

**Female Teachers' Integration of Technology into ELT in the Covid Context in
Bangladesh: A Comparison Study**

By

Afroja Alam
19277002

A thesis submitted to the Department of Brac Institute of Languages in
partial fulfillment of the requirements for the degree of
Master of Arts in TESOL

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3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
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Student's Full Name & Signature:

Afroja Alam

19277002

Approval

The thesis/project titled “Female Teachers’ Integration of Technology into ELT in the Covid Context in Bangladesh: A Comparison Study” submitted by

Afroja Alam (19277002)

of Spring, 2023 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Master of Arts in TESOL on

Examining Committee:

Supervisor:

(Member)

Mohammad Shams Ud Duha
Lecturer, Brac Institute of Languages
Brac University

Program Coordinator:

(Member)

External Expert Examiner:

(Member)

Harunur Rashid Khan

Associate Professor

Adjunct Faculty, Brac University

Departmental Head:

(Chair)

Lady Syeda Sarwat Abed

Senior Director, Brac Institute of Languages

Brac University

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Abstract

This study compared the extent of Bangladeshi female English language teachers' technology integration into their teaching practices and leadership development between pre, during, and post COVID in Dhaka. It also investigated to what extent the integration of technology varies between female and male language teachers within and between these three phases. The study followed a convergent parallel mixed method design where English teachers at various levels (N=32; f=23, m=9) completed a survey adapted from the TPACK framework (quantitative), and a sub-set of teachers (N=8; f=4, m=4) participated in semi-structured interviews (qualitative). Analysis of quantitative data utilising One- way ANOVA and Independent Samples t Test tests revealed that, technology was implemented more during the pandemic than before where female teachers showed higher interests than male teachers to utilize technology in English teaching after the pandemic. The thematic analysis of qualitative data found that English teachers faced different challenges integrating technology before and during COVID where female teachers emphasised institutional level challenges. The implications of the study will be discussed.

Keywords: technology leadership, english language teaching, computer assisted language teaching

**Female Teachers' Integration of Technology into ELT in the Covid Context in
Bangladesh: A Comparison Study
Chapter 1: Introduction**

1.1 Background and Context:

During the colonial period and before the partition, English became the dominant language in the Indian subcontinent for communication and higher education. It was thought that people of the East could not be educated only utilising their mother tongue (Evans, 2002). After the partition, English was used only for higher education by the Pakistan government and after independence, the government of Bangladesh focused on the establishment of Bangla to encourage nationalism (Pandian & Rahman, 2018). However, globalisation has performed a significant part in spreading the English language throughout the world as a mode of communication which becomes inevitable for development. According to Russel (2005), proficiency with the English language in the globalised world is essential for the development of a nation.

Like other countries, the government of Bangladesh also focused on the development of education after independence. As a part of this development journey, various education committees were established yet the condition of English education has remained unchanged in our country (Chowdhury & Kabir, 2014). ELT in Bangladesh has long been characterised by inconsistent educational policies. Change-related decisions have frequently been made without any discernible explanation (Pandian & Rahman, 2018). However, English has become compulsory in our mainstream education system (Hossain & Tollefson, 2007). For the last two decades, different political parties have emphasized on English learning at education institutions and have started different projects (Jamil, 2015). However, insufficient progress has been made toward the goals. (Hamid & Baldauf, 2008) due to a number of reasons such as, Bangladesh is a monolingual country and English is used as a secondary

language only in limited sectors and that is why there is less scope to practice English without formal education setting only.

Prior to 1850, teaching careers were mostly held by male (LeQuire, 2016) but by 1860 females outnumbered males since females were cheaper (Weiler, 1989). Educators of the 19th century declared that females were the “natural” teachers. According to Elsbree (1939), without a shadow of a doubt, female teachers are better to male teachers when it comes to teaching young children. Their mannerisms are more gentle and in keeping with the tenderness of childhood. Because they are born with stronger parental instincts, the society of children is delightful and turns work into fun. By this, it is quite clear that females have started to curve their success in this profession. In 1948, The Institution of Education at the University London appointed a chair to continue with special responsibilities for teaching English as a foreign language and set a programme of courses to attract foreign students to London and encourage British teachers to work outside of London as well (Pattison, 1952). At that time, very few female teachers worked in ELT till 1960 who possessed the centre of a global network over which they had significant influence. This incident explained that female teachers also possessed significant positions in English Language Teaching.

