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Challenges Faced by Teachers while Adopting Digital Pedagogy during Covid-19 Pandemic in Pakistani Universities

Abstract *Impacts of COVID-19 caused an immediate shut down in higher education worldwide. However, in response, higher education sectors adopted instructional technologies and shifted face to face classes into online classes. This sudden and unexpected transition challenged teachers, particularly in developing countries like Pakistan. This study aimed to explore teachers' teaching challenges during the pandemic. Data for the research were collected from three Pakistani universities; LUAWMS, University of Baluchistan and Turbat University, from the teachers' population through a self-developed questionnaire. In return, from 80 sent questionnaires via WhatsApp and E-mail, only 71 well-filled responses were analyzed by SPSS (version 20). The findings examined teachers' challenges in four areas; difficulty in immediate adoption of technology in pedagogy, challenges in online content delivery, satisfaction with students' online assessment, and satisfaction with availability of resources for online classes. Moreover, the interpreted data have been explained and suggestions have been given for future study.*

Key Words: Digital Pedagogy, Technological Complexities in Pedagogy, Teachers' Training, Content Delivery, Students' Assessment

Introduction

COVID-19 has affected nearly every field of life globally and disintegrated the globalized world. Noticeably, fever and cough are the most common symptoms in children suffering from this virus. However, gastrointestinal, sore throat, pharyngitis, difficulty in breathing, myalgia, congestion in the nasal and headache are also immense symptoms of this disease. The virus transfers from one person to another. Women are lesser in dying than men (Jin et al., 2020) and as compared to majorities, the minorities are dominantly suffering from this virus (Garg, Kim, and Whitaker, 2020). The first case of COVID-19 was reported in December 2019 from Wuhan city in China. By 23rd January 2020, the 11million population of Wuhan instantly suffered from coronavirus. The affected persons were retained under lockdown to stop the spread of the virus. Due to increasing cases, soon this lockdown was extended to other regions of Hubei province in China. Thereafter, the corona virus spread out abruptly to other provinces in China to other fellow countries and then all over the world. United Nations Secretary-General Antonio Guterre termed this t virus outbreak the biggest challenge in the world since World War two. The higher education of different countries used distinctive strategies to respond to the shutdown.

COVID-19 and Responses from Higher Education of Different Countries

China is the first country to report COVID-19 cases in the world. All educational institutions were closed until after the Lunar New Year in China 2020. Consequently, on 26 January 2020, Beijing announced the beginning of spring semesters (Berlinger et al., 2020). The decision was taken by China's Ministry of Education on 28 January that government-run colleges and universities would be extended (Khaliq, 2020).

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Many standardized tests were not taken on the schedule as was decided and many other tests were cancelled (TOEFL; ICEF, 2020).

Germany in Western Europe also was affected by COVID-19 in March 2020 (Statistica, 2020). Until 29 March, more than 52,000 people were confirmed as having infections and eventually, 389 people died from the virus (WHO, 2020a). With the passage of time, universities took independent decisions to run educational programs and 424 higher educational institutions in Germany enacted it (Statistisches Bundesamt, 2020). Consequently, home learning started on 12 March and face-to-face classes were closed (University of Passau, 2020). Moreover, examinations were decided to be limited and oral examinations were suspended entirely in Germany (University of Gottingen, 2020). Similarly, Heidelberg University on 22 March 2020, announced to keep the closure of its campuses to fight against COVID-19 (Heidelberg University, 2020).

Like other Arab countries, Egypt also enforced on shutdown in the higher education sector (Ahram, 2020; Reuters, 2020a). On the other side, the private universities continued their educational systems online even if there were negative impacts of the virus and used various platforms to proceed with courses (American University in Cairo, 2020). It was challenging for the staff to arrange e-learning due to a large number of the learners enrolled in universities in Egypt, like Cairo University and Alexandria University. Moreover, other several troubles were faced by staff like unavailability of teaching aids, networks, and strong capacity.

The first COVID-19 report in South Africa was confirmed by the Minister of Health on 27 March 2020, COVID-19 in South Africa pushed the first person to death (Republic of South Africa, 2020). South Africa reached the highest

number of COVID-19 cases in Africa and is the fifth peak number of confirmed infections in the world (Dong, Du, and Gardner, 2020). In this way, the educational institutions were impacted negatively and eventually pandemic caused a shutdown and digital education took place.

In addition, with a total population of 220,892,340 (2018-219), Pakistan stays at the 160th number in adult literacy rate in the world. Moreover, in rural areas where there is no quality education, educational facilities, educational awareness, this results in a literacy rate of 48% only (Economic survey, 2018-19). United Nations Global Education Monitoring Report (2016) documented that Pakistan is 50 years back in primary education while 60 years back in secondary education to accomplish its educational goals. Furthermore, within thirteen years (from 2001 to 2015), Pakistan has increased its number of higher education institutions from 52 to 163 respectively. However, the student's enrollment rate, which was 331,745 in 2002, increased to 1.9 million in 2018 and Pakistan had a gross enrollment ratio of 9% only which is 20% lower than the developing country India. (Higher Education Commission 2015; UNESCO 2018, Hunter 2020). Similar to other countries, in March 2020, the Government of Pakistan publicized to keep shut-down in all educational institutions including higher education across the country to combat the virus. Therefore, it was important to outline the issues which have been caused by the immediate adoption of technology in pedagogy in Pakistani higher education sectors. To examine teachers' experiences regarding online teaching, the following questions were constructed: (1) What challenges were faced by teachers when adopted digital pedagogy while lockdown in response to COVID-19? (2) What challenges were faced by teachers associated with online content delivery? (3) How was it challenging to place an online assessment? 4) Are the resources available to run online classes or not? Moreover, this research contributes to guiding the Pakistani HE sector to facilitate digital pedagogy effectively, provide teacher training in technology, and avail digital teaching resources for future circumstances.

