

Pedagogical Shift: Faculty Insights about E-Teaching Barriers during COVID Pandemic

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The rationale of this study was exploring faculty insights about online teaching barriers that they faced during the pandemic. Respondents had experience of a full semester e-teaching during the first wave of COVID-19. Google Forms questionnaire was the data collection tool and the study was quantitative in nature. The method and mode of data collection was questionnaire link that was posted on various WhatsApp groups owned by university teachers. University faculties pertaining to all disciplines of academics were invited for participation. One hundred and nine (109) faculty members participated in this survey. During the data collection period the faculties were away from campus due to second wave of Coronavirus in Pakistan. SPSS software was used for data analysis and data was generated in percentages against each variable included in the questionnaire. Findings demonstrated that faculty acceptance of e-learning technologies, faculty development towards online technology, lack of ownership, engaging students online, administrative support, and load shedding of electricity were barriers that impeded online teaching in universities of Pakistan.

Key words: *E- teaching Barriers, Faculty Insights, Pedagogical Shift.*

1. Literature Review

The Coronavirus pandemic badly affected the entire education system of the country. The second wave of virus seems to be more hazardous since large numbers of deaths were reported in print and electronic media. Academic activities had just resumed in the country but again the government of Pakistan announced suspension of academics due to second wave of virus. Universities having previous experience of online classes considered to resume online classes. But due to students' resistance this idea could not be materialised. The concern that surfaced from various corners was that e-learning and teaching is never useful for students since it is full of problems, impediments and issues. Developed countries of the world long ago switched to online mode of teaching because of their strong ICT infrastructure and expertise of IT experts. Universities have to redress barriers that impact on effective online teaching and learning. Universities can obtain feedback from faculty and students to redress online teaching and learning since they were actively involved in this process. It is the responsibility of universities that high-quality education is provided to learners (Chen et al., 2010). Online education provides an opportunity to students that they can join classes from their place of living (Cojocariu et al., 2014). Moreover, lectures can be accessed easily and assignment can be submitted by students (Basilaia et al., 2020). Teachers shall be able to take online tests, conduct examinations and award grades. However, this mode of assessment can be faulty since the quality of submitted answer scripts is compromising. Uploaded material can be kept as permanent record (Allen, 2011) and students can access and use it for examination and viva-voce purpose. Google classroom, Gmail, YouTube, Facebook, WhatsApp and Microsoft Teams are various online modes of teaching. They are alternatives to physical classrooms (Basilaia et al., 2020). This paper attempts to get faculty insights about online teaching barriers that they encountered while engaging online classes during the pandemic. Based on literature review several online teaching barriers are researched in this article.

1.1 Lack of Information Technology (IT) Skills of Faculty

A literature review on e-learning has identified several barriers and technological barrier is one of them. Traditionally, faculties use computer downloading course material from internet and email communication before COVID-19. The research culture in universities of Pakistan is not at its pinnacle although Higher Education Commission of Pakistan pushes universities to excel on this ladder for the last two decades. The Doctoral faculty ran behind administrative assignments and it has become a common culture in public sector universities of Pakistan. Administrative assignments provide protocol to teachers but it pushes them back on the academic front. Unfortunately, faculties that enjoy good academic track record are not rewarded due respect and protocol and it is a tragedy within the Pakistani nation. Thus, the academic fraternity is less bothered to advance in academics and research except a few who want to serve the nation without any lust and loath. Technological difficulties, poor access to computers, and awareness about computer literacy are barriers towards implementation of e-learning in Pakistan (Qureshi Ijaz et al., 2012). System characteristics, internet experience and

computer self-efficacy impede successful implementation of e-learning system in Pakistan are findings of (Kanwal et al., 2017). The Mulhanga and Lima (2017) study found poor IT skills as a barrier to implementing e-learning projects successfully. Technological issues were barriers for e-learning system success as explored in a study of Al-Araibi et al., (2019). Weak Information and Communication Technology (ICT) knowledge is a challenge in underdeveloped countries (Aung & Khaing, 2015). Low internet bandwidth, lack of ICT access and poor ICT skills are barriers (Touray et al., 2013) in higher education institutions.

1.2 Faculty Acceptance of E-learning Technologies

Faculty acceptance of e-learning technologies plays a paramount role in imparting quality education. Despite impediments and barriers e.g. poor online learning and teaching systems, faculties managed online classes successfully. In the online learning environment, teacher's role is motivating, facilitating, guiding and supporting (Ozdamlia et al., 2011). E-learning contributes towards use of technology (Qureshi Ijaz et al., 2012) thus, teachers must learn e-learning technology skills to conduct online classes successfully that maximally benefit students. Faculty technical knowledge, student computer systems knowledge and technical infrastructure facilitate e-learning (Alhabeeb & Rowley, 2017). User's internet experience will promote acceptance of e-learning technologies (Picciano & Seaman, 2007). In this perspective, faculties and students should be proficient in IT/Computer skills to meet academic challenges of the time.