According to the Education Statistics of Bangladesh 2016, there is significant differentiation from primary to tertiary education. In primary school the percentage of female teachers is 61.91%, in secondary level 25.63%, in college 23.56% and 26.01% teachers of universities are female. It clarifies that in primary level the percentage of female teachers is significantly more than male teachers. Along with that the number of female teachers has decreased from primary to tertiary level of education. Again, According to World Bank 2020, the percentage of female teachers in primary level is 62%, in secondary level 25% and in tertiary level 28.3% where the percentage of female teachers is comparatively less in tertiary level than primary level. However, the data from UNESCO Institute for Statistics (UIS)

database shows a similar picture of Central and Southern Asia in the matter of female teachers statistics: the percentage of female teachers in pre primary level is 91%, in primary level 57%, in secondary level 48% and 41% in tertiary level. It describes that in Central and South Asia the condition is the same.

However, as a least developed country over the past 20 years, the rates of adult literacy, life expectancy, and poverty have all improved (BBS, 2011a, 2011b). The condition of ICT (information and communication technology) facilities and their use have both improved to a higher degree which has been fostering opportunities for technology to be used to improve the nation's overall educational situation. Tuti (2016) regarded ICT as a special innovation that makes it possible for learning to occur in ways that have never been possible before. It is thought that ICT provides contexts that make it easier to learn a second language in the sector of language teaching and learning (LTL). It gives language learners access to authentic materials, rich, multidimensional learning environments, opportunities to interact with native speakers, and the ability to communicate with other learners from afar (Chapelle, 2003; Felix, 2001; Mullama, 2010). Again, technology is a "knowledge system that comes with its own biases, and affordances that make some technologies more applicable in some situations than others," according to Koehler and Mishra (2005, p. 132). It clearly explains that ICT can bring a positive attitude in English language Teaching as well.

Moreover, The essential skills demanded by 21st century employers are critical thinking and problem solving, communication, collaboration, and creativity and innovation- the 4Cs (Goldberg, 2012). The 4Cs can be incorporated into curriculum and instruction using a variety of pedagogical tactics, utilizing technology to enrich the learning environment and promote these 21st century skills. The ability to use ICT to process and comprehend a problem scenario intellectually, along with the active application of knowledge to solve an issue. Acquiring these skills are also essential for teachers too since Collinson (2012)

described teachers as “informal leaders who ‘walk ahead’, model learning and innovation, and develop relationships and networks to extend their own learning and influence others” (p. 247). Teacher leaders typically possess strong teaching credentials, a distinctive and well-developed personal educational philosophy (often centered on achievement and learning), a career stage that permits risk-taking and selflessness, and a personal life stage that gives them the time and energy to take on leadership roles. It means, a teacher acts as a leader and when he/she integrates technology in his/her works, it develops the leadership skills and helps them to lead their students with the capability of critical thinking, problem solving, good communication, collaboration skill, stimulation of creativity and innovation to lead next.

However, the Bangladeshi government placed a strong emphasis on ICT adoption in all fields in 2009, including education, with a goal of creating a "Digital Bangladesh" by the year 2021 (Bhuiyan, 2011). The Bangladesh government is trying to implement ICT into education as well as ELT but still facing different challenges such as funding and structure. The history of technology implementation in the classroom is one of cycles of exaggerated promises, beginning with highly publicized promises with trained teachers, followed by powerful and inventive excuses for why the promises went unfulfilled (Cuban, 1986; Venezky & Osin, 1991). On the other hand, deficit of budget and limitation of resources, shabbiness in infra-structural establishments, power crisis and lack of constant electricity supply, poor network and slow internet speed, unavailability of well-trained up teachers for smooth operation are the obstacles on the way of implementation technology in ELT in classroom (Ahmed, 2018).

