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# Digital Challenges and Opportunities for ELT Teachers at Tertiary Level: A Post-COVID Review in Pakistan

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## ABSTRACT

*This study explores the digital challenges and opportunities faced by English Language Teaching (ELT) teachers at the tertiary level in the post-COVID-19 era, aiming to enhance teaching practices, inform policymaking, and contribute to digital education. Using a mixed-methods approach, the research begins with a quantitative phase surveying more than two hundred ELT teachers about digital challenges and opportunities. This is followed by qualitative, in-depth interviews with five ELT teachers. Key challenges identified include disparities in technological infrastructure and access, gaps in digital literacy, maintaining student engagement, and adapting assessment methods to an online format. Conversely, opportunities include adopting innovative teaching methods, accessing global resources, emphasising continuous professional development, and leveraging the flexibility and accessibility of digital learning. The findings significantly affect stakeholders, educators, and institutions to improve teaching practices and student engagement. Policymakers can address systemic issues like the digital divide and promote digital literacy, and the need for professional development and innovative teaching methods is emphasised. The post-COVID era presents both challenges and opportunities for ELT teachers at the tertiary level. Addressing technological disparities, enhancing digital literacy, and developing effective engagement and assessment strategies are critical. By embracing digital innovations and resources, investing in professional development, and leveraging the flexibility of digital learning, these challenges can be transformed into opportunities, ultimately improving the quality and effectiveness of ELT.*

## Introduction

The impact of COVID-19 on society significantly shifted the use of information and digital technologies in the school system, allowing and presenting certain benefits and difficulties for teachers. For ELT teachers in tertiary institutions, this change has called for a reconsideration of approaches, media and pedagogic practices, and the management of learners in the classroom. This research describes the situation for ELT teachers after COVID-19, with the main emphasis on the digital aspects and the opportunities. Several difficulties are involved in the process: one is connected with the lack of equal opportunities for students and teachers equipped with proper technologies.

In many regions, reliable internet connection is absent, and there are enough devices in each class, which makes practising online teaching and learning wrestled (Dhawan, 2020). The transition from a traditional to an online teaching-learning approach revealed various demerits, particularly the lack of digital skills among the faculty and the learners. Due to the exigencies of delivering lessons through the digital environment, ELT teachers had to learn new competencies to integrate tools and platforms in language teaching and learning (Hodges et al., 2020). Of particular interest is ensuring that students remain active during online learning, since this has remained difficult.

Moreover, the absence of live communication reduces motivation and contribution levels, which must be combined to create an interactive and collaborative learning environment for teachers (Bao, 2020). It has been challenging to translate the traditional approach to assessment and apply it in an online setting. Several factors, including academic integrity and feedback issues, are critical areas of concern for ELT teachers practising in the digital environment (Burgess & Sievertsen, 2020). Nevertheless, with the advent of the digital approach, ELT teachers have been forced to look for alternative approaches to teaching, including the flipped classroom approach, the game-based approach, and the use of multimedia resources. According to Johnson et al. (2021), such approaches can improve language learning and the lessons' overall organisation. With a Smartphone, Tablet, or even a laptop, contact is made with various interrelated resources such as online libraries, Language learning apps, and tools, among many others. This access can supplement the curriculum and offer students multiple resources from which they can learn (Chung, 2021). The pandemic has proved that engaging more in professional development is quite crucial. Some ELT teachers have found online training programs and Webinars to enhance their Digital Teaching skills and modern educational technologies (Kumar et al., 2021). It is flexible and can reach students anywhere since they do not have fixed times for face-to-face learning. This may prove advantageous, especially for students, not your traditional college-going students from the standard 18-22 year age bracket due to work or family commitment issues, etc., as highlighted by (Anderson, 2020).

As highlighted earlier, the post-COVID period may bring about more problems than opportunities for ELT teachers at the tertiary level, but it also opens up promising prospects. Closing the achievement gap, increasing tech literacy and its reception, and receiving students in a meaningful and productive manner are significant factors in overcoming these difficulties. At the same time, lack of access to resources, limited teachers' professional development, shoestring teaching practices, and constraints of technology can be flipped, thus transforming into positive factors for ELT development with the help of innovative approaches to teaching, access to world resources, investments in teachers, and the unique nature of technology-enhanced learning.

## Literature Review

COVID-19 has severely affected the education system across the globe, changing the paradigms of teaching and learning overnight and putting much pressure on teachers to teach online. This shift drew attention to digital literacy, a teacher's capacity to utilise digital instruments and media within learning environments. To effectively and fairly teach with little prior preparation being possible due to the remote, online switch, teachers, particularly ELTS, struggled with online teaching challenges.