1.3 Faculty Development

Faculty development is an essential part of academics. Skilled faculty in terms of technical, teaching and communication skills guarantees imparting quality education to learners. As a result, graduates equipped with core technical and academic skills play an indispensable role in the corporate sector and it improves the economic growth of the country. Professional development topics need to be part of faculty training, classroom design and learning processes (Mohr & Shelton, 2017). Online professional development studies related with faculty trainings focus online course delivery (Barker, 2003; Gunay, 2013; Keengwe & Georgina, 2011) and professional development studies on distance education should focus faculty mentorship programs (Childre & Van Rie, 2015). There is dearth of research about faculty online teaching experiences and preparedness specifically in the context of Pakistan. Existing literature on online faculty teaching skills presents a very bleak picture.

1.4 Lack of Ownership

Ownership plays paramount role for success of any academic project. Teachers' willingness to embrace a pedagogical shift from physical mode to online has remained a matter of discussion among university administrators and academicians. Voices from student corners come that they prefer physical classroom teaching compared to online teaching. Willingness to embrace



change is a major element towards technology (Ertmer & Otterbreit-Leftwich, 2019). Technology opens golden opportunities for students to learn 21st century skills. Technology supports teachers in lesson planning and delivery (Sadegül Akbaba, Kalayci & Avci, 2011) of content. Faculty ownership embracing online teaching is considered as an important change in implantation of e-teaching in Pakistan. Faculty willingness for acceptance of ICT impact on students (Huang & Liaw, 2005) positively. Fear of new technology blocks change (Kisanga & Ireson, 2015) and impedes e-learning and teaching in universities of Pakistan. Lack of e-learning policies, lack of technical skills, lack of interest and commitment were found as barriers in study of Tarus et al., (2015).

1.5 Engaging Students Online

Students of today are known as the digital generation (Wahab Ali, 2018) because they enjoy modern modes of communication such as computers, laptops, mobiles, internet and smart phones. They must be aware about useful use of computer technology and get benefit from technology maximally. Teachers and students are not fully conversant with computer technology and software applications that are needed for promoting e-learning and teaching. Thus, e-learning and teaching are not parallel to the physical classroom teaching despite its numerous benefits. In online teaching it has been best seen that teachers deliver lecture monotonously and students listen to it as one-way traffic mode of communication. Teachers fear that something technically may go wrong with computer software and affect delivery of their lecture. Thus, the teacher's main focus usually remains on successful completion of required number of lectures. Moreover, teachers pass on information and consider that they have successfully performed their academic duty. Students consider that they have attended required number of lectures and they are eligible for appearing in semester examination since they have acquired required number of attendances. Few studies have researched online engagement of students (Chen et al., 2010) in online teaching and learning. Students have mobile phones but they use it for social media and text messaging (Jesse, 2015). E-learning facilitates interaction between students and teachers (Wang et al., 2009) and professional and experienced teachers understand teacher-student interaction and communication importance. Healthy academic discussions always cultivate student minds and make them good human capital for the society.

1.6 Administrative/Managerial Support

COVID-19 brought multiple challenges for university administrators for implementing e-learning and teaching policies. This system of education was very new for many universities of Pakistan and it was full of challenges. Faculty and student support assisted universities for managing online classes successfully during pandemic. The Wilson and Neema (2016) study found that higher learning institutions had no e-learning policy thus, they faced lack of technical and managerial support. Various studies indicate e-learning challenges for universities which impede effective e-learning and teaching, and technical and managerial



support (Mtebe & Raisamo, 2014; Mtebe & Raphael, 2013). Teachers play role of facilitator when there is a move from teacher-controlled environment to learner controlled environment (Geng, Law & Niu, 2019). In such a scenario academicians and administrators play a role in implementing e-learning and teaching policies in universities to benefit multiple stakeholders.

1.7 Load Shedding of Electricity

Load shedding is a serious issue of underdeveloped countries and it impacts economic and industrial growth of these countries. Pakistan falls short in the energy sector in this advanced era of computer and missile technology. The present government of Prime Minister Imran Khan is focusing on construction of new dams in the country to overcome this energy crisis. Power break downs in Pakistan go up to the limit of 12 hours (Muhammad Tahir et al., 2012) a day. Pakistan is an agricultural country and its major population lives in rural areas. Students and faculties that come from remote areas face frequent power breakdowns. It affects their learning and teaching especially during the days of the pandemic. Online learning becomes a problem due to load shedding (Nagunwa & Lwoga, 2012; Sana & Mariam, 2013; Nwabufo et al., 2013). With this background the current study explores faculty insights about online teaching barriers of university teachers of Pakistan.

2. Method

2.1 Data Collection

Google Forms questionnaire was used as a data collection tool. Questionnaire link was posted on various WhatsApp groups of university teachers. Faculties from all disciplines were invited for participation. The 5-point Likert scale i.e. strongly disagree, disagree, neutral, agree and strongly agree was used for drawing percentages. A questionnaire was developed from an extensive literature review survey about online teaching barriers of faculties during pandemic. Validity and reliability of instrument was validated from fellow researchers serving in the university. The questionnaire was based on two sections. The first section contained demographic information e.g. gender, education, age, field of discipline, information about personal Laptop/Desktop, number of years using Laptop/ Desktop, type of smart phone, and hours of internet use per day. The second section contained statements about: i) lack of IT skills of faculty; ii) faculty acceptance of e-learning technologies; iii) faculty development; iv) lack of ownership; v) engaging students online; vi) administrative/managerial support; and vii) load shedding of electricity.