In these circumstances, at the end of 2019, the world suddenly faced pandemic COVID-19 where according to WHO more than 5 million people lost their lives and the world became standstill where in Bangladesh the death case reached near to 30 thousands

rate. At this time, we have entered into another world called 'online world' where education, treatment, shopping, communication everything started to occur via online platforms. A new turn has come into the education sector where we were struggling in implementing technologies into the classroom, there the whole education system needed to be restructured to include technologies in different fields mostly in teaching and assessing. Teachers started teaching in a new way and faced various difficulties. In the country's administrative center, teachers have just begun to use a mix of real-time interactive courses and classes, combining recorded material with homework-related digital sessions on a smaller scale (Khan et al., (2021). According to Marshal (2020), before COVID, without the emergency transition, the vast majority of teachers (92.4%) had never taught online, and very few had received any useful training from their school or district. It indicates that teachers were quite forced to teach online without sufficient facilities and they faced difficulties.

Again, in a study of 574 Norwegian and 239 US teachers, for instance, Gudmundsdottir & Hathaway (2020) found that teachers had minimal prior (pre-distance) online teaching experience. In particular, neither 67% of Norwegian teachers nor 92% of US teachers had previously taught online. Additionally, the lack of preparation for online teaching was highlighted. By this at least it could be indicated that teachers of Bangladesh were not better equipped too. It becomes more clear in the study "Preparations for and practices of online education during the Covid-19 pandemic: A study of Bangladesh and Nepal" where it is explicit that EFL (English as Foreign Language) teachers face several challenges in running online classes. The major challenges include poor network, lack of digital skills, lack of technological support from institutions, low student attendance and motivation, lack of interaction, power cut, and difficulty in a demonstration (Dawadi et al., 2021). Moreover, Uddin (2020) added that applying online mode to manage pedagogy is still not a viable option for Bangladesh, although online teaching and learning is considered as

one of the ways to combat dropout. However, teachers had to work on certain assumptions that students will attend an online session pre-prepared with the lesson or the language item to be taught and ELT was not excluded from these where another major challenge was adaptability of computer based instructions in virtual classes (Fatima, 2022).

1.2 Research Gap

So far, it has been figured out that teachers have started to implement technology in English teaching during COVID 19 more than before due to the insistence of the situation and faced various kinds of challenges. However, so far it has not been explored to what extent female teachers of Dhaka, Bangladesh implemented technology in English teaching before the pandemic and kinds of difficulties they have faced than the COVID 19 pandemic situation and how much interested in it after the pandemic. Apart from that to what extent the implementation of technology helps them to develop their leadership skills as well has not been investigated yet.

That is why, this comparison study of integrating technology in female teachers' English language teaching and developing leadership between pre, during and post-Covid situation in Dhaka, Bangladesh to explore the matter.

1.3 Purpose of the research

In this context, the main purpose of the research is to find out the development of female teachers' technology leadership in ELT in Bangladesh in the context of COVID-19. To undertake the research, I will perform a comparison study to determine how far female teachers have progressed in technology leadership in ELT prior to the pandemic, as well as how the pandemic has affected women teachers' technology leadership in ELT both in the short and long term.

The comparison study will take place among three stages:

Pre-pandemic situation (How far the development took place in this sector before the pandemic)



Current pandemic situation (How the pandemic affects the development)



Post-pandemic situation (how the experience of distance teaching during pandemic may change the way teachers teach using technology)

1.4 Significance of the research

Considering increasing participation of women in different areas including teaching and technology, it is important to explore how far female teachers at different levels have integrated technology into teaching. However, one of the focuses for students in Bangladesh is to be proficient in English due to economic reasons (Erling, 2017) and job prospects (Pandey, 2014). Again, the EIA (English in Action) project emphasises that an attempt has been taken to enable 25 million Bangladeshi adults and school children to improve their English language skills. According to EIA, English provides them with better access to better economic and social opportunities and gives individuals a way to work and a way out of poverty. Moreover, there is an increasing acceptance of the use of technology among English language teachers as an innovative teaching method to develop proficiency in English among students. Again, due to this pandemic educational institutions have started to use online platforms to serve education. Through this research, we will be able to explore the present situation of integration of ICT leadership in ELT and How far women teachers are contributing, how far they have developed, and how they can develop themselves in future as well. Along with that we will be able to generate some ideas for future research.