Literature Review

Prior to COVID-19, reported by UNESCO that more than 1.7 million learners were not in schools due to financial effects. However, the pandemic affected about 90% of the total student

population (Statistica, 2020) and globally 40 million learners are out of school from childhood education (UNESCO, COVID-19) due to the absence of a rich learning environment, lack of opportunities, social interaction and malnutrition (UNICEF, childcare in global crisis).

Presently, the probability of the end of the pandemic is very ambiguous. The online learning option may be a long-term process, and the improvement of the quality of online learning has become an obligation (Morphy, 2020) because the unexpected sudden shift in education urged teachers to adopt online teaching in higher education. But the deployment of online teaching is with challenges unless teachers are proficient and teaching resources are availed. However, Ertmer (1999) categorized challenges of digital pedagogy into; first-order barriers and second-order barriers; the external obstacles (lack of resources) and internal obstacles (lack of self-experiences) respectively to utilize technologies in education. Developing countries mostly face first-order barriers (Goktas et at., 2014). Previous research, on the implementation of technologies, has also given contributions to this study. The research resulted in the Portuguese that the key challenges as regards the implementation of online classes in higher education are lack of infrastructure and resources, lack of funding, and insufficient technological resources (Vicente et al., 2020). Why not technology is beneficial in pedagogy but it does not measure the natural relationship between teacher and student (Robinson and Rusznyak, 2020). Supposedly, few countries are having effective grasp to use technologies during the time of COVID-19 in education but this innovation does not satisfy learning assessment (UNESCO). Innovation of digital classes causes various challenges (Metcalfe, 2020; Yang, 2020), named as online teaching and placing online assessments like hypothetical dishonesty and capacity to regulate learners' behaviour (Guangul et al., 2020; OECD, 2020); possibilities of cheating while online assessment to grading higher or lower that may be caused by changes in assessment methods from face to face into online (Gonzalez et al., 2020). Moreover, a research study was conducted at Iqra University Islamabad in Pakistan on challenges associated with the need for natural interaction during digital classes. The study investigated that 72.2% of respondents preferred face-to-face interaction as opposed to digital classes. They accepted digital classes which can also be considered that the teaching process was good and as well as negative results were found such as issues related to transferring information, assessment, the utilization of technological tools, and (Rajab et al., 2020).

A review of the literature showed both opportunities and challenges regarding the adoption of digital technologies in education/teaching. Most described challenges teachers faced earlier and while COVID-19 were lack of teachers' training, problems in online assessment, challenges in flow of information, unavailability of digital instructional resources which together hindered online classes.

Method and Data

Research Design

The intended method of this study was quantitative in nature. The quantitative design brings no modifications to the selected objectives of the study (Cohen, L.; Manion, L.; Morrison, K. 2000) Instrumentally, Closed-ended questionnaires were used. The questionnaire contained 46 statements for participants to respond on and a five-point Likert scale; strongly agree (SA), agree (A), undecided (U), disagree (D) and strongly disagree (SD), was used for participants to respond the statements. Moreover, the questionnaire comprised four sections to explore teachers' challenges in respect of the immediate adoption of digital pedagogy; online pedagogical experiences, online content delivery and sufficiency, online learning assessment and, availability of resources for the continuation of online classes.

Participants

The teachers of the higher education sector were participants who practised technologies in teaching while existing pandemic. Most of the participants were male (83.3%) as compared to

female (19.7%). Participants of the study were of age 30-50 and above as shown in table-1. (35.2%) participants were M.Phil./Master degree holders while (64.8%) Ph.D degree holders responded to questions. The participants were from different of knowledge like Education (28.8 %), Language & Literature (12.7 %), ICT & Engineering (9.9 %), Management & Social Sciences (19.7 %), Agriculture & Veterinary (14.1 %), and Sciences 16.9 %. Teachers of three Pakistani universities, LUAWMS Uthal, University of Baluchistan and Turbat University were selected to respond survey.

Data Collection Procedures

So as to collect data, a link was created on Google Docs and the designed questionnaires were forwarded to the teachers via WhatsApp and email. Only 71 well-filled responses were voluntarily selected to analyze among a total of 80 sent questionnaires while 09 miscued responses were discarded. The selected responses have been described after analysis.

Data Analysis

SPSS (version 20) was used to analyze the collected data. Collected data were analyzed in terms of frequency and percentage. Subsequently, percentages of respondents' views have been described in the findings and explained in the discussion portion deductively.

Demographic Details of Respondents

Table 1. Gender Description

Statement	Male	Female	Total
Gender	57	14	71
Percentage	80.3%	19.7%	100%

Table. 1 displays the genders description of participants. Both males and females participated in responding to research statements. The numbers of male respondents were 57(80.3%) while female respondents were 14(19.7%) total of 71 (100.0%). Male respondents were higher in quantity rather females.

Table 2. Marital Status

Statement	Married	Unmarried	Total
Marital status	49	22	71
Percentage	69.0 %	31.0 %	100 %

Table. 2 shows the marital status of the participants. Both married and unmarried teachers responded to the questionnaire. The majority of respondents 49 (69.0%) were married and 22 (31.0%) were unmarried amongst the participants.

Table 3. Age Description

Statement	30-35	36-40	41-45	46-50	Total
Respondents	35	18	11	7	71
Percentage	49.3%	25.4	15.5%	9.9%	100 %

Table .3 shows the age description. The table represents the ages in years. From 30-35 aged respondents were 35(49.3%) which is the highest frequency, from age 36-40 years were 18(25.4%), from age 41-45 were 11(15.5%), and from age 46-50 and 50 to above age were 7 (9.9%). Most of the respondents were of age 30-35 years.

