen Pendidikan, 9(1), 1-21.

- International Labour Organization (2020). Covid -19 and the world of work: Sectorial impact, responses and recommendations. International Labour Organization. <http://www.ilo.org/global/topics/coronavirus/sectorial/lang-en/index.htm>
- Khan, A.A., Niazi, Sh., & Khan, S.F. (March, 26, 2020). Universities unprepared for switch to remote learning. University World News. <https://universityworldnews.com/post.php?story=2020032614154747229>
- Lei, G. (2020). Peking university spring semester begins with online teaching. Peking University News. <http://news.pku.edu.cn/xwzh/979e47acd7bf4c9592945323a2292f4d.htm>
- Mailizar, A., Almanthari A., Maulina, S., & Bruce, S. (2020). Secondary school mathematics teachers' views on e-learning implementation barriers during the Covid-19 pandemic: The case of Indonesia. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(20), 1-9. <https://doi.org/10.29333/ejmste/8240>
- Marinoni, G., van't Land, H., & Jenson, T. (2020). The impact of COVID-19 on higher education around the world: IAU, global survey report. International Association of Universities.
- Mayer, R. E. (1997). Multimedia learning: Are we asking the right questions. *Educational Psychologist*, 32, 1–19.
- Means, B., Bakia, M., & Murphy, R. (2014). *Learning online: What research tells us about whether, when and how*. Routledge
- Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences*, 36. <http://doi.org/10.12669/pjms.36.COVID-19-S4.2785>
- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C, Agha, M., and Agha, R. (2020). *International Journal of Surgery*, 78, 185-193. <https://doi.org/10.1016/ijssu.2020.04.018>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual: A multiple-item scale for measuring consumer perc. *Journal of retailing*, 64(1), 12-40.
- Persky, A.M., Fuller, K.A., Jarstfer, M., Rao, K., Rodgers, J.E., & Smith, M. (2020). The COVID-19 pandemic across the academy. *American Journal of Pharmaceutical Education*, 84(6), 697-702.
- Purba, R., Herman, H., Purba, A., Hutauruk, A. F., Silalahi, D. E., Julyanthry, J., & Grace, E. (2022). Improving Teachers' Competence through the Implementation

- of the 21st Century Competencies in a Post-Covid-19 Pandemic. *JMM (Jurnal Masyarakat Mandiri)*, 6(2), 1486-1497. DOI: <https://doi.org/10.31764/jmm.v6i2.7340>
- Qi, F. (2020). Breaking the classroom wall, Ape Tutoring online education platform has more than 400 million users. *Beijing news.com*. <http://www.bjnews.com.cn/edu/2020/01/20/676755.html>.2020-01-20
- Rahmat, T., Turyadi, I., Ardiansyah, I., Supriyatna, T., Taryaman, E., Tanjung, M. & Halimah, O. S. (2022, March). University 4.0 Performance: Improvement of Learning Management System Using E-ServQual Post-Covid-19 Pandemic. In 4th International Conference on Innovation in Engineering and Vocational Education (ICIEVE 2021) (pp. 261-266). Atlantis Press. <https://doi.org/10.2991/assehr.k.220305.053>
- Rozak, L. A., Arifin, M. B., Rykova, I. N., Grishina, O. A., Komariah, A., Nurdin, D. & Dudnik, O. V. (2022). Empirical Evaluation of Educational Service Quality in the Current Higher Education System. *Emerging Science Journal*, 6, 55-77. DOI: <https://doi.org/10.28991/ESJ-2022-SIED-05>
- Schinkten, O. (March 22, 2016). <http://www.lynda.com/Educational-Technology-tutorials/What-online-education/444949/481575-4.html>
- Singh, V., & Thuman, A. (2019). How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education*, 33(8), 289-306. <http://doi.org/10.1080/08923647.2019.1663082>
- Tiejun, Z. (2020). Empirical research on the application of online teaching in Chinese colleges and universities under the situation of coronavirus and pneumonia prevention and control. *iJET*, 15(11), 119-136. <http://doi.org/10.3991/ijet.v15i11.13935>
- Udo, G. J., Bagchi, K. K., & Kirs, P. J. (2011). Using SERVQUAL to assess the quality of e-learning experience. *Computers in Human Behavior*, 27(3), 1272-1283.
- UNESCO (2020). Global education coalition-290-million students out of school due to COVID-19. UNESCO. <https://en.unesco.org/news/290-million-students-out-of-school-due-covid19-unesco-releases-first-global-numbers-and-mobilizes>
- University of Toledo (May 10, 2018). UT Online. <http://www.utlv.screenstepslive.com/faculty/BlackboardLearn/1/187320-what-is-blackboard-learn>
- World Health Organization (March 11, 2020). WHO director general's opening remarks at the media briefing on COVID-19. World Health Organization. <http://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at->

the-media-briefing-on-covid19

Zimmerman, J. (March 10, 2020). Coronavirus and the great online-learning experiment. The Chronicle Review. <http://www.chronicle.com/article/coronavirus-and-the-great-online-learning-experiment/>