1.5 Research Questions

The study seeks to answer the following questions:

1. To what extent do English teachers' integration of technology into their classes differ between three stages of the COVID-19 pandemic (pre, during and post)?
2. To what extent do Female English teachers' integration of technology into their classes differ within and between three stages of the COVID-19 pandemic (pre, during and post) than their male counterparts?
3. How do female English teachers' experience differ in three stages of the COVID-19 pandemic from male English teachers?
4. How does the use of technology integration contribute to developing leadership skills?

1.6 Limitation of the research

It is a small-scale research as data was collected from only a few schools (Bangla and English medium), colleges and (private) universities of Dhaka, Bangladesh. It was not possible to collect data from public universities or national colleges since teachers did not agree and authority did not allow it as well. Moreover, the research has been conducted during the pandemic that is why interviews were taken via using online platforms. Practical observation was not possible.

Chapter 2: Literature Review

2.1 Women's True Profession

Teaching profession was completely maintained by only male before 1850 and after that female also started to emerge in this profession since the number of schools have been increased by then to take education to all kinds of children, and female were cheaper to hire than men and gradually this profession has become 'women's true profession' (Weiler, 1989, p.16-17). After that, females have started to curve their success in this profession. To improve the education system, different curriculum, theories, and techniques have been applied to prepare students to lead the world to development and female teachers are a proud part of this journey indeed.

2.2 Gender Role in Education

Compared to male teachers, female educators are more satisfied. Again, stress and burnout often occur with male rather than females (Byrne, 1998). Again, compared to their male counterparts, female teachers take a more unconventional, individual, and student-centered approach. (Barber, 2002; Dey, 1995; Singer, 1996; as cited in Li, 1999). Moreover, studies on the "Motivations to choose the teaching profession" explored that women choose the profession earlier in their lives than men do. For men, the teaching profession is often not their first choice (Huberman, 1993; Montecinos & Nielsen, 1997). Sometimes, women teachers feel frustrated and trapped since they are taken for granted with the assumption that women are much more than men being the right persons to carry the burden of caring responsibilities (Casey, 1990; Tamboukou, 2003; Walkerdine, 1992). Further, authors such as Biklen (1995); Coffey & Delamont (2000); Grumet (1988); Tamboukou (2003) clearly emphasized the underlying conflict between autonomy and authority in the classroom, the school, and the educational system that exists in the professional life of women teachers. For instance, male instructors, school boards, and

students might be sexist in many ways toward female teachers. Their capability of classroom management often is questioned due to their femininity. They also experience anger and hostility.

On the other hand, Cushman (2005); Decorse & Vogtle (1997); Francis & Skelton (2001); Hansen & Mulholland (2005); Oylar et al. (2001); Sargent (2000); Smedley & Pepperell (2000); Sumsion (1999, 2000) clearly proved gendered discourses that define male teachers in particular ways and determine their roles also burden them. Their participation as men in the teaching profession which emphasis on taking care of young children goes against their gender role because it is a job of femininity. This refers to the fact that gender roles played a vital role to construct teaching professions as compatible professions for female teachers. It also creates inconsistency between genders because when a profession is mostly handled by women usually it becomes a difficult choice for men on the other hand since the social status of women is not significant that is why sometimes it reduces professional status (Drudy, 2008) which does not indicate the good practice of the society. It also explains that gender roles created tension between both genders.

2.3 English Language and Indian subcontinent

Prior to the division of the Indian subcontinent, only higher education was taught and communications with the British administration were conducted in English. According to the ideals of British taste, image, and attitude, Lord Macaulay authorized British colonists to provide English education in 1835 in order to develop an Indian administrator as a faithful class (Chowdhury & Kabir, 2014). After the separation, Pakistan rearranged the education system and added English language education policy with religious belief (Rahman et al., 2010). By this it can be said that both the British and Pakistan governments had similar motives and kept the English language in education policy on the basis of need.