Table 4. Qualification

Statement	Ph.D.	M.Phil./Master	Total
Frequency	46	25	71
Percentage	64.8%	35.2%	100 %

Table. 4 shows the rank of knowledge and experiences of the respondents. Both degree holders responded to the study wherein 46 (64.8%) teachers were Ph.D. degree holders while 25 (35.2%) from M.Phil./Master degrees holders. Most of the respondents were Ph.D. degree holders.

Table 5. Faculty/Department

S. No	Faculty	Frequency	Percentage
1	Education	19	28.8 %
2	Language& Literature	9	12.7 %
3	ICT & Engineering	7	9.9 %
4	Management & Social Sciences	14	19.7 %
5	Agriculture and Veterinary	10	14.1 %
6	Sciences	12	16.9 %
7	Total	71	100.0 %

Table**.** 5 indicates the faculty/department variables. The respondents participated from the different faculties/departments. The above table presents the numbers of the respondents who responded to the questionnaire of survey. From the education department, the respondents were 19 with a percentage of 28.8% which is the majority responding to the questionnaire, from the Language & Literature were 9 (12.7%), from ICT & engineering were 7 (9.9%), Management & Social Sciences were 14 (19.7%), from Agriculture & Veterinary were 10 (14.1%) while the participants from the Sciences departments were 12 (16.9 %) who responded to the survey's questions.

Table 6. Views Regarding Adoption of Digital Pedagogy

S. No	Statement	S.A	A	U	D	S.D
1	Giving instruction was challenging through digital technologies	21(29%)	30(42.3%)	6(8.5%)	12(16.9%)	2(2.8%)
2	Through digital pedagogy, it was hard to satisfy students with instructional method	20(28.2%)	36(50.7%)	1(1.4%)	11(15.5%)	3(4.2%)
3	Digital technology enhances teaching	20(29.6%)	30(42.3%)	7(9.9%)	10(14.1%)	3(4.2%)
4	Digital technology is comfortable for instructional purposes	8(11.3%)	18(25.4%)	5(7.0%)	39(54.9%)	1(1.4%)
5	Digital pedagogy is easy and cheap by all the means than conventional classrooms' instruction	6(8.5%)	29(40.8%)	6(8.5%)	26(36.8%)	4(5.6%)
6	Teaching was only teacher-centred in digital pedagogical process	9(12.7%)	34(47.9%)	6(8.5%)	19(26.8%)	3(4.2%)

S. No	Statement	S.A	A	U	D	S.D
7	Communication to the students was understandable in the process of digital instruction	4(5.6%)	20(28.2%)	7(9.9%)	38(53.5%)	2(2.8%)
8	Students were easily motivated toward learning during digital pedagogy	8(11.26%)	11(15.49%)	30(42.24%)	17(23.94%)	5(7.0%)
9	A ccollaborative learning environment could be created while using technologyy-based teaching	14(19.7%)	35(49.3%)	6(8.5%)	11(15.5%)	5(7.0%)
10	Quality of teaching toward learning was good through digital pedagogy	4(5.6%)	19(26.8%)	9(2.7%)	33(46.5%)	6(8.5%)
11	Digital pedagogy completely changed the nature of learning process	26(36.6%)	33(46.5%)	5(7.0%)	5(7.0%)	2(2.8%)
12	Digital teaching was flexible	4(5.6%)	30(42.3%)	11(15.5%)	23(32.4%)	3(4.2%)
13	The technological instructional practices were valid and reliable to the students' concentration	2(2.8%)	22(31.0%)	16(22.5%)	30(42.3%)	1(1.4%)
14	Digital pedagogy enhanced students learning	3(4.2%)	22(31.0%)	13 (18.3%)	33(46.5%)	1(1.4%)
15	All the students were connected to online-classes even though they had been in rural areas	4(5.6%)	2(2.8%)	3 (4.2%)	28(39.4%)	34(47.9%)
16	Digital pedagogical lectures are précised than lectures in conventional classrooms	9(12.7%)	35(49.3%)	5 (7.0%)	21(29.6%)	1(1.4%)
17	You were psychologically motivated to teach through digital pedagogy	4(5.6%)	26(36.6%)	3 (4.2%)	35(39.3%)	3(4.2%)
18	You were pre-trained to utilize technologies for instruction	5(7.0%)	20(28.2%)	3 (4.2%)	16(22.5%)	27(38.0%)
19	The same level of satisfaction is with teaching through digital pedagogy as was in the formal classroom	1(1.4%)	13(18.3%)	11 (15.5%)	34(47.9%)	12(16.9%)
20	Level of satisfaction with teaching through technology is less than structured-class	14 (19.7%)	31(43.7%)	9 (12.7%)	16(22.5%)	1(1.4%)
21	Teaching management system was undeniable	3(4.2%)	15(21.1%)	10 (14.1%)	37(52.1%)	6(8.5%)

Table 6 encompasses 21 statements that reveal the views of respondents concerned with the adoption of digital pedagogy. With respect to the adoption of digital pedagogical difficulties, 29% of the respondents strongly agreed to accept the issues of adopting technologies, while 42.3% as the majority agreed about the challenges of the digital instructional method, 8.5% were

undecided about the statement and, 16.9% respondents disagreed; facing no challenges in digital classes and the minority 2.8% respondents were strongly disagree. Consequently, the statement documented the teachers' views that 42.3% as majority encountered digital pedagogical challenges.

