

Citation: Bashir, R., Zia, N., & Saba, S. (2023). Adoption of Information Communication Technology during the Pandemic: Exploring the University Teachers' Experiences in Pakistan. *Global Educational Studies Review*, VIII(II), 535-542.

[https://doi.org/10.31703/gesr.2023\(VIII-II\).48](https://doi.org/10.31703/gesr.2023(VIII-II).48)

Adoption of Information Communication Technology during the Pandemic: Exploring the University Teachers' Experiences in Pakistan

Rukhsana Bashir *

Nimra Zia †

Sahrish Saba ‡

Corresponding Author: Rukhsana Bashir (Assistant Professor, Institute of Special Education, University of the Punjab, Lahore, Punjab, Pakistan. Email: rukhsana.dse@pu.edu.pk)

Abstract: *This study aimed at exploring the university teachers' experiences regarding the adoption of Information Communication Technology (ICT) during the pandemic in Punjab. The sample has been selected conveniently from four public universities based in Punjab. The sample consisted of 28 university teachers teaching in the Education departments. The data were collected with the help of a semi-structured interview protocol comprising 10 questions. The collected data from individual interviews have been analyzed with the help of Thematic Analysis. The results revealed that the teachers working in Distance Education providing universities were already aware of using ICT in teaching. However, those who were teaching in Formal Education mode universities were not well versed in the integration of ICT in teaching. Similarly, the teachers were not given any proper training for conducting online classes. Rather they were given some videos which described how to use online channels for teaching.*

Key Words: ICT Tools, University Teachers, Pandemic in Pakistan, Adoption of ICT

Introduction

Covid-19, a virus, first appeared in December 2019 and has since spread globally. The whole world was put under lockdown, including educational activities, due to its fast spread. Similarly to this, in order to protect its citizens, Pakistan's government has curtailed all initiatives to curb the spread of COVID. In addition to colleges and universities starting to migrate their in-person teaching and learning activities online, the bulk of activities were transferred from traditional schools to online ones (Zulfiqar et al., 2020).

The role of information and communication technology (ICT) expanded during that time period since the universities had no choice but to use ICT to build their own LMS (Learning Management System). Institutions developed their own LMS so that they may keep using ICT for teaching (Arshad et al., 2020).

Numerous studies have shown how crucial the use of ICT in education was even before lesson plans, classroom management strategies, teaching methodologies, assessment and evaluation, etc. were created by teachers

* Assistant Professor, Institute of Special Education, University of the Punjab, Lahore, Punjab, Pakistan.

† Lecturer, Noon Business School, University of Sargodha, Sargodha, Punjab, Pakistan.

‡ Assistant Professor, Department of Management Sciences, Shifa Tameer-e-Milat University, Islamabad, Pakistan.

(Ertmer & Simons, 2005). The role of COVID-19, however, increased as it became available, changing teachers' perceptions about how to utilize it. More frequently than before, ICT is currently employed to teach pupils (Kaya, 2017).

Particularly for educators who have a range of views about teaching-learning, intelligence, and self-efficacy, beliefs are vital in shaping how individuals act. It was crucial to comprehend how teachers felt about integrating ICT into conventional education as well (Zulfiqar et al., 2020).

According to Tickle et al. (2005), epistemological beliefs are the individual viewpoint on knowledge, its standards, and how it is gained. They are also referred to as dualism, multiplism, relativism, and commitment. In addition, instructors' differing epistemic philosophies are noted by Brownlee (2004). The conclusion states that epistemological views are individual perspectives on knowledge, including how it is acquired, how certain it is, where its borders lie, etc.

According to Alibakhshi et al. (2020), teachers' opinions are important since they have a significant impact on the choices they make about their training. It is crucial to consider how people feel about educational activities since these emotions may affect how they behave when teaching. Researching their viewpoints is therefore essential. When instructors begin integrating ICT tools and approaches into their lesson plans, their efficiency rises. ICT technologies, such as computers, laptops, tablets, smartphones, the internet, social media, message services, etc., are used by humans to connect with others. According to Hou et al. (2012), approaches are "patterns or strategies of utilizing various ICT technologies". Consequently, leveraging ICT tools and tactics.