### Digital Competence in the Global Context

The relevance of digital competence in education has been acknowledged worldwide, especially after the COVID-19 situation. In their recent study, Romero-Tena et al. identified that the coronavirus transition challenged the students and teachers to learn digital competencies to continue their education online, meaning digital competence has more significance. In their article, Wong and Moorhouse (2021) focused on how applied digital competencies, such as DigCompEdu, could be employed to assess and promote educators' skills in online learning activities. They also emphasised the significance of digital competence in making online education efficient.

This concept does not refer only to technological know-how but includes thinking skills, neither forgetting critical consumption nor sharing in a socially connected network. Among many types of competencies noted in the literature, Ferrari et al. (2014) added that digital competence is a new form of literacy that is becoming critical in modern society. In the paper by Cervi and Tusa (2020), the authors described the changes in e-learning throughout different countries; the authors noticed that the use of digital tools would not only increase the students' learning achievements and enhance the communication between educators and students.

### Digital Competence in the Context of Pakistan

There has been no digital infrastructure in Pakistan for quite some time, and teachers need to learn more about effectively utilising digital resources. To overcome these challenges, the Pakistani government, through the Digital Pakistan Policy (2018), has endeavoured to enhance the usage of Information and Communication Technologies (ICT) in public schools. However, the effects of this policy were different across the board. When COVID-19 hit, many teachers, especially the ones in the English language teaching discipline, did not know how to adapt to online teaching. This gap between policy and practice was seen during the pandemic when teachers had to adopt the technologies to fulfil their duties due to the forced shift to online learning.

Some of the previous work has examined the impact of the pandemic on education in Pakistan. Mobile-assisted language Learning, also known as MALL, was a prominent feature that Khan and Tufail (2020) analysed to assess the extent of its functionality during the pandemic, indicating that it helped the learners persevere with their learning. In the same vein, Khan, Raza, and Sibtain (2021) examined the motivational factors arising from the context of COVID-19 and explored how EFL teachers and students have adapted their motivational strategies, suggesting that although COVID-19 was a catastrophe it led to embracing digitisation in Pakistan's education faster than otherwise could have ever happened.

Online teaching and learning proved to be a daunting challenge to ELTS in Pakistan. One of the main problems was the need for proper digital resources, including a stable internet connection and devices, which made it extremely difficult for a primary teacher to deliver lessons online. Although some succeeded in integrating these technologies into their teaching, many faced challenges that prohibited them from doing this. As Khan and Cheema (2022) noted, the shortage of digital

resources and the lack of training make it much more difficult for many educators. Nevertheless, the challenges mentioned above in online teaching during the pandemic have enhanced the ELTS' digital competence regarding using technologies in communication, cooperation, and teaching (Khan & Cheema, 2022).

**Teachers' Digital Competence and Professional Development**

Digital competence, particularly in teacher professional development, is underlined as the role teachers' professional development must perform more significantly to facilitate the presentation of overall digital competence. Cabero-Almenara et al. (2021) investigated the level of digital competence of teachers adopting the DigCompEdu framework for professional development; thus, professional development that focused on the digital needs for education purposes enhanced the faculty members' capacity to develop and integrate digital resources into their practice. Cantabrana et al. (2019) correctly pointed out that to enhance teachers' practice in the context of Pakistani schools, there is a need to provide a more systematic approach to professional development, particularly regarding the use of ICT-based activities in the classroom.

DigCompEdu is a framework designed by the European Commission's Joint Research Centre, which may be used to inspect and evaluate the teachers' digital competence. This framework is divided into six key areas: Career practice, technological tools, teaching and learning, evaluation, enhancing learners' competencies, and supporting learners' competencies in technology. Benali, Kaddouri, and Azzimani (2018) used this framework when studying Moroccan English teachers, and their research reveals that more needs to be done in professional development to achieve the desired confidence of the teachers in using ICTS easily.

**The Impact of Online Teaching on Digital Competence**

This was evident in the reviewed literature, which indicates that online teaching has a positive impact on enhancing teachers' ICT skills. Sher Ryn and SC (2020) also pointed out that the pandemic had positively influenced the adoption of ICT by providing the education systems with an impetus to force educators and students, whether prepared or not, to work online. In Pakistan, teachers unfamiliar with online teaching started transitioning to a new reality, and surprisingly, they enhanced their digital skills. Caena and Redecker (2019) also pointed out that frameworks like DigCompEdu enable teachers to gain digital competence and enhance their collaborations and innovation in educational settings.

