Exploring E-Learning Barriers of University Students during COVID 19 Pandemic

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The COVID-19 pandemic compelled universities to switch from physical modes of teaching to online modes. This study aims to discover online learning problems of students enrolled in Public Sector Universities of Pakistan during the pandemic. Participants had undergone a complete online semester during the worldwide disaster. Information technology, computer science, mathematics and statistics, English language and literature students were participants of this study. A Google Forms questionnaire was used for data collection. It was the best fit and most feasible method for this study because students were away from campus due to the second wave of COVID. Students enrolled in all four degree programs were invited to participate in this survey. One hundred and twenty (120) students participated. Statistical Package for Social Sciences (SPSS) software was used for computing percentages. Findings revealed that *'poor computer literacy, load shedding of electricity, slow internet speed, expensive internet packages and lack of interaction between student-teacher'* were online learning problems of learners in E-teaching. Results may guide and assist in improving online teaching in Pakistan. Additionally, they may assist academics and administrators formulating effective policies for developing effective online education mechanisms in Pakistan.

Key words: *E-Learning Barriers, University Students, Pandemic, COVID-19*

1. Literature Review

The Coronavirus-19 pandemic endangered the entire education system around the world. It forced closure of academic activities for a prolonged period of time and still it endures. Universities had the single option of switching to online teaching modes. Online learning offers opportunity to attend classes (Cojocariu et al., 2014) and it warrants safety and security of students. Online teaching provides privilege e.g. lectures are easily accessible, connecting students through video conferencing, and viewing recorded lectures at any time. Not only this, but students can submit assignments (Basilaia et. al, 2020). Online teaching has remained challenging for academic institutions (Carey, 2020). There are numerous reasons for this but mainly because public sector universities of Pakistan possess poor infrastructure, skilled staff and e-resources. Because of these reasons, online classes were a tough task for many universities of Pakistan. Universities led surveys on faculty and students ratifying whether students and faculty possess computers, laptops and mobile phones along with internet facilities. Universities designed a proforma survey and it was circulated among faculty and students then submitted to the IT section of the university before starting E-teaching classes. Google classroom, Gmail, YouTube and Microsoft Teams were found suitable for online classes. This computer software was deemed the appropriated alternative to physical classrooms (Basilaia et. al, 2020).

The Higher Education Commission of Pakistan emphasized universities for witnessing standardized SOPs to online readiness. Guideline principles were dispensed namely "the university, the course, the faculty, the library, the technology, the examination, the laboratory, and the student". (i) SOPs for course approval, evolving learning management system (LMS) and developing governance system for complaints resolution, (ii) providing erstwhile information about course introduction to students, learning objectives, evaluation, grading policy, course prerequisites, course requirement, textbooks, key dates, time and venue of class meetings, lesson plan, assignments, and course handouts (iii) faculty should be informed that online teaching is different from physical classroom teaching, therefore special focus be paid on e-teaching attributes, challenges, opportunities, techniques, and supporting resources (iv) students should avail full access to course material, audiovisual materials, literature and course topics (v) online teaching requires special technical packages e.g. computer software and conduct of examinations (vi) keep close contact with students, they have no internet access or face load shedding of electricity problem (vii) evaluation and assessment, online education parameters are different from traditional script assessment and (viii) laboratory and practical instruction. Literature survey on online teaching depict many barriers for example, poor computer literacy, electricity load shedding, slow internet speed, expensive internet packages, lack of interaction between student-teacher and student motivation.

1.1   Poor Computer Literacy

Poor computer literacy is a barrier for students because they are not well trained in IT skills, computer applications and software use. Technical difficulty is a barrier to online learning of students (Song et al., 2004) because students are poorly educated and trained in e-learning competencies (Parkes et. al, 2014). Technical difficulties affect online learning process of students (Favale et. al, 2020) since the majority of university students are not proficient in computer/ IT skills. A literature survey reveals that students face difficulty in using e-learning systems (Almaiah and Alamri, 2018; Almaiah and Alyoussef, 2019); Al-Araibi et. al, 2019); Mtebe and Raisamo, 2014).

2.2 Load Shedding of Electricity

Load shedding of electricity is a serious problem in Pakistan in this modern age of digital technology. The power sector of Pakistan faces acute shortage of electricity which has badly affected the economic and academic sector of the country. Not only this, but it has adversely affected the industrial sector of the country too. Muhammad Tahir et. al (2012) stated that power break downs in Pakistan sometimes last for 12 hours in a day. Pakistan is an agricultural country and its major population dwells in rural areas. Their source of income is agriculturally based and the children of these poor people seek education from public sector. universities of Pakistan since they cannot afford exorbitant fees of private sector universities. Studies of Hussain (2007); (Sangi (2008); Voogt, (2009); Nagunwa and Lwoga (2012); Sana and Mariam (2013); Nwabufo et. al, (2013) reveal that load shedding is a serious problem towards effective online learning for students.