2.4 English Language and Bangladesh

Historically, the English language was in a condition of rising and falling in Bangladesh since independence in 1971. (Banu & Sussex, 2001a; Maniruzzaman, 2009; Rahman, 2005,; 2012). Following independence, English language usage was discouraged due to strong nationalist sentiment among all Bengalis. It was thought that promoting other languages might have an impact on how rich Bangla becomes. Bangla was to be utilized everywhere in accordance with the "Bangla Promulgation Act 1987" the linguistic landscape gradually transformed as the world became a global village and English emerged as the dominant international and global language. English was seen as the language of development for both personal and national growth, hence English language education received great priority.(Erling et al., 2012). The significance of English increased as Bangladesh grew more integrated into contemporary and international scientific, technological, and commercial issues.

2.5 Journey of ELT in Bangladesh

English has been recognized as an international language and it has been found in a study that almost 1.38 billion people use English natively or as a second language where it is used globally in any formal context such as- business, education, services and so on (Szmigiera, 2021).

Following independence, the government of Bangladesh put a lot of effort into improving education, and as part of that effort, ELT (English Language Teaching), which refers to the process of teaching and learning English in a context of either EFL (English as Foreign Language) or ESL (English as Secondary Language), including theories and practice, was incorporated into the national education system (Jamil, 2015). One problem is that scholars disagree on whether English as a Second Language (ESL) or English as a Foreign Language (EFL) is employed for ELT in Bangladesh. ESL refers to countries like Malaysia

and India where English is widely spoken in public and in the legislature, alongside the national tongues. EFL, on the other hand, suggests that English is primarily utilized as a foreign language in schools and for academic purposes. Examples of countries where English is used as a medium of instruction but is not widely used in the community include China and Pakistan. Ali (2010) locates ELT in Bangladesh as ESL, although Ali & Walker (2014) mentioned that English language teaching in Bangladesh is EFL. McArthur (1996) positions Bangladesh as ESL, but added that use of English is between a second and foreign language in the community. The need to study English as a second language, particularly for a developing nation like Bangladesh, cannot be overstated in the 21st century. However, the outlook for English language instruction and learning in this place is still rather far from being hopeful (Arafat & Mehenaaz, 2020). In short, the underlying ambiguity and lack of a clear vision on the essential role of English in Bangladesh have always shaped the country's ELT policy.

After the independence, eight education commissions sought to define educational policy after independence, but the English had a mixed history. In short, the implementation of ELT curriculum in the classroom in Bangladesh always failed due to the ignorance of teachers' needs of implementing curriculum in the classroom and poor infrastructure of teachers training (Chowdhury & Kabir, 2014). According to Fullan (2007), policy makers do not understand the needs of teachers and that is why curriculum changes often fail. Again, CLT curriculum was not made clear to the teachers to apply effectively (Das et al., 2014). On the other hand, Kirkwood & Rae (2011) explained that primary and secondary English language teacher qualifications, a good tertiary education, and competency to practise a CLT curriculum in the classroom are the prerequisites for reforming successful ELT curriculum. Unfortunately, in Bangladesh, all of these are currently lacking.

2.6 Integrating ICT in Education and Bangladesh

According to Hawkrige et al. (1990) by assisting in emancipation and transformation, the use of ICT could enhance performance, teaching, and administration with a favorable effect on the overall educational system and develop necessary skills in the underprivileged areas. Therefore, we can provide high-quality education by implementing ICT. Additionally, technology should be used as a tool to assist educational goals including those for information-seeking and -evaluation skills, teamwork, communication, and problem-solving which are crucial for preparing children for the knowledge society (Drent & Meelissen, 2008). However, Bangladesh is one of the world's developing nations, with a GDP growth rate of roughly 5.6% and poor ICT infrastructure, much like other less developed nations. (Islam & Selim, 2006). On the other hand, Bhuiyan (2011) stated that however, Bangladesh has recently made significant strides toward integrating ICT into the public sector. According to the most recent UN E-Government Readiness Survey 2008, Bangladesh was placed 142 out of 189 countries, placing it among the least e-ready nations in the Southern Asian area.

Table 1

Electronic Government readiness for Southern Asia on the performance in introducing ICT in the public sector.