**Technological Infrastructure and Access**

The lack of comparable technological resources and the availability of technology have also been pointed out as significant issues, as highlighted in the literature above. Dhawan (2020) affirms that the COVID-19 pandemic forced change of paradigms in the education systems, unveiled significant disparities in the availability of digital instruments and reliable internet connections. This digital split has produced a significant risk for boosters and non-boosters of online income for teachers and students, particularly in emerging areas. Czerniewicz et al. (2020) postulate that restricted access to technology tends to widen inequalities in education, thereby limiting the possibility of online learning for many learners.

**Digital Literacy**

COVID-19 forced learning to shift online, and teachers and students have realised the need to be digitally savvy. An important distinction is made by Hodges et al. (2020) between emergency remote teaching and strategically developed online instruction; it is essential to note that many

teachers and tutors had not anticipated the switch. This has especially exposed deficiencies in area proficiency, as ELT teachers must promptly adapt to new platforms and tools. Kohnke and Moorhouse (2020) mentioned that practice development and training are critical for increasing digital learning and improving online teaching.

**Student Engagement and Motivation**

One of the major issues has been keeping the students interested and motivated in a virtual classroom setting. Participants (as cited in Bao, 2020) explain that it may lead to decreased motivation and engagement since there are no face-to-face communications throughout the learning process. In addition, Moorhouse (2020) has also suggested that teaching and learning strategies available to engage students in the online learning environment are different, such as appealing to interactive activities and creating a community spirit. As Martin and Bolliger (2018) provided insight into their study, multimedia and collaborative resources can increase students' interest in online language studies.

**Innovative Teaching Practices**

It has also revealed itself as a venue for creativity in teaching techniques during the digital revolution. Some emerging trends include using flipped classrooms, game-based approaches, and multimedia resources. According to Johnson et al. (2021), such methods help improve language learning by making the lessons lively. In the same vein, Gacs, Goertler, and Spasova (2020) stated that due to the impact of COVID-19, the use of digital tools plays a significant role in the curriculum, and students get various experiences.

**Assessment and Feedback**

The general challenge has been the conversion of traditional forms of assessment to accommodate the online environment. As Burgess and Sievertsen (2020) have pointed out, there are academic integrity issues and the usefulness of online tests. They propose that there are other forms of assessment, like project-based assignments and continuous feedback, which may be more appropriate in an e-learning environment. Xu and Jaggars's (2014) study also reveals that feedback on the activities helps enhance student learning in online classes if the feedback is provided on time and is constructive.

**Professional Development**

Many authors have stressed the possibility of professional development. According to Kumar et al. (2021), a continuous process is essential for enabling teaching professionals to deal with the shifts in the digital environment and enhance their pedagogy. Kessler (2020) states that specific areas of professional development programs should encompass the technical specificities of teaching aids and the pedagogical strategies teachers need to use in their practice.

**Global Resources and Collaboration**

Technological advancement has also made accessing several worldwide resources and partnership possibilities easier. Chung (2021) found that online platforms offer various means, such as access to international libraries, applications to learn a language, and various international tools that can enrich the learning process. Moore and Kearsley (2011) have noted that, through digital learning, students can work with partners from other countries, thus offering great value to students and enhancing language learning.

The trends described in the literature state that although there are many problems of education in the digital age, there are many opportunities for developing ELT at the tertiary level. Management of the problems connected with technological support, students' preparedness, motivation, and assessment is given in the context of the opportunities for applying ODL. In addition, it has been shown that professional development and integration of new teaching approaches can assist ELT teachers in working in the digital environment and offering quality education. This work will expand on the research by synthesising digital concerns and possibilities for ELT teachers after COVID-19 while providing advice for educators and policymakers.

**Theoretical Framework**

The Digital Competence Framework for Educators (DigCompEdu), designed by the European Commission, outlines the exact competencies that educators need in detail. This framework helps understand the issues and prospects of ELTS at the tertiary level while teaching after the COVID-19 pandemic.

The DigCompEdu framework is organised into six key areas:

- Professional interaction: using digital technologies in client and other external and internal professional relations, including knowledge sharing and lifelong learning.
- Teacher Knowledge: the possession of knowledge on choosing, producing, and disseminating limited digital resources.
- Teaching and Learning: Coordinate and implement digital activities as tools in the educational process.
- Evaluation: effectiveness or improvement of digital tools in the assessment strategies.
- Supporting Student: Implementing facets of information technologies to encourage student inclusion and personalisation and enhance student involvement.
- Promoting learners' ICT literacy: supporting learners to be innovative and appropriate technology users.

Regarding DigCompEdu's ELT-specific applications, different aspects of how technologies are applied after the pandemic can shed some light. Further, it examines the effective use of ICTS to support learners and increase their participation in the learning process. It also examines how teachers support students in becoming competent users of digital tools.