2.3 Slow Internet Speed

Internet packages offered by warehouses in Pakistan are costly compared to foreign countries and are never up to international standards. IT companies claim high internet speed but consumers are never satisfied by it and they have various complaints. Slow internet speeds result in students being unable to run required computer software and they miss continuity of online lectures. Low internet speed is an issue in remote areas of Sindh province, and 33% students are unable to attend online sessions due to non-availability of internet (Waqar, 2020). In this perspective, the Higher Education Commission (HEC) should partners with telecommunication companies to ensure internet in remote areas (Samreen Mahmood, 2020). Literature also reveals that poor IT infrastructure is a major issue in e-learning (Rafiq, Hussain, & Abbas, 2020). Students cannot afford broadband services facilities (Malik, 2020) since they come from low socio economic segments of society. Poor students of rural areas do not possess personal laptops (Waqar, 2020). Studies of Eltahir (2019), Esterhuyse and Scholtz (2015), Islam et. al, (2015), Al-Azawei et. al, (2016), Rafiq, Hussain, and Abbas (2020), Waqar (2020) indicate that low internet speed is an impediment to online learning of learners.

2.4 Expensive Internet Packages

Telecommunication companies charge exorbitant rates for the internet from students in Pakistan. Online classes have put financial burden on poor students. Factually speaking, students are unable to bear internet expenses so in certain instances they miss online classes. The situation is that they can hardly pay tuition fees, so how can they afford expensive internet expenditures for online classes that last around 6 hours a day. The possible solution can be that the government of Pakistan should announce scholarships for such needy and deserving students and scholarships should be fairly distributed among deserving and needy students. Expensive internet packages are barriers towards online learning of students (Kipsoi et. al, 2012; Callinan, 2014; Marzilli, et. al, 2014; Dogan, 2015).

2.5 Lack of Interaction between Student-Teacher

Effective learning is based on interaction between teachers, learners, and learning content (Sher, 2009; Garrison, 2005, Meyer, 2002). Face-to-face communication between students-teachers is an important aspect of teaching and learning around the globe. Because, nonverbal communication forms more than 55% of communication understanding in physical classroom teaching. Absence of face-to-face communication is ineffective in online learning from different perspectives, since it splits student-teacher. This communication divide leads to communication barriers in the shape of absence of facial expressions, eye contact, gestures and postures. Soft speaking is good for students because it allows students to take notes (Bao, 2020). Teachers should give importance to appropriate volume of voice so that students can hear and understand lectures appropriately.

2.6 Student Motivation

Motivation is based on certain dynamics that leads towards failure or success (Mao, 2011). Motivation aids attainment of goals (Ochsenfahrt, 2012) and students should always be motivated to accept new challenges in academia for effective learning of knowledge. Motivation is of two types intrinsic and extrinsic. Intrinsic motivation arouses within self and it gives birth to curiosity, desire and strong feelings whereas; extrinsic motivation arouses from outer forces that drive desire for learning (Kong, 2009). Motivation has four elements: goal, effort conduct, attitude, and desire in achieving fixed goals (Pintrich & Schunk, 2002). Dornyei et.al, (2010) view is that motivated students achieve higher grades compared to low motivated students. According to Gardner (2010) individual actions are influenced by a desire to fulfill tasks efficiently. With this background the current study aims to explore this research question: What are the online learning problems of students during the COVID-19 pandemic?

2   Research Methodology

3.1 Data Collection Method

The instrument used for data collection was an online questionnaire. "Google forms" was applied to develop the questionnaire and the link was posted on various WhatsApp groups of students. Researchers also approached teachers of concerned departments encouraging students taking part in this survey. The questionnaire was developed from the literature review survey. Researchers took guidance form studies of Almaiah and Almulhem (2018), Al-Araibi et al. (2019), Nagunwa & Lwoga (2012) Sana & Mariam (2013), Eltahir (2019), Al-Azawei et al. (2016), Rafiq, Hussain, & Abbas (2020), Waqar (2020), Kipsoi et. al, (2012), Callinan (2014), Marzilli, et. al, (2014), Dogan (2015), Rezaei Mood (2006), Sher (2009), Garrison (2005), Meyer (2002), Johnson et. al, (2000), Hepworth & Duvigneau (2013), Nwabufo et. al, (2013), Alajmi (2014) and Gutiérrez-Santiuste & Gallego-Arrufat (2016). A purposive sampling technique was engaged. Purposive sampling involves personal judgement in selecting cases that are able to answer the research questions (Dudovskiy,2018).