Country	2008 index	2005 index	2008 ranking	2005 ranking
Maldives	0.45	0.43	95	77
Sri Lanka	0.42	0.40	101	94
Iran	0.41	0.38	108	98
India	0.38	0.40	113	87

Country	2008 index	2005 index	2008 ranking	2005 ranking
Pakistan	0.32	0.28	131	136
Bhutan	0.31	0.29	134	130
Bangladesh	0.29	0.18	142	162
Nepal	0.27	0.30	150	126
Afghanistan	0.20	0.15	167	167
Region	0.34	0.31		
World	0.45	0.43		

Despite its commitment, the Bangladeshi government encountered obstacles when implementing ICT in education. Barriers are divided into two categories: external and internal, respectively (Keengwe, Onchwari et al. 2008). According to Snoeyink and Ertmer (2001), lack of equipment, unreliable equipment, a lack of technical support, and other resource-related problems are examples of external barriers. Internal impediments can come from both school-level (organizational culture) and teacher-level (beliefs about teaching, technology, and willingness to change) sources. Bangladesh is among the developing nations with weak ICT infrastructure since it is crucial to have a reliable electrical supply, the requisite tools, and internet access. The majority of rural areas lack adequate electricity, and load shedding occurs frequently in cities as well. Bangladesh has very inadequate internet access, even in places where a high-speed connection is essential for teaching and learning. (Khan et al., 2012).

Again, where successful integration of ICT into education depends on adequate finance, a significant number of people continue to live below the international poverty line. Afsari et al. (2009) stated that The availability of hardware and software, as well as the fairness of resource access for instructors, students, and administrative personnel, are necessary for efficient technology utilization. Most of the time, these fees are exorbitant and Bangladesh and other underdeveloped nations cannot cover them. However, a crucial obstacle to the successful adoption of ICT in Bangladesh is a lack of a clear vision and plan. Although the government placed a strong emphasis on integrating ICT into education with the "Vision-2021," Bangladesh faces challenges since quality education with ICT integration requires careful planning, execution, and monitoring. Once more, numerous researchers have discovered that a school's ICT vision is crucial for successful ICT integration (Anderson & Dexter, 2000). In this context, the majority of schools in Bangladesh have struggled to incorporate ICT into their curricula due to a lack of ICT planning, training, and support. (Tondeur et al., 2008).

For most of the developing countries, political factors are one of the prominent barriers. In most cases political leaders do not get attracted with the emphasis on the budget of education. It has been seen that leaders are more concerned with the defence force than education. If the political leaders focus on the implementation of ICT in education it will bloom indeed. Though the government of Bangladesh came with a slogan 'Digital Bangladesh' still Bangladesh has not reached her goal due to poor political support (Sharma, 2003). Mamun & Tapan (2009) found that the budget for the new technology is misused and reduced.

Moreover, huge budgets are passed to improve the technology and buy modern tools to improve the teaching and learning system but in the end it is found to be a minor improvement according to the budget. Again, English is not spoken widely in Bangladesh

and most softwares is driven by the English language. Due to scarcity of Bangla softwares Bangladesh faces another obstacle to implement ICT. Berner (2003) found that the biggest indicator of the faculty's usage of computers in the classroom was their confidence in their computer skills. Therefore, the use of ICT tools in teaching and learning circumstances in Bangladesh has been constrained by a lack of understanding about ICT use as well as a lack of proficiency with ICT tools and applications. Because of this, very few teachers view the use of technology in the classroom favorably.

2.7 Integration of ICT in ELT and Leadership

Again, as a part of the continuation of advancement of education, using technology in language teaching is something that has been done for a very long time. Computer Assisted Language Learning (CALL) was integrated during 1900 (Dudeney & Hockly, 2007) and Bangladesh has integrated technology intowith the national education curriculum in 2009 (Emon, 2017). UNESCO in 2017 addressed ICT as a tool which can supplement, develop and transform education for better. Information and communication technology (ICT) is currently able to help people develop the problem-solving, critical-thinking, and communication skills necessary for the twenty-first century.