In this connection, data analysis will involve estimating the frequency of responding teachers' survey and interview results regarding the degree and success of digital communication and collaboration, the types and sources of the digital resources employed by the teachers, and the frequency and success of applying and adopting digital tools in teaching-learning, along with the types of assessments used in the class. Further, the study will evaluate shifts in the approaches to participation and integration and identify students' experiences in enhancing their digital literacy.

Thus, adopting the DigCompEdu framework, this research provides a conceptual framework to analyse the digital challenges and opportunities concerning ELT teachers at the tertiary level. It serves as a valuable framework for understanding and evaluating the extent of digital competence for teaching and learning English, and, in particular, it can offer specific advice for the construction of relevant professional learning, effective pedagogy, and appropriate policies aimed at enhancing this evolution process in the context of ELT.

**Research Objectives**

1. To examine the digital challenges and opportunities faced by ELT teachers in tertiary education post-COVID-19.

2. To investigate the role of digital literacy in shaping the effectiveness of online ELT instruction for both teachers and students.
3. To evaluate the impact of digital transformation on teaching practices, student engagement, and assessment in ELT.

**Research Questions**

1. What are the key digital challenges and opportunities experienced by ELT teachers in higher education following the COVID-19 pandemic?
2. In what ways does digital literacy among ELT teachers and students affect the quality and effectiveness of online language teaching?
3. How has digital transformation influenced teaching innovations, student motivation, and assessment practices in ELT at the tertiary level?

**Significance of the Study**

The importance of this research is evident in its attempt to shed light on the current state of ELT at the tertiary level after COVID-19 for similar contexts. Based on the research, the study's implications can benefit and positively affect various stakeholders, such as educators, policymakers, and institutions in several areas. Since the main obstacles to practising digital technology among ELT teachers have been identified, the study's outcome can contribute to improving educational practices at the institutional level. That is an essential consideration because knowing how digital technology can enhance the students' engagement and motivation can help educators improve the strategies and tools that promote positive change among the learners. Further, the details elicited from this research can help policymakers understand the issues of the digital divide and other structural problems relating to online education. An analysis of growing teaching techniques and technology can be a rich reference for ELT teachers to apply different approaches to teaching. Stressing the necessity of constant further education in digital competencies can help institutions promote preparation programs for their teachers. Also, since the study discusses the assessment and feedback methods used in the context of digital learning, it will inform educators to pay more attention to the mother's appropriate and fair evaluation procedures. Lastly, institutions can improve their competitiveness globally by optimising digital transformation possibilities.

**The rationale of the study**

The justification for conducting this study on analysing the digital challenges and opportunities of ELT teachers at the tertiary level after COVID-19 is based on the following reasons. The COVID-19 pandemic imposed on education institutions without preparation and a short time to switch to digital learning, thus revealing inequalities in access to technology and the internet for students and teachers. This sudden transition also exposed digital skills disparities among educators and students; keeping the students motivated became more complex than in the standard face-to-face class setting. Further, the change to the digital platform has fostered the use of different teaching techniques and tools, and implementing existing and conventional tools for assessment in an online setting proved difficult. Therefore, future preparedness must consider the above challenges and opportunities. The present research endeavours to advance the understanding of digital education with a concentration on ELT at the tertiary level.

## Methodology and Research Design

This research has adopted a Pragmatic paradigm and approaches that include quantitative and qualitative data. A sequential explanatory mixed-methods approach was used, and quantitative data collection and analysis were followed by qualitative data collection and analysis. The participants were ELT teachers of FGEI(C/G) Multan Region currently teaching at the tertiary level, especially those involved in online teaching during and after COVID-19. For semiquantitative data, online questionnaires have engaged more than 200 ELT teachers to get information about their digital pressures and options. Five of these have been purposively chosen to be interviewed using face-to-face, semi-structured questionnaires as part of the qualitative phase to gain a deeper insight into the collected quantitative data.

### Ethical Considerations

The participants in the current study have also been informed about the study to give their consent. Using code numbers to identify the individual units preserved participants' anonymity. The students are subjects in this study, so they are free to participate. However, it is imperative to point out that the study has these limitations: Triangulation data collection and analysis. A highly methodological study relies on multiple methods of data collection and analysis. The research outcomes cannot be universalised to encompass all ELT teachers around the globe because of sample bias. However, surveys and interviews may sometimes involve bias, especially when the data is collected based on self-reports.