Everyone in the world changed from offline to online mode in response to the COVID-19 outbreak. Since colleges began using their online systems to avoid in-person connections, ICT was the only means to continue teaching and studying during the

epidemic (Ahmad & Murad, 2020). Numerous studies highlighted the importance of ICT during COVID-19, but they also pointed out that Pakistan could not benefit from the online mode of instruction in terms of raising the standard of education due to a number of reasons, including a lack of adequate ICT skills and issues with the internet, devices, load shedding, etc (Arshad, 2020).

Fortaleza (2021) contends that contemporary epistemology mandates the use of contemporary, knowledge-based practices. Covid-19 is a pandemic and infectious under the current unpredictable settings since the illness is now being publicized in order to prevent its spread through the media. Instead of using face-to-face instruction, the technique has been changed to one that uses online ICT. Respectfully, it could be difficult to think of clever and understandable entertainment for students during lockdowns. The Internet is one of the most widely used ICT tools in the nation for assisting students in making the most of their precious study time. We aim to improve this method so that students may learn thoroughly and stay away from issues in the future when attending sessions.

Orlik (2018) claims that colleges all around the world use ICT as an epistemological tactic to balance the workload of research and instruction. Both instructors and students utilize ICT in a professional capacity to gather and analyze data for research projects. This approach has increased their knowledge and professionalism. Digital learning promotes innovation and creativity without raising students' costs for books or other expenses.

ICT may be defined, in accordance with Banister and Fischer (2010), as the ability to use computer programs or log on to computer-generated systems outside of an institutional or cultural framework. The digital gap, according to Uzunboylu and Tuncay (2010), is the difference between college students who have access to ICT and those who do not, as opposed to those who are laypeople who can utilize ICT tools after receiving a good education but lack the necessary thinking and concepts to do so.

This is because, if one is aware of their potential, they can use technology effectively.

According to Warschauer (2007), ICT uses the "digital gap" as a tool to illustrate uneven access to digital technology. He continued by asserting that there are other additional types of social and academic inequality connected to ICT access, not simply one specific division.

According to Annetta and Minogue (2004), students may have opened access to the Internet as an ICT tool to do their homework and academic work. Technology is the only thing that, in the context of persons who lack the resources to complete their academic work during COVID-19, permits educational development.

Reasoning and epistemic knowledge are essential elements of online learning, claim Zohar and Barzilai (2014). Finding, assessing, and integrating various online resources are the three procedures that are fundamental for improving online resources. Teachers must sign up for and finish online courses in order to show that they comprehend the content completely. Since epistemic thinking is linked to online learning approaches that include self-evaluation, integration, development, and justification of arguments based on diverse online sources, teachers may successfully use epistemic thinking in online mode as an ICT tool.

According to Fournier-Viger et al. (2010), ICT technologies at the university level are made to record lectures for students' learning and allow students to offer solutions to their problems. In order to reuse teaching and learning paradigms, they intend to create tutoring agents that can change student and teacher behaviour.

It is evident that the most current development methods, which were motivated by Jupp and Awad's (2013) findings, have a substantial impact on learning. He found that the theories supporting epistemological viewpoints have evolved as fresh research has been conducted.

Innovative methodologies have been used to make the study process digital by utilizing

the most recent technologies, such as internet-enabled smartphones, tablets, and laptops, and levelling the playing field with emerging trends to open this brief window where social media resources, such as Google, can help students learn. The quickening of progress has altered how people think. For individuals who wish to study and change their way of thinking and living in the world, knowledge may be transferred through audio, video, and written material to make learning simpler (Fortaleza, 2021). As far as the literature was concerned, there was a lack of literature on the under-study especially in the Pakistani context, this is what the current study was conducted for.