2.2 Sample

Faculties from universities ranging from Lecturer, Assistant Professor, Associate Professor and Professors were taken as respondents of this study. One hundred and nine (109) faculty

members participated since teachers were away from classes and campus due to second wave of coronavirus.

2.3 Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS). Percentages were drawn against variables included in the questionnaire. Scale values assigned were '5' strongly agree (SA)' and '1' strongly disagree (SDA).

3. Results of the Study

Results of the study are presented in given figures below.

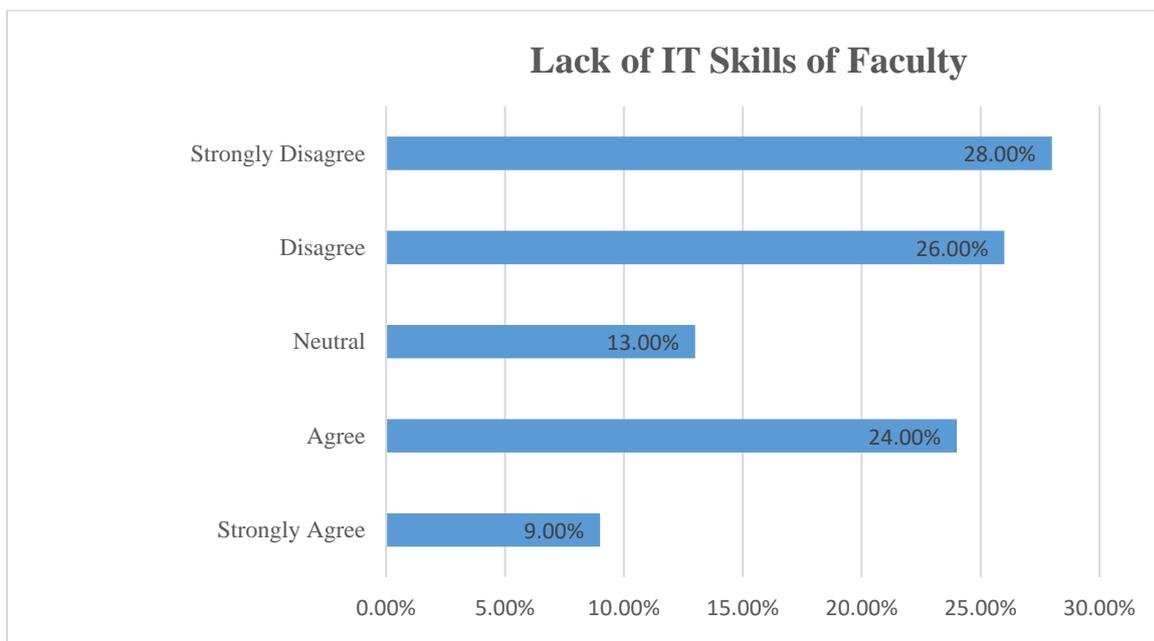


Figure 1: Lack of IT Skills of Faculty

Figure 1 shows that 28% of faculty members strongly disagreed, 26% disagreed, 13% remained neutral, 24% agreed and 9% strongly agreed that teachers possess poor IT/Computer Skills.

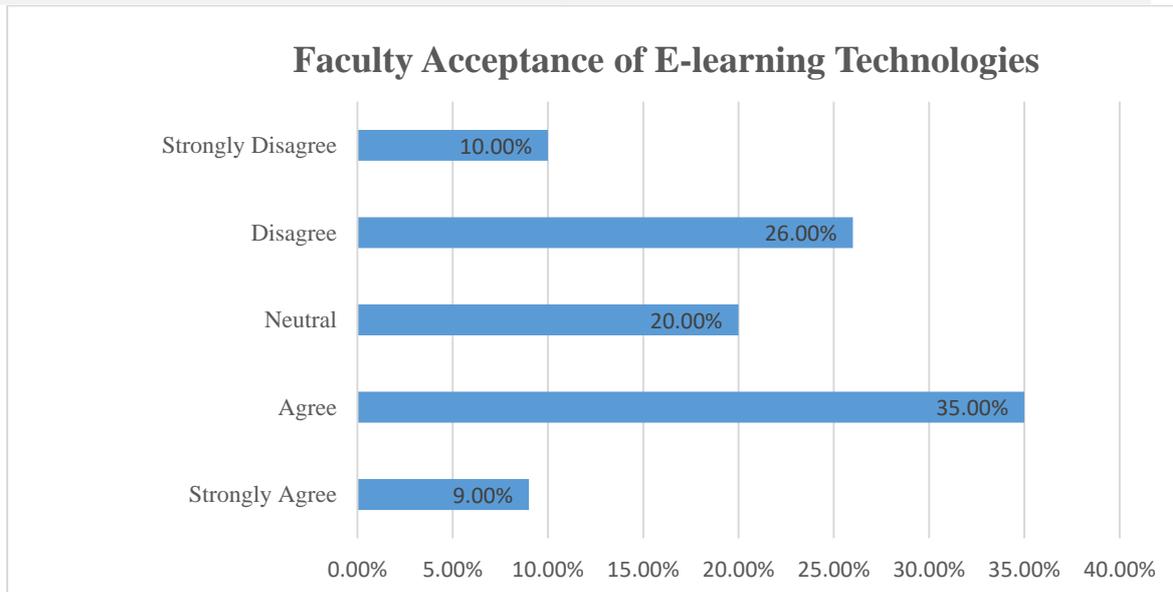


Figure 2: Faculty Acceptance of E-learning Technologies

Figure 2 speaks that 10% of faculty members strongly disagreed, 26% disagreed, 20% remained neutral, 35% agreed and 9% strongly agreed for faculty acceptance of e-learning technologies.