## Data Analysis

### Quantitative Data Analysis

The COVID-19 health crisis radically changed the nature of education across the globe, requiring educators to shift from face-to-face teaching to online learning. This change entails many difficulties, especially for teachers unfamiliar with ICT in their teaching and learning processes. In this regard, digital competence emerged as one of the significant factors for the teacher, especially for those who had to transform themselves and learn technologies, platforms, resources, and media in their teaching process. It was not easy for the ELT, an elementary-level English language teacher, to continue teaching and simultaneously learn how to teach using technology and cooperate with other teachers.

This research aims to review the influence of online teaching on the faculty members' digital literacy skills concerning the ELT teachers in the Multan region of Pakistan. It also explores how far online teaching has enhanced teachers' digital competencies, including the ability to employ technological tools for communication, collaboration, and teaching-learning processes. The study also identifies and discusses factors like teachers' qualifications, years of teaching experience, and access to digital resources affecting how they teach digitally.

This quantitative research investigates the self-completed survey of 222 Elementary-level EFL teachers who moved into online teaching during the pandemic. This study uses cross-tabulation and chi-square tests to examine the correlation between teachers' level of comfort towards technology, their interaction with other teachers, and their levels of digital literacy. Besides, the study offers quantitative data on the impact of teaching online on teachers' professional development: their experiences, struggles, and transformation, as well as the consequences that the experience of teaching online in the educational process will have in the future.

By conducting this study, we hope to add knowledge of how teaching online improves digital literacy and how digital tools and teacher preparation will be viewed in the future of education after the COVID-19 pandemic.

**Case Processing Summary**

For this study, 222 respondents completed the survey through Google Forms and WhatsApp. Excluding outliers after accounting for the responses, 219 valid responses were considered for analysis, 98.6% of the sample. Three completed questionnaires were missing or contained incomplete information and were omitted, equal to 1 4% of the responses. The response rate in this study was relatively high, and practically all the returned responses were evaluable or usable in every way and to a maximum degree.

**Table 1: Case Processing Summary**

| Categories | | N | % |
|---|---|---|---|
| Cases | Valid | 219 | 98.6 |
| | Excluded | 3 | 1.4 |
| | Total | 222 | 100.0 |

**Reliability Statistics**

Cronbach's Alpha was used to assess the internal consistency of the survey, which is statistically the most acceptable method of testing the reliability of a collection of items or questions. The reliability calculated for four items based on the above formula is 0 951, which shows the tool's excellent reliability. Most researchers accept a Cronbach's Alpha value of more than 0, 7 while very high consistency is accepted with more than. 9. This means that the questions in the survey were well-designed and variably assessed the teachers' digital competence.

**Table 2: Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .951 | 4 |

**Cross-tabulation analysis of the cross-sectional data**

When teachers collaborated with their colleagues, cross-tabulation was employed to identify the correlation between digital competence and collaboration. Specifically, the table analysed responses to two questions: X-axis: Communication or use of computer devices after the day's virtual lessons, including email, WhatsApp, and many more. Y-axis: The ease with which the faculty adopted technology in the classroom once they had engaged in online teaching.

In the above-given cross table, the total compared responses (N=222) match the total survey responses (N=222). All data has been accounted for and is correctly separated by questions. By taking into account the relationships in our data, it is clear that the majority of respondents (N=69) out of a total (N=136) who are comfortable using technology in their classroom after they had an experience of online teaching, sometimes exchange materials with colleagues inside and outside their school, e.g., via email, WhatsApp, etc. which was not in practice before taking online classes. The second-highest number (N=37) is attained by the respondents who are very comfortable using technology. Out of this number, most (N=21) frequently exchange materials with colleagues inside and outside their school, e.g., via email or WhatsApp. We can see right away that it appears the respondents (N=36) who are uncomfortable using technology in their classroom still exchange materials with colleagues inside and outside their school, e.g., via email, WhatsApp, etc., with the highest number of (N=27), which is an indication that their digital competence has been improved

somewhat. It is worth noticing that the lowest count (N=13) has been attained by the respondents who are very uncomfortable with using technology in their classroom, and the highest count (N=7) of these respondents still exchange materials with colleagues inside and outside their school, e.g., via email, WhatsApp, etc. This cross-tabulation analysis proves that online teaching positively affects teachers, as most have started using technology in their classrooms. Consequently, their digital competence has also increased.