Additionally, in accordance with a hardness to adopt technologies in pedagogy, the statement determined the same objective on teachers' perspectives as around 28.2% of respondents were strongly agreed to have such issues, 50.7% respondents agreed, 1.4% lecturers were undecided about the statement, while 15.5% respondents disagreed and 4.2% respondents strongly disagreed who faced a few difficulties to satisfy the students in digital pedagogy. The statement cleared that more than 50% of participants faced challenges to satisfy students by shifting traditional classes into online classes.

In the developed world, technologies may smoothen teaching and learning but in developing countries, it provides dissimilar results. The study explored the same problem as around 29.6 % of respondents were strongly agree with accepting the positive effects of technology on learning, 42.3% were agree considered as majority of the respondents' population, while 9.9% of the participants were undecided about the statement, 14.1% of the population showed disagree and 4.2% of the respondents were strongly disagree considered as the minority. Eventually, the statement affirmed that the majority of the population (42.3%) accepted the adoption of technology because of its enhancement in pedagogy.

The finding gave unlike observations about "comforts using digital pedagogy", in response to which 11.3% of total teachers strongly agreed, 25.4% of respondents agreed, on the degree of undecided, the respondents were 7.0%, while the majority of the lecturers 54.9% disagreed; not accepting technology's comforts in pedagogy, and 1.4% of the teachers strongly disagreed. Calculatedly, the majority of participants (54.9%) denied the comforts of technologies in pedagogy.

A statement inquired about the easiness and cheapness of adopting digital pedagogy whereby 8.5 % of the respondents strongly agreed about the easiness and cheapness of adopting digital pedagogy, 40.8% of the teachers agreed about the statement, the percentage of the teachers on undecided weightage was 8.5%, whilst 36.8% mentors disagreed about the statement whereby very few (5.6%) of the teachers were strongly disagree. Results clarified and marked it as an issue that 40.8% of respondents refused the easiness and cheapness of adopting digital pedagogy.

In response to a statement in which the sights of the teachers about the teaching centre was inquired; whereby 12.7% of teachers strongly agreed, 47.9% of the teachers were agree by declaring that the central control of the system was detained by teachers in process of teaching, 8.5% teachers were undecided about the theme, in the meantime, 26.8% of the teachers disagreed and 4.2% of teachers strongly agreed about the statement. Resultantly, most of the participants (47.9%) accepted digital pedagogy as teacher-centred since there was no participation of students while online classes.

Moreover, one of the significant statements in the questionnaire was to detect the communicative barriers during live classes. The study explored it as 5.6% of teachers were strongly agree, 28.2% of the teachers agreed about the statement, 9.9% of the teachers were undecided, and 53.5% majority disagreed while 2.8% was the minority of the teachers were strongly disagree about the statement. Consequently, communication was detested with students during online classes.

Likewise, the study also investigated the motivation of the learners on behalf of teachers through digital classes, wherein 11.26% and 15.49% strongly agreed and agree respectively, while 42.24% of the respondents were undecided, 23.95% and 7.0% of the respondents disagreed and strongly disagree respectively about the enthusiasm of students. The statement explored that majority of participants (42.24%) couldn't realize whether students were motivated or not.

Regarding collaborative learning during digital classes, in what the statement clarified that nearby 19.7% of respondents strongly agreed about digital classes to create a collaborative learning environment, 49.3% agreed, 8.5% were undecided and 15.5% and 7.0% of the respondents disagreed and strongly disagree respectively about the statement. The finding emended that 49.3% of the total population cherished digital pedagogy to accept the creation of cooperative learning through digital pedagogy.

With respect to the quality of digital pedagogy, 5.6% of teachers were strongly agree, 26.8% of the teachers agreed while 2.7% of respondents resulted as undecided about the statement, majority of the respondents around 46.5% disagreed with the quality of digital technology into pedagogy and 8.5% of the teachers' population were strongly disagree. Unfortunately, the study advocated quality of technologies in pedagogy as worthless in Pakistani universities allegedly due to loss of resources.

In addition, as regards the changes in nature of teaching and learning due to the adoption of online classes, around 36.6% of teachers were strongly agreed that reshape in pedagogy changed the nature of learning, almost 46.5% were agree considered the majority of the respondents and 7.0% were undecided while 7.0% disagreed while 2.8% strongly disagreed. Hence, the statement clarified in more than 46% of teachers believed in changes in the nature of learning due to shifts in classes.

Regarding flexibility and variability of the digital pedagogy, around 5.6% of the respondents were strongly agreed, 42.3% of the respondents agreed as preferred the elasticity of digital teaching procedures, 15.5% respondents were undecided, while 32.4% respondents disagreed and 4.2% respondents submitted strongly disagree. The findings appreciated the flexibility of digital pedagogy wherein 42.3% of participants agreed with online teaching manageability.

One of the statements directed perceptions of teachers about the validity and reliability of digital instruction toward students' concentrations as 2.8% of the respondents were agree about the validity and reliability of the online instruction, 31.0% respondents agreed, 22.5% respondents were undecided, surprisingly, around 42.3% of respondents disagreed about the validity and consistency of the digital teaching in learning regard students' intellectuality, and 1.4% of the respondents strongly disagreed. The statement declared that the majority of the population 42.3% considered its validity and reliability, not to the student's level of concentration.

A statement strived to achieve teachers' views on the subject of online classes' enhancement in learning; wherein 4.2% of the respondents were strongly agreed by inserting to accept the digital pedagogical enhancement for students' learning, 31.0% respondents agreed, 18.3% respondents were undecided and 46.5% respondents disagreed while other 1.4% respondents strongly disagreed about the positive enhancement of technology in teaching. Analysis denied that digital pedagogy fits not enrich learning whereby (46.5%) as majority disagreed with the statement.