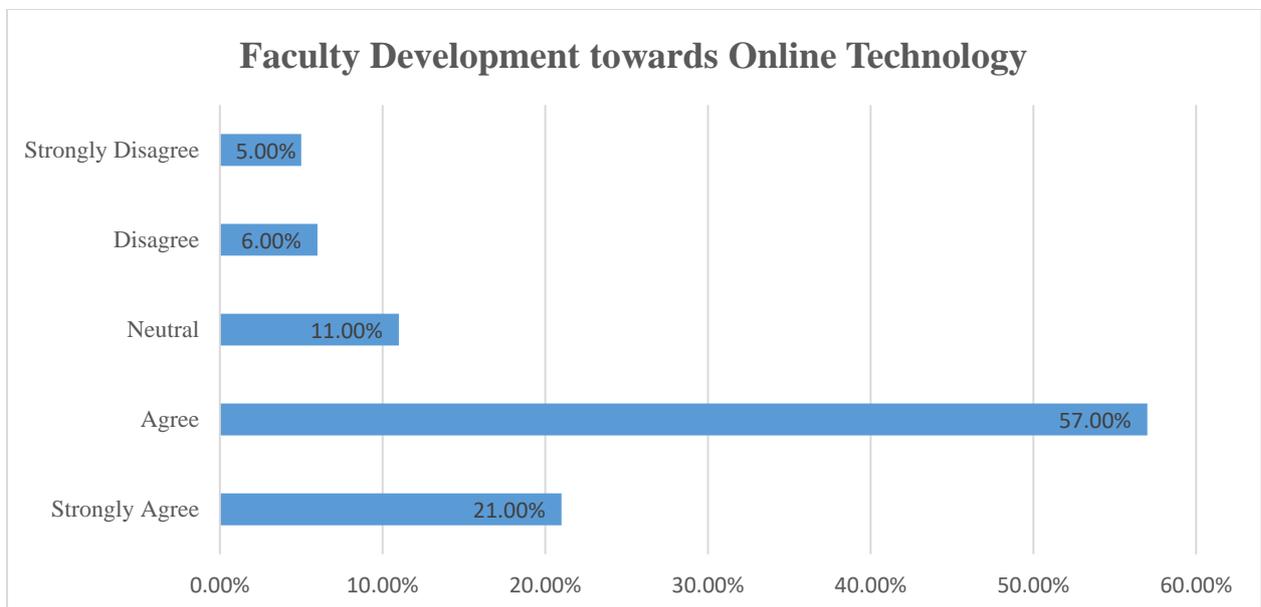


Figure 3: Faculty Development towards Online Technology

Figure 3 shows that 5% of faculty members strongly disagreed, 6% disagreed, 11% remained neutral, 57% agreed and 21% strongly agreed for faculty development towards online technology.