**Table 3: Cross Tabulation**

| | | After online classes, I use digital technologies to work with colleagues inside and outside my school. | | | | Total |
|---|---|---|---|---|---|---|
| | | I frequently exchange materials with colleagues inside and outside my school, e.g., via email, WhatsApp | Not at all: I do not use digital technologies to collaborate with other teachers. | Sometimes, I exchange materials with colleagues inside and outside my school, e.g., via email, WhatsApp, etc. | Not really: I only use digital technologies to collaborate with teachers inside my school. | |
| After taking online classes, what best describes your level of technical expertise in the classroom? | I am comfortable using technology in my classroom | 42 | 6 | 69 | 19 | 136 |
| | I am very uncomfortable using technology in my classroom | 2 | 3 | 7 | 1 | 13 |
| | I am very comfortable using technology in my classroom | 21 | 2 | 12 | 2 | 37 |
| | I am uncomfortable using technology in my classroom | 4 | 2 | 27 | 3 | 36 |
| Total | | 69 | 13 | 115 | 25 | 222 |

This proves that while they may have been uncomfortable with or embraced technology at the beginning of the study, they became more digitally competent and started using technology for collaborative purposes. This shift can be attributed to the effects of online teaching, which enhances technical skills and work proactivity through the internet.

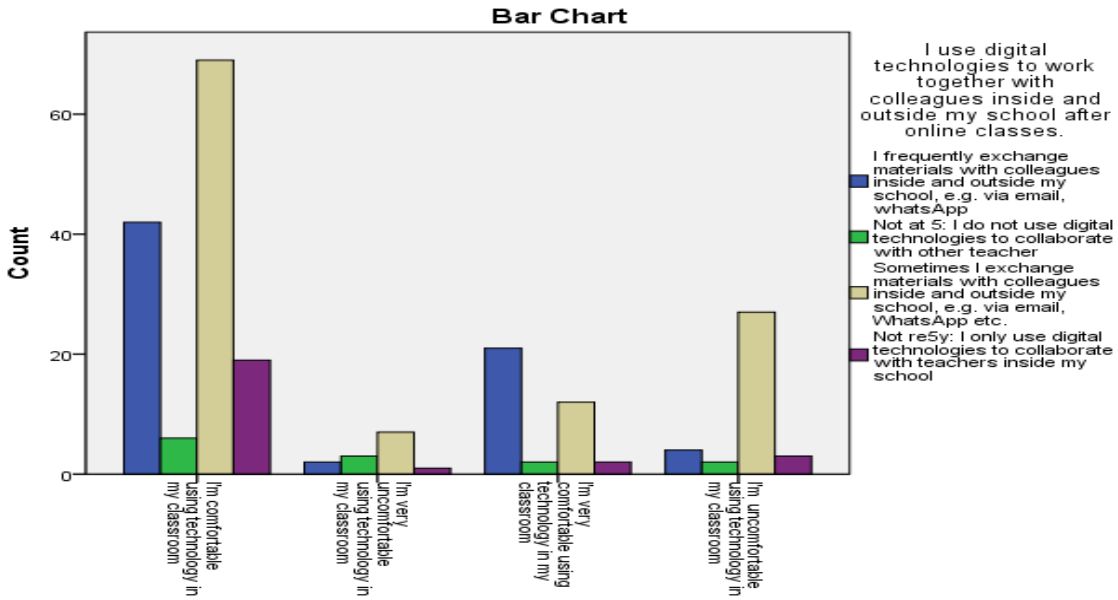


***Figure 1: Visual Representation of Cross Tabulation***

**Chi-Square Test Results**

**Table 4: Chi-Square Tests**

| | Test Statistic | Degrees of Freedom | p-value |
|---|---|---|---|
| Pearson Chi-Square | 16.267[a] | 6 | .012 |
| Likelihood Ratio | 11.709 | 6 | .069 |
| Linear-by-Linear Association | .747 | 1 | .388 |
| N of Valid Cases | 219 | | |

a. Six cells (50.0%) have an expected count of less than 5. The minimum expected count is .58.

The researcher used the chi-square test of association to check the relationship between the possession of digital competence and digital resources during online teaching during COVID-19. The p-value shows significant results and rejects the null hypothesis as the p-value is less than the level of significance (Alpha), i.e., 0.012 < 0.05. Hence, based on the p-value, we conclude that there is a relationship between improvement in digital literacy and technical skills during online teaching during COVID-19. The following is the bar chart representation of the results.