In response to a statement, 5.6% of the respondents were strongly agreed to have an association with all students of urban and rural regions when adopting online teaching, 2.8% of the teachers responded were agreed, 4.2% of respondents were undecided, 39.4% of respondents responded as disagreeing while the majority 47.9% respondents strongly disagreed who failed to be connected with all enrolled students of class through online classes. Certainly, the statement estimated that the administration of digital pedagogy somewhat in Pakistani universities causes challenges to be connected with all students living in urban and rural areas.

As regards preciseness in content delivery online through technologies as compared with physical classrooms, respondents showed their views in which 12.7% were strongly agreed,

49.3% agreed while 7.0% of respondents were undecided and 29.6% disagreed which is considered the majority amongst the respondents and 1.4% respondents were strongly disagree. The statement declared that content delivery in lived classes is summarized instead of structural classes which has been evidenced by agreeing to the statement by 49.3% of the contributors.

About teachers' pre-preparedness and psychologically motivated to teach through technologies, in response 5.6% were strongly agreed who were psychologically motivated to adopt technologies in pedagogy, whereas 36.6% agreed, almost 4.2% undecided, 39.3% disagreed and the majority were not previously motivated to install digital classes, and around 4.2% strongly disagreed. The given statement approved that majority of teachers assumed online pedagogy wherein 39.3% of respondents contrasted the statement.

The study also contrived to refine teachers' perceptions about pre-training for adopting digital classes. In response, 7.0% of teachers strongly agreed to have no pre-training, 28.2% agreed, 4.2% respondents were undecided about the statement while 22.5% disagreed and 38.0% respondents strongly disagreed. In the interpretation of the statement, 38% of respondents as majority denied attaining any pre-training programs to practice digital classes.

In response to a statement which was disseminated to find out the satisfaction level of the teachers in digital pedagogy as compared to face-to-face classroom, reflectively, the result remarked that 1.4% of respondents were strongly agreed about the satisfaction of the digital classes as compared with structural classes and 18.3% teachers were agree, 15.5% were undecided while the majority disagreed and strongly disagree about the statement resulted as 47.9% and 16.9% respectively. The study attested to the issue slightly in huge rank as 47.9% of total respondents contested the satisfaction of adopting technologies in pedagogy.

The satisfaction level with shifting pedagogy from structural classes to digital classes can never ever be suchlike. Such immediate changes showed negative influences on satisfaction levels. The study witnessed whereby 19.7% strongly agreed, 43.7% agreed who assumed a lesser level of appreciation in digital classes rather structured classes and around 12.7% were undecided, 22.5% disagreed while 1.4% of the total respondents strongly disagreed. The majority of respondents (43.7%) showed less satisfaction to adopt technologies in pedagogy.

A statement enquired about the management system of online classes. Respondents narrated as 4.2% respondents were strongly agreed to have no challenges by management of digital classes, 21.1% respondents agreed, 14.1% respondents were undecided, while 52.1% participants were disagree which is the majority who denied the management system, and 8.5% of the respondents strongly disagreed. The majority of respondents (52.1%) outlined negation with regard to the online pedagogy management system.

Table 7. Views Regarding Content Delivery and Sufficiency

S. No	Statements	S.A	A	U	D	S.D
22	Students were satisfy with learning activities through digital pedagogy as had been in conventional classrooms	1 (4.2%)	11 (15.5%)	20 (28.2%)	38 (53.5%)	2 (2.8%)
23	Resources related to content were available which were required for digital pedagogy	1 (1.4%)	21 (29.6%)	5 (7.0%)	42 (59.2%)	2 (2.8%)
24	Digital pedagogical content was easily understandable to the	1 (1.4%)	12 (16.0%)	15 (21.1%)	40 (56.3%)	3 (4.2%)

S. No	Statements	S.A	A	U	D	S.D
	students as were in conventional classes					
25	You were highly confident that students were satisfy with fluency of the content	2 (2.8%)	12 (16.9%)	16 (22.5%)	38 (53.5%)	3 (4.2%)
26	It was hard to assess students satisfaction with presentation of content in digital pedagogy	23 (32.4%)	30 (42.3%)	8 (11.3%)	9 (12.7%)	1 (1.4%)
27	It was hard to satisfy students with digital pedagogical content	10 (14.1%)	45 (63.4%)	3 (4.2%)	13 (18.3%)	1 (1.4%)
28	Digital pedagogy interfered with your ability to concentrate and think deeply about content	19 (26.8%)	26 (36.6%)	8 (11.3%)	18 (25.4%)	1 (1.4%)
29	Codification of HEC's provided content was approachable through technology	4 (5.6%)	26 (36.6%)	11 (15.5%)	29 (40.8%)	1 (1.4%)

The above table.7 consists of eight (8) statements that explore teachers' shreds of evidence regarding online content delivery and sufficiency during lived classes. Teachers' sights as regards students' satisfaction with learning through digital classes resulted in around 4.2% of respondents strongly agreeing, 15.5% respondents agreed, 28.2% respondents were undecided, 53.5% respondents disagreed and 2.8% respondents strongly disagreed. More than half participants (53.5%) observed that students were not satisfied with learning activities as opposed to activities in conventional classes.

The interpretation also displayed the challenge of unavailability of resources to process the content in online pedagogy in which teachers responded to diverse extents as 1.4% of the teachers strongly agreed about the proclamation to have digital pedagogical resources, 29.6% agreed, 7.0% of teachers were undecided and the highest population of the instructors 59.2% responded as they disagreed while 2.8 responded as they were strongly disagreeing about the availability of the resources for content delivery. Calculatedly, 59.2% of participants disagreed with having digital pedagogical resources which is one of the flying issues amongst digital pedagogical challenges that the study distinguished.