Methodology

This qualitative study has been conducted under the Interpretivist paradigm. This study aimed at exploring the university teachers' experiences regarding the adoption of Information Communication Technology (ICT) during the pandemic in Punjab. The sample for the study has been selected conveniently from four public universities based in Punjab. These universities were based in Lahore, Sargodha, Faisalabad and Multan. The sample consisted of 28 university teachers teaching in the Education departments. The data were collected with the help of a semi-structured interview protocol comprising 10 questions. The individual interviews were conducted for data collection. The collected data have been analyzed with the help of Thematic Analysis.

Results

Teachers' Pre-Covid-19 Experience of ICT

During the individual interviews, the participants were asked how much experience they had before the pandemic. The majority of them reported that they had little experience as they use ICT as a supplement to their teaching only. They never relied on ICT completely while teaching the students before the pandemic took place. However, when the pandemic took place, then they shifted towards the use of ICT as it was the need of the time.

One of the participants said that:

"I had the experience of using the ICT tools while teaching but it wasn't enough to teach during the Covid-19. I had a little experience using ICT before Covid-19."

A similar response was given by another participant:

Yes, I was known to the ICT tools and techniques and I also had somehow experience using them. But when we see the Covid-19 situation, that basic knowledge of ICT was not fit for coping with that pandemic situation. The reason was that during normal classes the teacher had to use the ICT as a supplement but during the pandemic situation, it was to be used wholeheartedly and completely as the students weren't present in front of the teacher. Rather they were sitting in their homes where the teacher could approach them only via the ICT tools.

Another participant argued that:

No, I had no prior experience regarding the use of ICT before the pandemic situation. So, I was not well versed in the ICT tools. It was due to a pandemic that I had to shift my teaching from face-to-face to online mode with the help of ICT tools completely.

One of the participants gave a similar response:

My experience of integrating ICT with teaching was not sufficient before the pandemic erupted in Pakistan. However, after the eruption of the pandemic, I adopted the ICT so that the instructional work could be continued and students may be taught without disturbance.

Another participant argued that:

I had no experience using ICT and online classes before Covid 19 came. However, when it came to Pakistan and it impacted the education as well. Then the instructional activities were shifted to online mode from the face to face. Then I had to move on towards online instructions then I needed the use of ICT.

A different stance was given by one of the participants:

"I was also working at a university where there was an online/ distance mode of education,

so I was aware of using the ICT tools and integrating them with my teaching."

Use of ICT during the Pandemic

The majority of the participants shared their experiences regarding the use of ICT during the pandemic situation. They were asked about the ICT tools used by them, the majority responded that they used the already available free-of-cost tools like Skype, Zoom, Whats App and Google Meet because they were in access to all that even the students did not need to pay for their usage except that of the internet connection fee.

One of the participants said:

During the pandemic, our university introduced us to a student learning management system where there were options for the students to seek the assignments given by their teachers. The due dates were also communicated there and students were required to upload their assignments on that LMS. This LMS also had a teacher's portal for teachers' use where they had the option of allotting the assignments to the students and also checking their assignments followed by allotting them marks.

Another participant responded that:

Our university asked us to use the already available software like Skype, Zoom and Google, etc. As they were available free of cost and also were accessible to all, so we took our students to these platforms. However, Microsoft Office was also in our use being teachers we used it for making the presentations for the lectures.

Another participant said:

I was not well-versed in the use of ICT tools before the pandemic eruption. However, when the pandemic erupted and online classes were started by the institutions on the policy of HEC, then I started using ICT tools like Whats App, Skype and Zoom for taking the students onboard and teaching them via online mode.

Benefits of ICT

The majority of the participants responded that the ICT tools enabled them to teach easily and effectively while opting the online platforms for teaching. The ICT tools also enabled students to learn at ease and complete their assignments with the help of ICT tools.