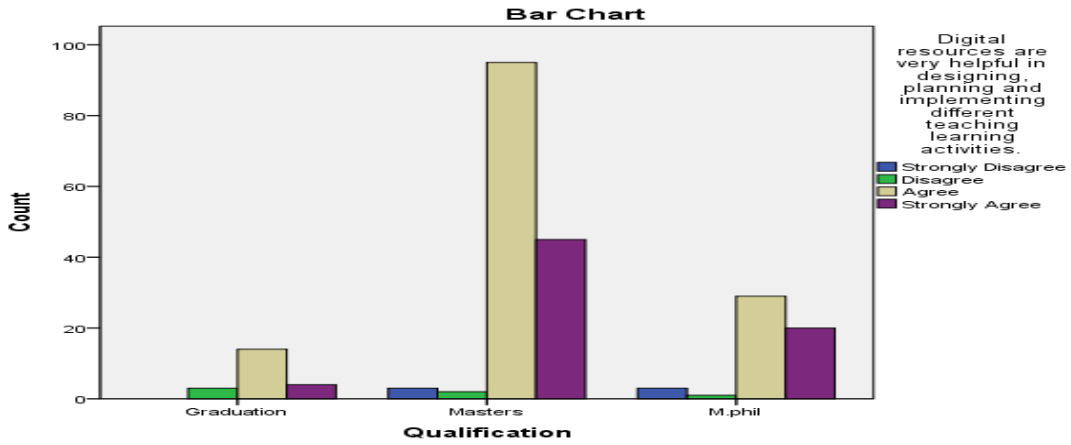


***Figure 2: Visual Representation of Chi-Square Tests***

Due to the above analysis, it is possible to throw out the null hypothesis that there is no correlation between digital competence and digital collaboration. At this level, it should be understood that those more responsive to technology change since the adoption of online teaching were likely to collaborate with other teachers through digital means.

The findings of this research imply that online teaching, in general, during COVID-19 has positive effects on the digital competence of English language teachers at the elementary level. The chi-square tests and cross-tabulations allowed us to establish the significance of the differences between qualification, digital competence, and the usage of technologies in collaboration and teaching. Moreover, the frequency table analysis and qualitative feedback results showed that most teachers encountered difficulties initially. However, they improved their technical skills quite effectively when using the technologies. The result indicates that not only were teachers gaining a level of comfort, competence, and confidence in initiating, applying, and maintaining technology in the classroom, learning to acquire new technology, and building a more proficient and receptive approach toward their new forms of professional collaboration through this technology, but also towards each other through avenues that they formally despised.

This change in the results points to a positive development regarding the use of technology to influence learning and teaching and to enhance the lives of both teachers and learners.

**Qualitative Data Analysis**

First, the researcher reviewed all the respondents' answers to the open questions several times. This was the initial exposure to get a general feel of what they were dealing with regarding the contents and context of the responses. By applying significant attention to data analysis, emerging patterns and significant points that should be studied have been revealed. Mass responses were analysed. Further, significant phrases and segments within the given responses were identified and labelled or coded for such segments. For instance, where the participants used phrases like 'maintaining student engagement has been extremely challenging,' it was coded as 'Student Engagement Issues, ' while where they mentioned things like 'access to reliable internet is a major issue for many students,' it was labelled 'Internet Access Problems.' When ignoring the other codes after coding the data, the researcher combined the similar codes into big themes. Those codes related to engagement issues, like 'distractions during the online classes' or 'absence of face-to-face interaction,' were grouped under the theme 'Engagement Issues.' Likewise, codes referring to 'internet access' and 'digital devices' were categorised under the 'Infrastructure Gaps. This approach of thematic clustering assisted in developing comprehensive and rational themes. Once

the themes were generated, the researcher returned to them to ensure they reflected the data. In addition, the themes were made more concrete to reduce ambiguity and ensure that each identified theme was unique and captured the most important concepts. For instance, the theme “Digital literacy” was checked to involve all the corresponding codes associated with the teachers’ and students’ digital competencies. As a result of the refining process, new, clear and concise definitions and names for the themes have been developed. For example, “Engagement Issues” was defined as difficulties students face when learning online, while “Infrastructure Gaps” was understood as difficulties connected with internet connection and lack of appropriate devices. This step was necessary to ensure that the themes were clear and coherent so that the information could be passed on correctly. Last, the researcher recapitulated the results and enriched them with quotes from the responses to provide a more profound and detailed picture of the results. For example, under the subtopic "The Engagement Issues," quotes like “It has been tough to maintain student engagement, especially since they cannot physically meet, have been included.” For “The Infrastructure Gaps”, the researcher used examples like “Many students do not have a proper internet connection, especially those in rural places.” This made the analysis complete and exciting as it built on the points made by presenting examples of what other researchers have found as they conducted

## Discussion

The application of quantitative and qualitative data from this study provides an understanding of digital change barriers and enablers for ELT teachers at the tertiary level after the COVID-19 crisis. It outlines concerns and ways of enhancing and improving the effective use of teaching and instructional methods in a digital learning environment. The research conclusions have been summarised in the following main sections below.