The understanding level of the learners concerned with content delivery can never be alike in digital classes as equalled to structural classes, correspondingly, participants provided shreds of evidence as 1.4% of respondents were strongly agree, 16.0% agreed, 21.1% were undecided, 56.3% disagreed that the level of understanding of students related to content delivery is not easy as much as in conventional classes and 4.2% of the respondents strongly disagreed. Consequently, the majority with 56.3% of total respondents disagreed about the statement, hence, the study resulted that students can comprehend content easily in face-face pedagogy as compared to digital pedagogy.

From the perspective of teachers', students' satisfaction with content fluency was marked wherein 2.8% of instructors were strongly agreed, 16.9% agreed, 22.5% were undecided, 53.5% majority disagreed and 4.2% strongly disagreed about the stated statement. Resultantly, though the content is delivered effectively grasping the students' contentment toward content fluency is a challenge which the study imaged by analyzing results where the majority of the population (53.5%) could not judge the students' satisfaction as regards content fluency.

Assessing the students' satisfaction during the online content presentation, intentionally, the

study explored wherein 32.4% of teachers strongly agreed, 42.3% teachers agreed, 11.3% of teachers were undecided about the statement, 12.7% of teachers were disagree who confronted difficulties to assess students' satisfaction and 1.4% of the teachers were strongly disagree regarding stated idea. The study explored that 42.3% as majority revealed that assessing satisfaction is a difficult task throughout digital classes.

Many explorers surveyed the issues of students' dissatisfaction toward digital pedagogical content, correspondingly, the study originated that 14.2% of respondents strongly agreed about satisfying students with the online instructional system, 63.4% agreed, 4.2% were undecided, 18.3 % disagreed while 1.4% of the participants strongly disagreed about the statement. Ultimately, the study found out that more than 63% of total respondents found it hard to satisfy students with online content.

Besides, digital pedagogy is with its own potential and weaknesses. Digital teaching grafts its own doctrines which modify some natural capabilities of teachers. Regarding, changing the natural capacities of the pedagogues, wherein 26.8% of respondents strongly agreed that digital pedagogy substituted innate competencies of educationists; whereas 36.6% of respondents agreed which is widely held considered as the majority, 11.3% of respondents were undecided, 25.4% respondents disagreed, and 1.4% of the respondents strongly disagreed about the statement. Exceedingly, the majority of teachers (36.6%) documented accommodating delays of digital pedagogy with teachers' ability to deliver content.

Nevertheless, with the exception of textual demonstration, some areas of the content like showing photographic content and playing ideational videos are challenging during online classes. The study explored this challenge wherein 5.6% of respondents strongly agreed, 36.6% agreed, 15.5% were undecided, 40.8% disagreed who faced challenges to delivering content through technologies, and 1.4% of the respondents strongly disagreed about the statement. Whereas, 40.8% of the total population declared that HEC's (Higher Education Commission) provided content was not accessible all through digital classes.

Table 8. Views Regarding Students' Learning Assessment

S. No	Statements	S.A	A	U	D	S.D
30	There was possibility to place formative assessment during digital pedagogy	1 (1.4%)	18(25.4%)	13 (18.3%)	27 (38.0%)	12 (16.9%)
31	It was hard to assess students' mental presentation during digital pedagogy	26(36.6%)	21(29.6%)	4 (5.6%)	12 (16.9%)	8 (11.3%)
32	You were able to measure students' learning during online teaching	2 (2.8%)	22(31.0%)	5 (7.0%)	30 (42.3%)	12 (16.9)
33	You were able to measure students' interest in learning	2 (2.8%)	22(31.0%)	5 (7.0%)	35 (39.3%)	6 (8.5%)
34	You could guess about students' weaknesses and strengths regarding learning	6 (8.5%)	23(32.4%)	7 (9.9%)	30 (22.3%)	5 (7.0%)
35	Students learning could easily be assessed through digital pedagogy	4 (5.6%)	9(12.70%)	14(19.7%)	36 (50.7%)	8 (11.3%)
36	You felt failure to assess students' learning during digital pedagogy	9(12.7%)	34(47.9%)	9 (12.7%)	15(21.10%)	4 (5.6%)

S. No	Statements	S.A	A	U	D	S.D
37	Students were satisfy with digital assessment system	9(12.7%)	7 (9.9%)	27(38.0%)	31 (43.7%)	6 (8.5%)
38	Students were satisfy with overall digital pedagogical process	1 (1.4%)	8 (11.3%)	24(33.8%)	34 (47.9%)	4 (5.6%)

The above table (No.8) contains nine (9) statements as regards teachers' perceptions with reference to students' assessment during digital pedagogy. Regarding placement of formative assessment around 1.4% of teachers strongly agreed who could assess students' learning, 25.4% of teachers agreed, 18.3% of teachers were undecided, 38.0% of teachers disagreed and 16.9% of teachers responded strongly disagree. The statement elucidated that majority of participants (38.0%) disagreed with the deployment of formative assessment during digital teaching.

Correspondingly, views of respondents regarding the difficulty in assessing students' mental presentation during digital classes, wherein 36.6% of participants strongly agreed who faced the challenge to know about students' intellectual presentation, 29.6% agreed, while 5.6% were undecided, 16.9% disagreed, and 11.3% responded with strongly disagree. The statement concluded that most of the population (36.6%) as compared to other options clicked on agree who faced challenges to know about students' perceptual presentation during online teaching.

Teachers' ability regarding assessing students' learning during lived classes; whereby response 2.8% of lecturers strongly agreed, 31.0% of lecturers responded in to agree, 7.0% responses were undecided, and 42.3% of lecturers responded in disagree while other 16.9% responded in strongly disagree. Results underscored that most people (42.3%) refused the statement who felt not able to assess learning.