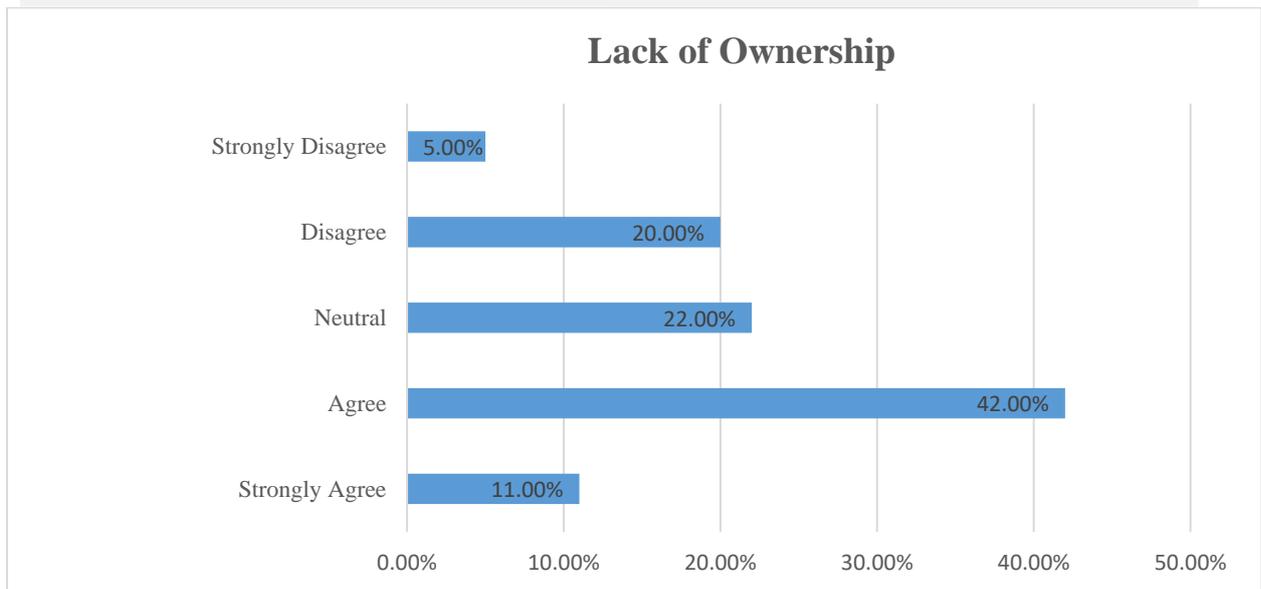


Figure 4: Lack of Ownership

Figure 4 shows that 5% of faculty members strongly disagreed, 20% disagreed, 22% remained neutral, 42% agreed and 11% strongly agreed for lack of ownership for e-learning technologies.

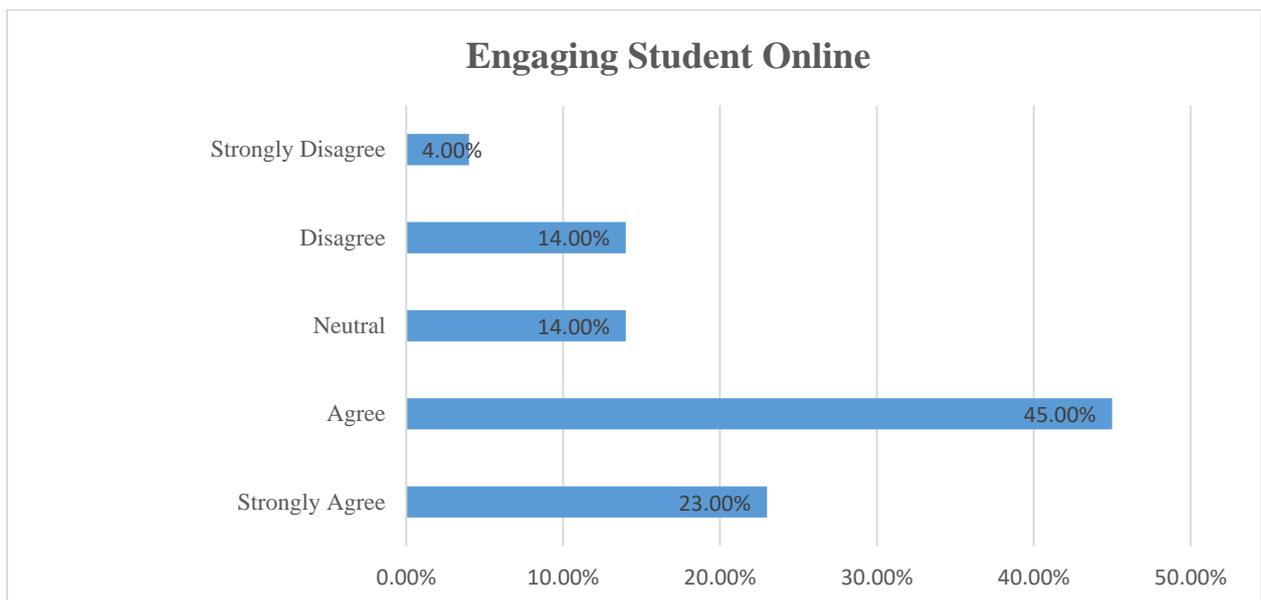


Figure 5: Engaging Students Online

Figure 5 shows that 4% of faculty members strongly disagreed, 14% disagreed, 14% remained neutral, 45% agreed and 23% strongly agreed that teachers face difficulty in engaging students in online classes.