### Challenges

- **Engagement Issues:** Managing students’ participation was critical, and most teachers claimed it took effort to get the students active and interested during virtual learning. One of the best reasons for reduced engagement was the absence of face-to-face communication. This was corroborated by quantitative data, which highlighted several mean scores of students’ engagement in the online environment compared to the face-to-face classroom learning environment. One said, “It is tough to keep the students' attention, especially when there is no direct contact.” Another said, “Students do not listen most of the time, especially in online classes.”
- **Infrastructure Gaps:** Another tricky challenge emerged regarding the availability of the internet and digital devices among people. The teachers said the students who suffered most were those from rural or humble backgrounds. This was apparent in all the regions, as depicted by quantitative feedback, where poor responses to internet access and device availability were high. One teacher explained, “The challenge of reliable internet connection is an area that most students face, especially those from rural regions. ” Another explained, “This constrains them from being fully involved because not all the students have access to the right digital gadgets. ”
- **Digital Literacy:** Teachers also needed help with matters concerning the digitisation of the classroom and students’ learning. Numerous teachers indicated they need considerable time to get used to the new tools and applications integrated into digital environments; moderate confidence levels support these findings concerning their digital competencies. Concerning attitudes towards technology integration, one respondent said, “Some students and even

teachers find it hard to incorporate technology into their teaching and learning process." Another said, "There is always a steep incline when adopting new technologies."

**Opportunities**

- **Innovative Resources:** The online environment enabled the use of multimedia and interactive materials, which the majority of teachers identified as a strength since it enhances students' interest. The quantitative findings are presented in terms of the percentage of respondents who reported using various types of tools and multimedia in their teaching; the qualitative outcomes attest to the effectiveness of the technology used in teaching. Speaking of their experience, one teacher shared: "I was able to use more multimedia aids, hence a more interesting and exciting teaching and learning environment," and another: "With the use of technology, more variety and interaction are employed in teaching."
- **Teaching Flexibility and Adaptability:** Online teaching brings flexibility and helps teachers and students cope with many changes. Teachers valued the flexibility of delivering lectures from different places, allowing students to watch the recordings of the lessons and use additional online materials whenever they wish. This flexibility was represented in the favourable quantitative data on teaching and learning effectiveness ratings. Some of the teachers interviewed said, "Online teaching also enables the teacher to teach from any location comfortably while the student is also allowed to learn at their convenience." "Use of recorded lessons and other learning materials is not restricted by time or day of the week."
- **Global Collaboration:** Technological advancements enabled teachers to interact with other teachers or students worldwide through the internet. The opportunity to get acquainted with different views and materials was a significant positive aspect, and the responses were specified qualitatively. Some of the responses included the following: "The current shift towards online teaching and learning has created opportunities to collaborate with educators as well as students in different parts of the world," and "Availability of different resources online has enhanced the curriculum, as well as offered a different view."

## Recommendations

The findings of this study help to create the theoretical and practical basis for further research and potential policy improvements in digital education. With new changes in the education sector, we must be unique and devise more strategies for educating our students in this digital world.

- **Training and Development:** There is a call for training in or out of the classroom to help teachers develop their digital skills. The quantitative and qualitative data revealed that training needs concerning technology-enhanced teaching and learning were perceived as high. Universities and colleges should ensure the development of package programs that incorporate training on the content and methodology of online classes.
- **Infrastructure Investment:** Enhancing the digital foundation is the best way to overcome factors that prevent and limit people's ability to connect to the internet. This indicates that institutions and policymakers should direct their resources to accessible e-connectivity and the availability of digital devices, particularly for disadvantaged learners. Further, the percentages to rates of infrastructure highlighted the need for this recommendation.
- **Support Systems:** Provisions for support structures for teachers and students should be created to avoid technical challenges and ensure more continuous support. Other possibilities to ensure an effective transition to distant learning formats include successful

collaboration between peers, effective mentoring, and technical support. When gauging the responses, it was also possible to witness that qualitative responses stressed the role of the support networks in attempting to make sense of the concerns and issues arising from online teaching.

## Conclusion

The outbreak of COVID-19 had a positive impact on the change and growth of education technology in educational settings, and it offers dilemmas and scope to ELT teachers at the tertiary level in Pakistan. Consequently, these results establish the reasons for designing specific projects to resolve engagement-related problems, lack of IT support, and difficulties with digital competencies. However, on the positive side, such conditions as the ability to experiment in the educational process, versatility, and integration with colleagues worldwide provide the potential for further development of the digital learning process. Promoting professional development, infrastructure, and support structures that empower teachers to teach and facilitate through the use of technology purposefully can help educational institutions improve the quality of teaching and learning that takes place online, so that ELT teachers are capable of meeting the demands of the ever-growing use of technology in education.

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