3.2 Questionnaire Design

The questionnaire consisted of two sections. The first section contained participant demographic information. In this section, 8 questions were asked including gender, educational level, age, field of discipline, information about mobile/laptop, years using mobile/laptop, operating system of smart phone, and daily use of internet hours. The second section contained statements about poor computer literacy, load shedding of electricity, slow internet speed, expensive internet packages, lack of interaction between student-teacher and student motivation. Students from the department of Information Technology, Computer Science, Mathematics and Statistics and English language and literature participated in this survey. A five point Likert scale was used (strongly disagree=1, disagree =2, neutral=3, agree=4, strongly agree=5). The questionnaire validity was obtained from language and information technology experts.

3.2 Sample

Information Technology, Computer Science, Mathematics and Statistics and English language and literature students were invited to participate in this online survey. All students had undergone a whole semester of online classes. Thus, they were well familiar with online teaching barriers. One hundred twenty (120) students participated in this survey.

3   Data Analysis

Statistical Package for Social Sciences (SPSS) software was used for analysing the data and computing results of each variable in percentages. They are presented in the figures below:
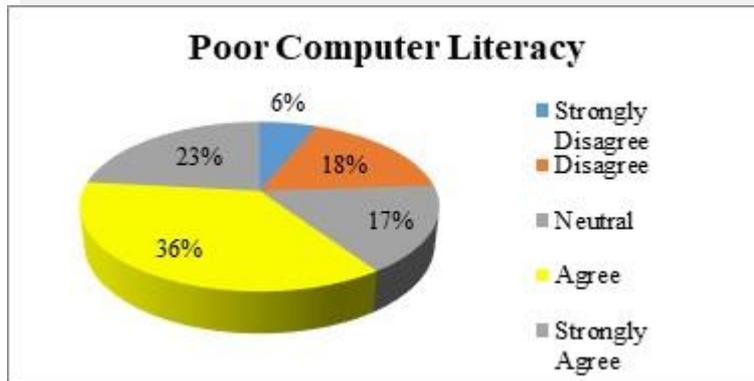
Figure 1: Poor Computer Literacy as an E-learning barrier for University Students

Figure 1, shows that 6% participants strongly disagreed, 18% disagreed, 17% remained neutral, 36% agreed and 23% strongly agreed that poor computer literacy is E-learning barrier for online learning.
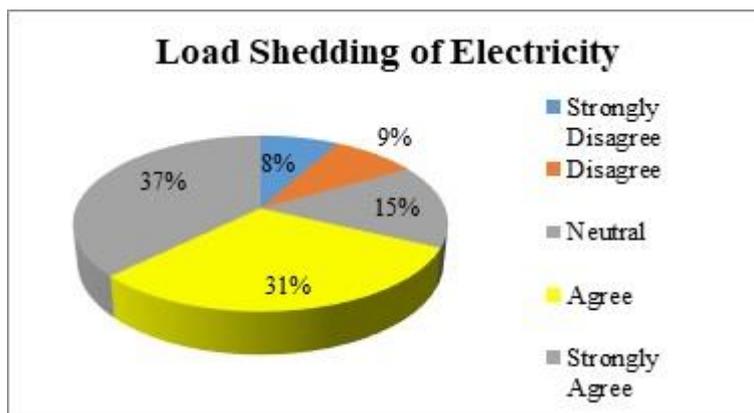

Figure 2: Load Shedding of Electing as E-learning barrier

Figure 2, shows that 8% respondents strongly disagreed, 9% disagreed, 15% remained neutral, 31% agreed and 37% strongly agreed that load shedding of electricity is a barrier for online learning.
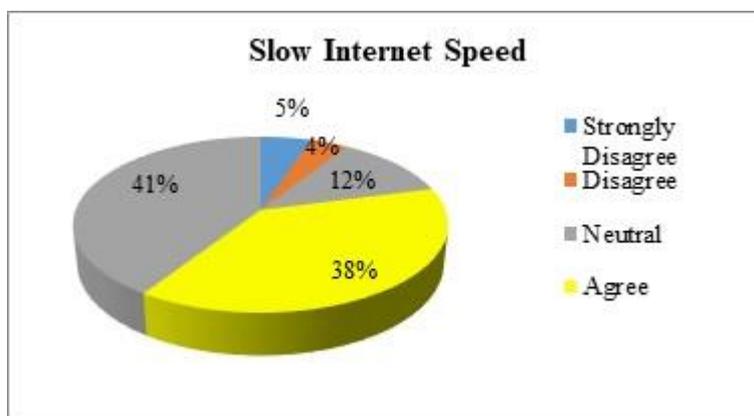