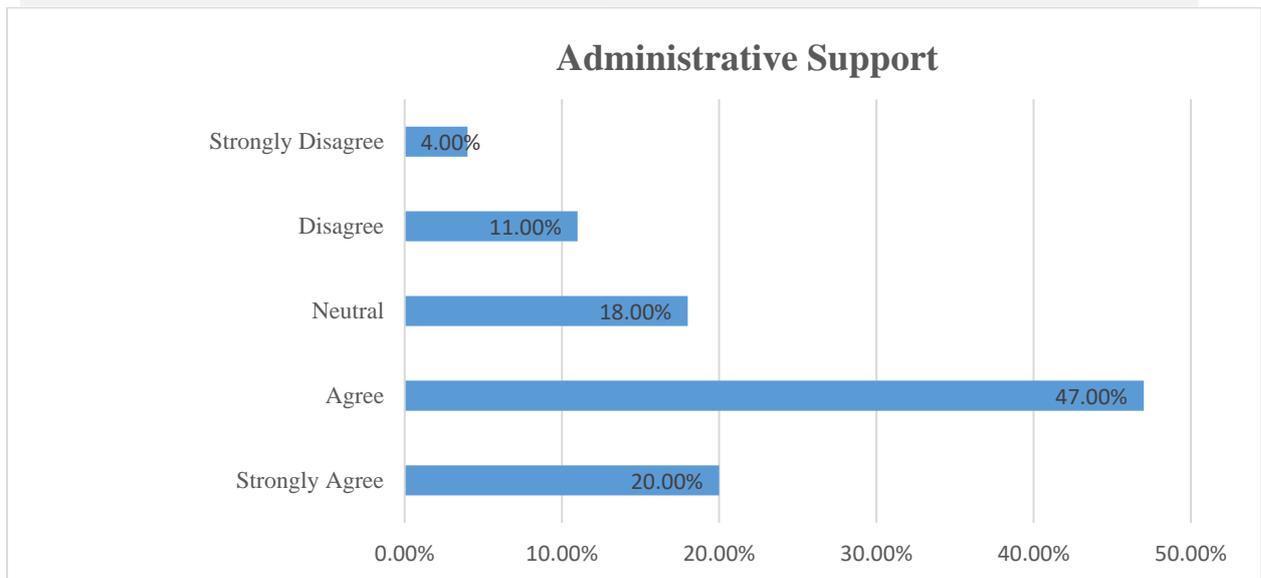


Figure 6: Administrative Support

Figure 6 shows that 4% of faculty members strongly disagreed, 11% disagreed, 18% remained neutral, 47% agreed and 20% strongly agreed that teachers face lack of administrative support for e-teaching.

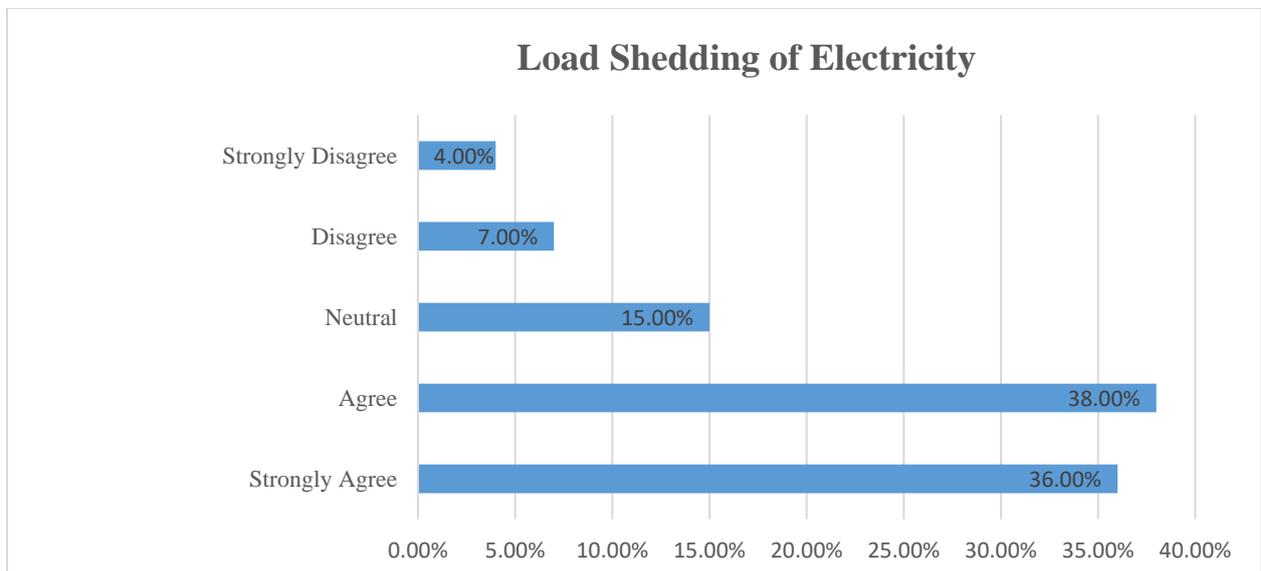


Figure 7: Load Shedding of Electricity

Figure 7 shows that 4% of faculty members strongly disagreed, 7% disagreed, 15% remained neutral, 38% agreed and 36% strongly agreed that load shedding of electricity is barrier for online teaching.

4. Discussion

The results of the study revealed very promising information and knowledge about online teaching barriers faced by university teachers of Pakistan during the COVID-19 pandemic. Faculties rejected this impression that teachers lack in IT/Computer technology skills. Teachers keep expertise in IT/Computer skills and conduct online classes, use MS office word for typing of documents, use internet for downloading course material and keep email communication with colleagues and students. For acceptance of e-learning technologies faculties generally show poor interest for acquisition of latest IT/Computer skills to meet academic challenges. Surprisingly, faculties consider IT/Computer knowledge important for teachers who come from information technology and computer technology disciplines. Faculties hardly accept increasing influence of IT/Computer in academics although they consider it a useful skill to meet emergent academic challenges. Faculties never accept e-learning as an alternative to physical classes. It surfaced that due to poor technological knowledge, skills and confidence teachers show reluctance in interacting with students during online classes. For faculty development in online technology teachers agree that faculty training in the domain of IT/Computer skills play an indispensable role in promoting e-teaching skills. However, they showed concern that universities arrange very few faculty development training that include IT/Computer skills modules for enhancing e-teaching skills. Pedagogical shift from physical to e-teaching mode IT/Computer skill trainings be made mandatory for teachers from across the board. Robust IT/Computer skills help teachers impart quality education to students in online teaching. ICT developments demand faculty to be well skilled and trained in the latest computer software used for online teaching. For lack of ownership faculties held a view that they show lack of ownership towards successful implementation of e-learning and teaching mechanism in universities. They kept this opinion that implementation of e-teaching system in universities is purely an administrative/managerial job and teachers have nothing to do with this.