In response to a statement, contrived to measure students' interests during digital classes, wherein response 2.8% of respondents were able to measure students' interests in learning during digital classes as they responded in strongly agree, 31.0% agreed, 7.0% were undecided, and 39.3% disagreed while 8.5% strongly disagreed about the presented statement and about the measuring students' interests during digital pedagogy. Resultantly, the majority of participants (39.3%) were unable to measure students' interest in learning.

In response to a statement that inquired about teachers' perceptions regard to know the students' weaknesses and strengths during online classes. Wherein response 8.5% of teachers strongly agreed, 32.4% agreed, 9.9% were undecided, 22.3% disagreed and 7.0% strongly disagreed about the stated theme. Consequently, the deployment of assessment in face-to-face classes is appointed to be easy as compared to digital classes.

This study identified that 5.6% of teachers responded as they strongly agreed with placing learning assessments through using technologies in pedagogy, 12.70% agreed, 19.7% were undecided, 50.7% teachers disagreed, 11.4% teachers strongly disagreed. The statement outlined that more than 50% of respondents could not easily assess students' learning indicating it is a challenge in online pedagogy

The findings also explored that some of the teachers entirely failed to place assessments during digital pedagogy; 12.7% of instructors strongly agreed that they could not place online assessments, 47.9% agreed considering the majority of the participants felt inadequacy to judge students' learning, 12.7% were undecided, 21.10% disagreed and 5.6% strongly disagreed about the presented statement. The theme found that the majority of participants (47.9%) felt a deficiency in assessing students.

Assessment through digital pedagogy is an image where the teacher doesn't know the mental presence of the student. Relatively, the statement

resulted that 12.7% of respondents strongly agreed who could/can place a formative assessment, 9.9% agreed, 38.0% were undecided, while the majority of the population 43.7% disagreed about the stem and 8.5% strongly disagreed. Ultimately, 43.7% of respondents disagreed with the statement and clarified that students were not satisfied with the digital assessment system.

The statement stated to analyze the teachers' observations, concerning students' satisfaction with the overall digital pedagogical process, resultantly, 1.4% of teachers strongly agreed, 11.3% of teachers agreed, 33.8% of teachers were undecided, while the highest population was disagree as 47.9% and 5.6% teachers strongly disagreed about the statement. Intentionally, 47.9% of total respondents were frustrated by affirming that students were not satisfied with digital pedagogy.

Table 9. Views Regarding Availability of Hard and Soft

S. No	Statements	S.A	A	U	D	S.D
39	You had all the required soft and hard equipment for digital pedagogy	3 (4.2%)	21 (19.6%)	7 (9.9%)	35 (49.3%)	5 (7.0%)
40	Unexpected errors in connection were challenging to teaching	16(22.5%)	40 (56.3%)	6 (8.5%)	8 (11.3%)	1 (1.4%)
41	Poor internet access and networking affected digital instructions	26 (36.6%)	36 (50.7)	6 (8.5%)	5 (7.0%)	4 (5.6%)
42	Lectures, materials were disconnected by technological errors	15 (21.1%)	41 (57.7%)	4 (5.6%)	10(14.1%)	1 (1.14%)
43	Lectures were disturbed by technological errors	22 (31.0%)	36 (50.7)	5 (7.0%)	7 (9.9%)	1 (1.4%)
44	Internet connection generated barriers to have access to the students	27 (38.0%)	33 (46.5%)	2 (2.8%)	9 (12.7%)	1 (1.4%)
45	Students could receive the learning materials through the platform you used	2 (2.8%)	32 (45.1%)	13(18.3%)	20(28.2%)	4 (5.6%)
46	All required instructional resources were available	9 (12.7%)	20 (28.2%)	7 (9.9%)	22(31.0%)	13(18.3%)

Table 9 comprises eight (8) statements that enlighten respondents' views regarding hardness and softness that interfered with educationists throughout digital pedagogy.

Productively, In response to the first statement, 4.2% of respondents were strongly agreed who had the hard and soft pedagogical resources, 19.6% agreed, 9.9% respondents were undecided, 49.3% disagreed which is the highest number of the respondents and 7.0% respondents strongly disagreed. Eventually, the result acknowledged that almost 50% of respondents faced challenges from technical and soft equipment to track on-screen classes.

The study further raised rapid unexpected errors in connection during online classes; wherein response, 22.5% of respondents strongly agreed about the statement, 56.3% of respondents were agree, 8.5% respondents were undecided, and 11.3% of respondents disagreed while other 1.4% of respondents strongly disagreed. In due course, analysis equipped that 56.3% of respondents faced challenges of sudden miscues of connection during online classes.

Regarding poor internet connections and network, around 36.6% of respondents strongly agreed that they had poor internet connection which broke the efficacy of digital classes, 50.7% agreed that immediate errors in connection disturbed the lectures, 8.5% teachers were undecided, 7.0% of respondents disagreed but other 5.6% respondents strongly disagreed. Statement cleared up that more than 50% of respondents faced the issue of poor internet connections.

One of the launched statements editorialized the issue of disturbances in lectures' materials due to poor connections while virtual classes whereas 21.1% of the total participants strongly agreed who faced confusion while online classes and the highest number of teachers 57.7% agreed, 5.6% were undecided, 14.1% of the participants disagreed and 1.14% participants strongly disagreed toward the statement. Statement cleared up that the majority of the population (57.7%) agreed for unlooked miscues in connection which caused challenges connecting with learners.

Familiarly, responses concerned with encountering disturbances in lectures materials during digital classes wherein 31.0% of teachers strongly agreed, 50.7% teachers agreed, 7.0% teachers were undecided, 9.9% disagreed and 1.4% strongly disagreed about the statement. Consequentially, 50.7% of respondents encountered issues with connecting lectures properly with learners while online classes.