One of the participants shared the experience:

I was a little bit disturbed when the university announced to shift the mode of face-to-face teaching towards the online-teaching. The reason for my worry was that I wasn't habitual in ICT usage. So, I was hesitant that what would I do and how would I manage to teach the students online. However, after I started to prepare for the online sessions, things began to be better. Not only did the students' learning continue via the online mode of teaching-learning, but my ICT usage skills also got better day by day. The students also learned to use ICT for their learning as well. As a whole, it was a good experience teaching with the integration of ICT with the teaching.

Another participant stated:

The use of ICT during teaching made me a more planned person as I had to plan each of my second lectures. Furthermore, I had to think and plan the teaching along with the evaluation activities during teaching as the students were not in front of me but still I had to assess my teaching and students learning during each session. So, I used to pre-plan my lectures. On the other hand, I learned novel techniques for forming group discussions with the help of online sessions. On the other hand, students also learned to study in groups even while using online platforms.

Another participant stated that:

The use of ICT put the teachers at ease during the pandemic if the ICT tools were not available for the teachers, the students' learning would have been disturbed badly. They had to leave their studies till the end of Covid-19.

Similarly, another participant said:

"The ICT tools enabled the teachers to teach easily and the students to learn easily while

teaching and learning through the online mode of education."

Challenges Faced by Teachers Regarding Using ICT

The majority of the participants shared their view that the student had Poor internet, internet connectivity and electricity problems. Due to online teaching, the quality of learning has suffered. It increased the workload of teachers i.e. to prepare the slides etc.

One of the participants shared the experience while saying:

Although the Online mode of education helped the institutions to avoid the discontinuation of education, however, still there were many challenges faced by the institutions, teachers and students as well. Most of all, the students living in the rural areas had no or poor internet connection due to which they faced a great problem connecting to their teachers and also to attend their online classes.

Another participant responded that:

Usually, the students were complaining about the availability and stability of the internet connection which wasn't letting them attend their online classes. Either they were unable to join their classes or their connection got lost mostly or they remained unable to connect again. Due to this, they were mostly unaware of the activities being carried out during the time they had lost the connection to their classes. In this way, the effectiveness of teaching and learning was compromised.

A similar stance was given by a participant that:

The teachers have been burdened due to online classes and using ICT while teaching as they had to prepare the PowerPoint slides and notes for the students and the lectures. Due to this, somehow the quality of teaching was also disturbed.

Conclusion & Recommendations

The data were collected with the help of a semi-structured interview protocol comprising 10 questions. The individual interviews were conducted for data collection. The collected

data have been analyzed with the help of Thematic Analysis. The results revealed that the teachers working in Distance Education providing universities were already aware of using ICT in teaching. However, those who were teaching in Formal Education mode universities were not well versed in the integration of ICT in teaching. Similarly, the teachers were not given any proper training for conducting online classes. Rather they were given some videos which described how to use

online channels for teaching. Similarly, the teachers shared their perspectives that the student had Poor internet, internet connectivity and electricity problems. Due to online teaching, the quality of learning has suffered. It increased the workload of teachers i.e. to prepare the slides etc. Based on the results, it is recommended that the teachers should be given proper training for the adoption of ICT so that they could cope with the situation if ever the same circumstances appear.