Faculties are not interested that universities face various e-teaching barriers, challenges, problems and obstacles. In universities e-teaching system can only be successful when faculties own this system of education. Faculties' willingness to embrace the online teaching system of education is still a topic of debate among various stakeholders. For engaging students' online faculty established this opinion that students enjoy various modes of communication due to digital era of IT/Computer technology. Traditional classroom teaching provides excellent opportunities for debates, discussions, communications and interactions and it cultivates students' minds at large. Due to lack of technology expertise teachers do not interact with students whereas experienced, skilled and qualified faculties promote debates, discussions and interactions in online mode of teaching and satisfy the academic needs of students. For administrative support faculties agreed that they receive lack of administrative/managerial support from administrative units of universities. Universities adopted poor e-teaching policies thus, online mode of teaching remain partially successful in



universities of Pakistan. Faculties needed institutional support in terms of laptops and internet packages. Faculties and heads of institutions must sit together and formulate potent policies and strategies for successful implementation of online teaching practices in universities. The last variable was load shedding of electricity on which faculty feedback was obtained. The feedback was that load shedding of electricity is serious problem of Pakistan. The government of Pakistan should focus on construction of new dams to overcome energy shortfall. Power fluctuations and low voltage of electricity affected online classes. Faculties belonging to rural areas showed reservations that frequent load shedding affected online classes during the COVID-19 pandemic. In this perspective, online system of education can be only successful in Pakistan when government takes concrete steps to overcome energy crisis.

5. Conclusion

This study explored faculty insights about online teaching barriers encountered by university teachers of Pakistan specifically during pandemic days. Findings endorsed that certain potential barriers affected online teaching and learning in universities of Pakistan. Online teaching can only be successful when universities overcome issues, challenges and barriers that come in the way of teaching and learning in higher education institutions of Pakistan. Online learning should never be taken as merely a technical issue as it is also a pedagogical issue in this current situation. Shifting from physical classroom teaching to online requires extensive online readiness, preparation, coordination and cooperation by multiple stakeholders e.g. Higher Education Commission, Pakistan Engineering Council, Pakistan Medical and Dental Council, National Accreditation Council for Teachers Education, National Computing Education Accreditation Council, National Business Education Accreditation Council, and Society for Social Sciences and Research. Universities should facilitate faculties and students in terms of technology support equipment for instance laptops and internet assistance in terms of different mode of packages. In this dimension, universities can get help from Higher Education Commission (HEC) of Pakistan which is a major source of funding for universities of Pakistan. Moreover, administrators and academicians should sit together and formulate effective strategies and policies for making online education productive and useful for students. A robust system of technology based infrastructure needs to be established that caters for academic needs of students and faculties in this challenging time.



REFERENCES

- Ali, W. (2018). Influence of Evolving Technology in Emerging Online Lives of the Digital Native University Students. *Asia Pacific Journal of Contemporary Education and Communication Technology*, 4(2), 141-155. <https://doi.org/10.25275/apjccetv4i2edu15>
- Allen, M. W. (2011). Michael Allen's 2012 e-learning annual. Pfeiffer. ISBN 978-0-470-91382-6.
- Al-Araibi, A. A. M., Naz'ri Bin Mahrin, M., & Yusoff, R. C. M. (2019). Technological aspect factors of ELearning readiness in higher education institutions: Delphi technique. *Education and Information Technologies*, 24(1), 567–590.
- Alhabeeb, A., & Rowley, J. (2017). Critical success factors for eLearning in Saudi Arabian universities. *International Journal of Educational Management*, 31(2), 131–147.
- Aung, T. N. and Khaing, S. S. (2015, August). Challenges of implementing e-learning in developing countries: A review. In International Conference on Genetic and Evolutionary Computing (pp. 405- 411). Springer, Cham.
- Barker, A. (2003). Faculty development for teaching online: Educational and technological issues. *The Journal of Continuing Education in Nursing*, 34(6), 10–16. doi:10.3928/0022-0124-20031101-10
- Basilaia, G., Dgebuadze, M., Kantaria, M., & Chokhonelidze, G. (2020). Replacing the classic learning form at universities as an immediate response to the COVID-19 virus infection in Georgia. *International Journal for Research in Applied Science & Engineering Technology*, 8(3).
- Chen, P. D., Lambert, A. D., & Guidry, K. R. (2010). Engaging online learners: The impact of web based learning technology on college student engagement. *Computers & Education*, 54, 1222– 1232. doi: <http://dx.doi.org/10.1016/j.compedu.2009.11.008>
- Childre, A. L., & Van Rie, G. L. (2015). Mentor teacher training: A hybrid model to promote partnering in candidate development. *Rural Special Education Quarterly*, 3, 10–16.
- Cojocariu, V.-M., Lazar, I., Nedeff, V., & Lazar, G. (2014). SWOT analysis of e-learning educational services from the perspective of their beneficiaries. *Procedia-Social and Behavioral Sciences*, 116, 1999–2003.
- Ertmer, P. A., & Otterbreit-Leftwich, A. T. (2019). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42, 255-284. <https://doi.org/10.1080/15391523.2010.10782551>
- Geng, S., Law, K., & Niu, B. (2019). Investigating self-directed learning and technology readiness in blending learning environment. *International Journal of Educational Technology in Higher Education*, 16. <https://doi.org/10.1186/s41239-019-0147-0>
- Gunay, N. (2013). Predictors of involvement in online teaching among faculty in technical colleges (Doctoral dissertation, Capella University). Retrieved from ProQuest Dissertations & Theses. (UMI No. 1318673167)