Figure 3: Slow internet speed as E-learning barrier

Figure 3, exhibits that 5% participants strongly disagreed, 4% disagreed, 12% remained neutral, 38% agreed and 41% strongly agreed that slow internet speed is a barrier for online learning.
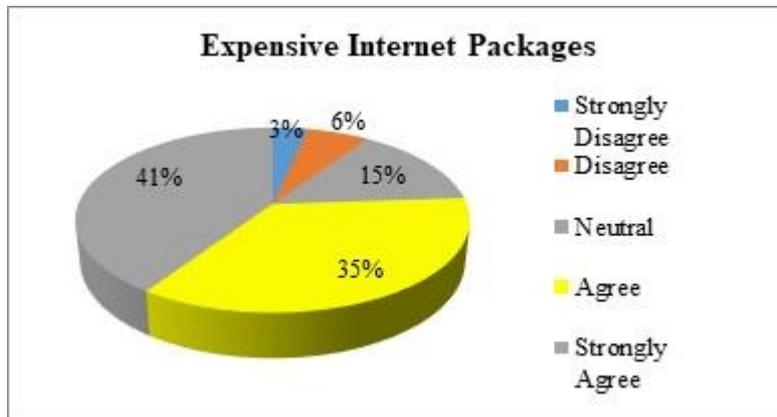

Figure 4: Expensive internet packages as E-learning barrier

Figure 4 demonstrates that 3% participants strongly disagreed, 6% disagreed, 15% remained neutral, 35% agreed and 41% strongly agreed that expensive internet packages is a barrier for online learning.
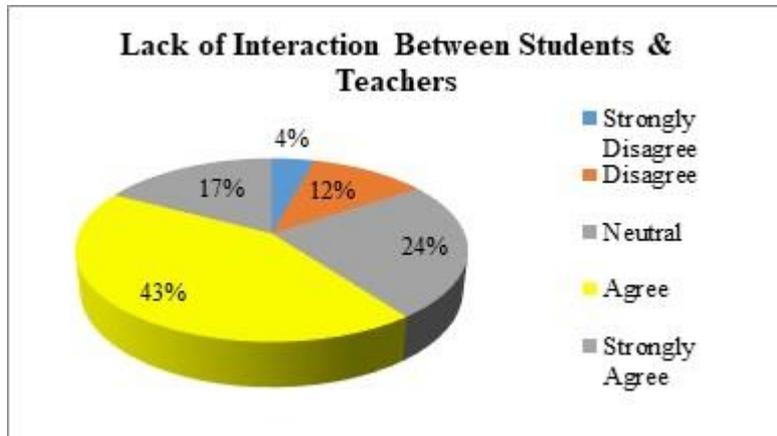

Figure 5: Lack of interaction between Students - Teacher as an E-learning barrier

Figure 5, indicates that 4% participants strongly disagreed, 12% disagreed, 24% showed neutrality, 43% agreed and 17% strongly agreed that lack of interaction between student-teacher is a barrier for online learning.
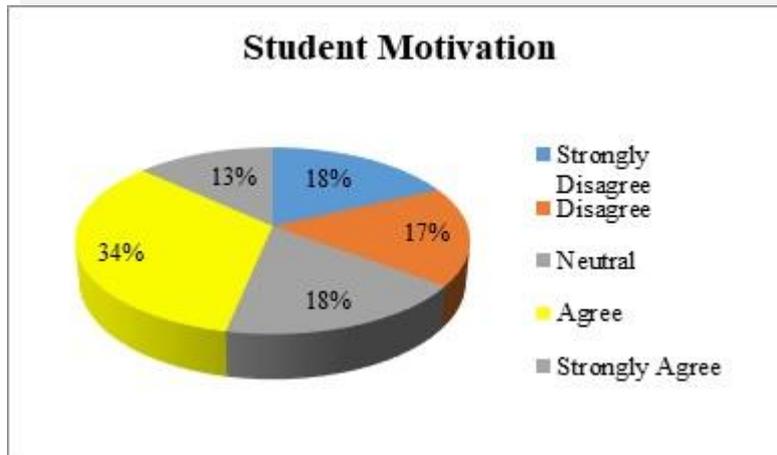
Figure 6: University Students' Motivation for Online Learning

Figure 6 exhibits that 18% students strongly disagreed, 17% disagreed, 18% showed neutral position, 34% agreed and 13% strongly agreed that they are motivated for online learning.