A statement was dispersed to quantify teachers' perceptions regarding barriers to internet connections that interfered with teachers' to access the students during digital pedagogy; whereby in response, 38.0% of respondents strongly agreed, 46.5% respondents were agreed, 2.5% respondents were undecided, 12.7% respondents disagreed and 1.4% respondents strongly disagreed about assumption. Respondents declared it a challenge because the majority of the population (46.5%) responded by clicking on disagreeing due to internet connections to approach the students.

For accession of learning materials for students through application, wherein 2.8 respondents strongly agreed, 45.1% of respondents agreed satisfying students by making them available all content materials, 18.3% respondents were undecided, 28.2% respondents disagreed, and 5.6% respondents strongly disagreed. The statement identified it as not slightly an issue because the majority (45.1%) affirmed that students were able to receive learning materials through the under-utilized application.

The study interpreted the issue of unavailability of resources in which 12.7% of respondents were strongly agreed who had required digital pedagogical resources, 28.2% of respondents agreed with the theme, 9.9% of respondents were undecided, the majority disagreed with 31.0% who faced unavailability of pedagogical resources and 18.3% respondents strongly disagreed as for given statement. The study detected the unavailability of digital pedagogical resources as a challenge because the majority (31%) declared it by marking disagree.

Discussion

The results of this study critically expressed challenges on a huge scale in spite of the possibilities of digital instruction in Pakistani higher education institutions. Some foregoing findings gave out vital insights into the prospects of this study.

As a consequence of the analysis of this study, the majority of teachers showed dissatisfaction regarding the adoption of technologies in pedagogy while COVID-19 in Pakistani higher education sectors. The findings of the analysis were in line with the prior findings of Sahin and Thompson. They opined that on the ground of administration, there is a positive impact on the utilization of technology but for instructional utilization, the frequency of its practices is not reliable because there is a need for two way interaction. Moreover, for the effectiveness of remote teaching, there is a need for training. The successful adoption of technology in pedagogy depends just not upon

entirely enough access to pedagogical tools, whereas, the provision of sufficient technical training is what makes it purposeful. Nonetheless, this study as well-articulated nonexistence of teachers' technical training/pre-training which is one of the vital mechanisms of adopting online pedagogy. The analysis has ranked it amongst the uttermost challenges. These findings have an association with the revealed challenge of Schrum (1999) who voiced out teachers' pre-training as per crucial constituent of online teaching. Similarly, another research study was conducted by Becta (2004) with reference to the utilization of digital technology in education. The analysis resulted in which one of the identified three problems, was a lack of teachers' pedagogical training. The analysis of the responses also identified wherein the majority of respondents strongly preferred physical classes as compared to digital classes, reason can merely be dissatisfaction with the sudden adoption of online teaching. Correspondingly, it was in the line with previous findings of Iqra University Islamabad in Pakistan which documented that 72.2% of respondents favoured face-to-face instruction in contrast to online classes. Similarly, Sidique, (2003) proclaimed that developing a digital learning system is more time-consuming rather than planning physical classes.

On the other side, the results of the analysis also revealed slightly positive impacts as most of the respondents were satisfied as to create a collaborative learning environment throughout the deployment of technologies in online pedagogy. However, this finding is inconsistent with the previous study as Vladimir, (2015) stated that the adoption of technology in teaching is with deficiency of collaborative learning.

Moreover, the majority of respondents' perceptions were destructive regarding students' learning assessments while online teaching. A similar issue was expounded by UNESCO that few countries are monitoring effective grip to practice technologies during COVID-19 but this implementation doesn't gauge learning assessment. Among the challenges in adopting online teaching, the placement of online assessment and assessing learners' behaviour are challenging tasks for a teacher while instructing (Metcalfe, 2020; Yang, 2020; Guangul et al., 2020; OECD, 2020). Additionally, it is also difficult to assess real/concrete knowledge and skills of learners while online teaching (OECD, 2020).

Conclusion

The unexpected conversion of traditional teaching into the new paradigm, due to the blow-out of the pandemic, stimulated teachers to instantly adopt a digital teaching system to exercise courses. Such a hasty shift in the instructional process constrained teachers into massive challenges due to several inadequacies, fundamentally, teachers' pedagogical training and scarcity of prerequisite and requisite resources.

Suggestively, Higher Education Commission (HEC) should set up teacher pre-service training for those recently hired teachers as regard adopting technology to stabilize digital classes. In addition, the supervisions of the establishments should give precautionary measures on the accessibility of teaching aids to glance and furnish teacher training programs on monthly basis to smooth online pedagogy. Moreover, authoritative should certainly invest in efficient infrastructures to constitute instructional strategies and to provide proper internet connections to overcome teachers' obstacles associated with online classes so as to respond meritoriously against such circumstances in higher education.

Limitations and Future Study Suggestions

The study has been conducted in three universities in the Baluchistan province of Pakistan. Due to the shortage of time and lack of resources, the study couldn't be set on other campuses to outline teachers' challenges, except the Lasbela University of Agriculture, Water and Marine Sciences (LUAWMS) Uthal, the University of Turbat and the University of Balochistan, Quetta. For more clarification, the study advocates being conducted broadly on

other campuses in Pakistan. Moreover, this study was quantitative in terms and conditions which definitely have deficiencies whereas the qualitative mode of research allegedly exploits better these concerns. Furthermost, this study identified the negative side of the affections of COVID-19 on online pedagogy. Moreover, the objectives of this study can be shifted to discover worthwhile opportunities for digital pedagogy which is one of the inadequacies of this study.

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