- Huang, H. M., & Liaw, S. S. (2005). Exploring user's attitudes and intentions toward the web as a survey tool. *Computers in Human Behavior*, 21(5), 729-743.
- Jesse, G. R. (2015). Smartphone and App Usage Among College Students: Using Smartphones Effectively for Social and Educational Needs. Retrieved from <http://proc.iscap.info/2015/pdf/3424.pdf>
- Kanwal, F., & Rehman, M. (2017). Factors affecting e-learning adoption in developing countries-empirical evidence from Pakistan's higher education sector. *IEEE Access*, 5, 10968–10978.
- Keengwe, J., & Georgina, D. (2011). The digital course training workshop for online learning and teaching. *Educational Information Technology*, 17, 365–379.
- Kisanga, D. and Ireson, G. (2015). Barriers and strategies on adoption of e-learning in Tanzanian higher learning institutions: Lessons for adopters. *International Journal of Education and Development using ICT*, 11(2).
- Mtebe, J. S. and Raphael, C. (2013). Students' experiences and challenges of blended learning at the University of Dar es Salaam, Tanzania. *International Journal of Education and Development using Information and Communication Technology*, (9), 3, pp. 124-136
- Mtebe, J. S. & Raisamo, R. (2014). Investigating Perceived Barriers to the Use of Open Educational Resources in Higher Education in Tanzania. *The international review of research in open and distributed learning*, (15), 2.
- Muhammad Tahir & Fawad (2012). Dilemma of Third World Countries - Problems Facing Pakistan Energy Crisis a Case-in-Point. *International Journal of Business and Management*, 7, (5) March 2012.
- Mulhanga, M. M. and Lima, S. R. (2017, December). Podcast as e-learning enabler for developing countries: Current initiatives, challenges and trends. In *Proceedings of the 2017 9th International Conference on Education Technology and Computers* (pp. 126-130).
- Mohr, S. C., & Shelton, K. (2017). Best practices framework for online faculty professional development: A Delphi study. *Online Learning Journal*, 21(4), 123–140. doi:10.24059/olj.v21i4.1273
- Nagunwa, T. and Lwoga, E. (2012), "Developing eLearning technologies to implement competency based medical education: experiences from Muhimbili University of Health and Allied Sciences", *International Journal of Education and Development using Information and Communication Technology*, 8 (3), pp. 7-12.
- Nwabufu, B. N., Umoru, T. A. and Olukotun, J. O. (2013). The challenges of e-learning in tertiary institutions in Nigeria. In *International Conference the Future of Education* Florence, June.
- Ozdamli, F., & Cavus, N. (2011). Basic elements and characteristics of mobile learning. *Procedia-Social and Behavioral Sciences*, 28, 937-942.
- Picciano, A., & Seaman, J. (2007). K-12 online learning: A survey of U.S. school district administrators. New York, USA: Sloan-C.



- Qureshi, I. A, Ilyas Khola, Robina Yasmin, and Michael Whitty, (2012). Challenges of implementing e-learning in a Pakistani university. *Knowledge Management & E-Learning: An International Journal*, (4),3. pp. 310-324
- Sadegül Akbaba, A., Kalayci, E., & Avci, Ü. (2011). Integrating ICT at the Faculty Level: A Case Study. *TOJET: The Turkish Online Journal of Educational Technology*, 10(4).
- Sana, A. and Mariam, H. (2013), “Use of information and communication technologies in E-learning system of Pakistan-a comparison study”, *International Journal of Computer Science and Electronics Engineering*, Vol. 1 No. 4, pp. 528-533.
- Tarus, J. K., Gichoya, D., & Muumbo, A. (2015). Challenges of implementing e-learning in Kenya: A case of Kenyan public universities. *The International Review of Research in Open and Distance Learning*, 16(1), 120–141.
- Touray, A., Salminen, A. and Mursu, A., (2013). ICT Barriers and Critical Success Factors in Developing Countries. *The Electronic Journal of Information Systems in Developing Countries*, (56), 7, pp. 1-17.
- Wang, Q., Zhu, Z., Chen, L. and Yan, H. (2009), “E-learning in China”, *Campus-Wide Information Systems*, (26) 2, pp. 77-81.
- Wilson P. Mwakyusa, Neema V. Mwalyagile (2016). Impediments of E-learning Adoption in Higher Learning Institutions of Tanzania: An Empirical Review, *Journal of Education and Practice* (7), 30.