References

- Ahmad, A. R., & Murad, H. R. (2020). "The Impact of Social Media on Hyped Panic during the COVID-19 Pandemic: The Iraqi Kurdistan Case." *JMIR Mental Health*, 22(5). <https://doi.org/10.2196/19556>
- Alibakhshi, G., Nikdel, F., & Labbafi, A. (2020). Exploring the consequences of teachers' self-efficacy: a case of teachers of English as a foreign language. *Asian-Pacific Journal of Second and Foreign Language Education*, 5(1). <https://doi.org/10.1186/s40862-020-00102-1>
- Annetta, L. A., Minogue, J., Holmes, S. Y., & Cheng, M.-T. (2009). Investigating the impact of video games on high school students' engagement and learning about genetics. *Computers & Education*, 53(1), 74–85. <https://doi.org/10.1016/j.compedu.2008.12.020>
- Arshad, N. I., Abdullah, M., Nur, T., Addi, M. M., Mokhtar, N. I., Kalid, K. S., & Sugathan, S. K. (2021). Flipping the Classroom to Improve Academic Achievement of Information Systems Students with the Support of Learning Management System (LMS). *Asean Journal of Engineering Education*, 4(2), 8–14. <https://doi.org/10.11113/ajee2020.4n2.6>
- Banister, S., & Fischer, J. (2010). Overcoming the digital divide: The story of an urban middle school. *Mid-Western Educational Researcher*, 23(2), 2-9. <https://www.bgsu.edu/content/dam/BGSU/education/teaching-and-learning/gear-up/documents/overcoming-the-digital-divide.pdf>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Brownlee, J. (2004). Teacher education students' epistemological beliefs: Developing a relational model of teaching. *Research in Education*, 72(1), 1–17. <https://doi.org/10.7227/rie.72.1>
- Ertmer, P. A., & Glazewski, K. D. (2006). Scaffolding Teachers' Efforts to Implement Problem-Based Learning. *The International Journal of Learning: Annual Review*, 12(4), 319–328. <https://doi.org/10.18848/1447-9494/cgp/v12i04/46447>
- Fortaleza, C. M. C. B. (2020). Emergency science: Epistemological insights on the response to COVID-19 pandemics. *Infection Control & Hospital Epidemiology*, 42(1), 120–121. <https://doi.org/10.1017/ice.2020.209>
- Fournier-Viger, P., Faghihi, U., Nkambou, R., & Mephu Nguifo, E. (2010). Exploiting Sequential Patterns Found in Users' Solutions and Virtual Tutor Behavior to Improve Assistance in ITS. *Educational Technology & Society*, 13 (1), 13–24.
- Hou, C., Li, J., Huo, D., Luo, X., Dong, J., Yang, M., & Shi, X. (2012). A portable embedded toxic gas detection device based on a cross-responsive sensor array. *Sensors and Actuators B-Chemical*, 161(1), 244–250. <https://doi.org/10.1016/j.snb.2011.10.026>
- Jupp, J. R., & Awad, R. (2013). Developing digital literacy in construction management education: A design thinking-led approach. *Journal of Pedagogic Development*, 3(3), 24-30. <http://hdl.handle.net/10453/27318>
- Kaya, G. I. (2017). The Relations between Scientific Epistemological Beliefs and Goal Orientations of Pre-Service Teachers. *Journal of Education and Training Studies*, 5(10), 33–42. <https://doi.org/10.11114/jets.v5i10.2547>
- Luo, H., & Lei, J. (2012). Emerging Technologies for Interactive Learning in the ICT Age. *Educational Stages and Interactive Learning*, 73–91. <https://doi.org/10.4018/978-1-4666-0137-6.ch005>
- Orlik, J. (2018). *Delivering digital skills: A guide to preparing the workforce for an*

- inclusive digital economy*. Readie and Nesta.
- Tickle, E. L., Brownlee, J., & Nailon, D. (2005). Personal epistemological beliefs and transformational leadership behaviours. *Journal of Management Development*, 24(8), 706–719. <https://doi.org/10.1108/02621710510613735>
- Uzunboylyu, H., & Tuncay, N. (2010). Divergence of Digital World of Teachers. *Journal of Educational Technology & Society*, 13(1), 186–194.
- <http://www.jstor.org/stable/jeductechsci.13.1.186>
- Zohar, A., & Barzilai, S. (2014). The Role of Epistemic Thinking in Online Learning School of Education. *Hebrew University of Jerusalem, Israel. Conference Paper*, 29-33.
- Zulfiqar, M. S., Siddiqui, G. K., & Mahmood, S. (2020). A Comparison Between Online and on-campus Classes: Taking University Students' Perspective. *Review of Education, Administration & LAW*, 3(2), 157–163. <https://doi.org/10.47067/real.v3i2.48>