5 Discussion

Study results revealed that poor computer literacy, load shedding of electricity, slow internet speed, expensive internet packages, and lack of interaction between student-teacher were barriers towards online learning for students. On the other hand, students considered online learning as helpful and positive. Since online classes were the first experience of students thus, they faced multifarious problems. They faced difficulty in downloading new computer software and installing on laptop/ mobiles. This shows that universities do not impart effective computer or information technology training to students or up skilling in computer technology to cope with the future challenges of information technology. Interestingly, participants also belonged to information and computer science departments. It means university education mainly focuses theoretical classroom lecturing compared to practical knowledge. Further, it emerged that students are simply trained in computer skills thus, they can only type course materials and assignments on a computer.

Load shedding of electricity is a barrier for students towards online learning in this fast growing age of information technology. Load shedding of electricity disturbed online classes thus, online education is currently aspirational in Pakistan. Online classes go for longer hour thus; students find it difficult for charging mobile and laptop batteries. Moreover, power fluctuation and low voltage of electricity was recorded as a barrier as well. It is mentioned that the distribution system of electricity in Pakistan is not fair thus, students who reside in rural areas suffer more compared to urban areas. Online education is internet based thus, slow internet speeds act as a barrier for online learning. Slow internet speed psychologically upsets students when online classes are going on or examinations are being conducted. Students have to submit answer scripts within scheduled prescribed time and in case of slow internet speeds students cannot upload examination scripts in a timely manner. As a result, they may lose examination

marks. Internet companies in Pakistan never provide quality internet speed as per international standards although they charge high internet rates from customers in Pakistan.

Students cannot afford exorbitant rates of internet packages for online classes whereas; online classes require maximum internet use. Unfortunately, there are no attractive alternatives for buying economic internet packages in Pakistan because there is a limit of companies who are operating this business in the country. In this situation, the Higher Education Commission of Pakistan should allocate handsome funds to facilitate students for promoting online education in the country. Moreover, it is the responsibility of universities to support students and provide adequate internet facilities since they charge internet fees from students in each semester. Results further revealed that there is a lack of interaction between students-teachers in online mode of classes. Online teaching is a structured mode of lecturing in which teacher speaks monotonously and students listen passionately. This is because, teachers and students are not familiar with computer software used for online teaching. The teacher is afraid that something unexpected could go wrong and their major focus remains on completion of the lecture. Therefore, the teacher gives little access to students for debate and discussion on the topic.

Although there are certain barriers to online learning, students were found to be positive about online teaching and learning. They opined that teachers encouraged them for active participation in online classes. Teachers provide them feedback if they need any further information. Online classes facilitated students while sitting at home and saved meant they did not lose their semester of learning. Time is money from a management point of view and graduates need jobs to start a professional career. Additionally, students were motivated in online learning because at the end of course teachers provided them with ready- made handouts for the course that was taught. The results of this study are in line with results of other studies such as Almaiah and Almulhem (2018), Al-Araibi et al. (2019), Nagunwa and Lwoga (2012) Sana and Mariam (2013), Eltahir (2019), Al-Azawei et al. (2016), Rafiq, Hussain, and Abbas (2020), Waqar (2020), Kipsoi et. al, (2012), Callinan (2014), Marzilli, et al. (2014), Dogan (2015), Rezaei Mood (2006), Sher (2009), Garrison (2005), Meyer (2002), Johnson et. al, (2000), Hepworth & Duvigneau (2013), Nwabufo et. al, (2013), Alajmi (2014), and Gutiérrez-Santiuste & Gallego-Arrufat (2016).

6   Conclusion

This research contributes towards overcoming e-learning barriers in Pakistan. It affected online learning of students in Universities of Pakistan during COVID-19 pandemic as reported by students. Findings present contribution for teachers, academics, executives and administrators working in universities of Pakistan for reviewing e-learning systems of education in Pakistan. COVID-19 may linger for a long time as the second and third wave has started in the country. Moreover, results of this study can assist Higher Education Commission (HEC) Pakistan for preparing effective policies and strategies in facilitating e-learning and teaching in Pakistan.

Findings identified certain barriers that affected online learning of students in universities of Pakistan. Results endorsed other researchers' understanding about e-learning systems that face multiple challenges; they need to be redressed to benefit various stakeholders. Policy makers working in Higher Education sector of Pakistan can benefit from these findings since it portrays a clear depiction of problems encountered by students during the pandemic. This could be taken as a guideline for introducing effective e-learning system of education in Pakistan.

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