The term "21st century skills" refers to a broad set of information, talents, work habits, and character traits that educators, school reformers, college professors, employers, and others believe are essential for success in today's society. An expert group was used by the Assessing and Teaching of 21st Century Skills (ATC21S) to define key 21st-century skills (Binkley et al., 2012). They divided 21st-century skills into four categories: ways of thinking (creativity, innovation, critical thinking, problem solving, and decision making), ways of working (collaboration, teamwork), tools for working (information literacy, information technology, and communication literacy), and ways of living in the world (life and career; personal and social responsibility). The primary emphasis is on the instructional strategies

used to guarantee that students are proficient in 21st-century skills in order to prepare them for the workforce (Dolan & Leahy , 2010). In addition to facilitating teachers in changing their pedagogy, they must also have a better understanding of how ICT may enhance 21st century learning (Roblin & Voogt, 2012). That means to prepare students for the advanced world and to continue the development, it is essential to prepare students with technological knowledge and collaborate education with technology to improve their skills and to achieve this success. However, ‘digital literacy’ introduced by Gilster (1997) added that the ability to understand and use information from a variety of digital sources is a 21st century skill.

In 1980, efforts to change education in the US (United States) saw the emergence of the idea of teacher leadership (Duke & York-Barr, 2004). Currently, it has become a popular concept and widely practised in the US and throughout the other nations (e.g., Chew & Andrews, 2010; Emira, 2010; Jarvis, 2012; Lai & Cheung, 2015). Campbell (2017) noted that the various definitions shared five common themes: “(1) teacher leadership goes beyond the classroom walls, (2) teacher leaders should support professional learning in their schools, (3) teacher leaders should be involved in policy and/or decision-making at some level, (4) the ultimate goal of teacher leadership is to improve student learning and success, and (5) teacher leaders work toward improvement and changed for the whole school organisation” (p. 13).

Angelle and DeHart (2011) exemplified Teacher leadership as sharing pedagogical and classroom management knowledge with colleagues, being willing to accept leadership opportunities when asked, and consistently going above and beyond what is necessary to teach in order to benefit students and the school. For the purpose of our study, Katzenmeyer and Moller (2009) defined “Teacher leaders are those who lead both within and outside of the classroom, identify with and contribute to a community of teacher learners and leaders, persuade others to engage in better teaching practices, and take ownership of the results of their leadership.”(p. 6). Teachers also have to have skills in collaborating technology, 21

century skills with their contents and pedagogy. When our students will be able to develop their ways of thinking, ways of working, tools for working and their way of life in the world they will definitely be good leaders.

2.8 Current Situation of Bangladesh in Education, ELT and ICT

In 2012–2013, the Indian government allocated 3.9% of GDP to education, while Bangladesh allocated 1.9%, one of the lowest budgets in South Asia. However, the World Education Forum states that a nation should allocate 4-6% of its GDP to education. According to the 2012 E-government development ranking of 188 nations, Bangladesh came in at 150th place, reflecting its poor "networked readiness" and infrastructure. (BBS & SID, 2013). However, for the 2020-21 financial year, Bangladesh govt allocated 2.9% of GDP (66,400 crore TK) on education and 1720 crore Tk on ICT development.

Again, according to the record of BTRC June-2019, Bangladesh belonged to 96.199 million internet subscribers (who have accessed the internet at least once in the preceding 90 days) where 90.409 million are mobile internet users and 5.734 million are broadband subscribers among 165 million people. (*Bangladesh population 1960-2020 data: 2021-2023 Forecast: Historical: Chart*). Moreover, according to Bangladesh Education Statistics 2021, there were 77.58% of institutions with multimedia. It was 21.94% in junior schools, 84.04% in secondary schools, 94.23% in schools and colleges, and 89.64% in colleges. The percentage of institutions with computers is comparatively higher: 87.36% of all institutions, 92.69% of schools and colleges, 43.41% of junior secondary schools, and 92.69% of secondary schools.

Apparently, Bangladesh's attempt to become self-sufficient in English education has failed. The primary, secondary, and higher secondary ELT curricula in Bangladesh are idealized, developed, and disseminated by the National Curriculum and Textbook Board (NCTB), a component of the Ministry of Education. There are certain to be problems with a

new curriculum in a centrally-based educational system like Bangladesh's, where teachers use materials created by curriculum developers. Teachers in particular struggle with the curriculum since they are unaware of what is expected of them. (Karim, 2004). As a result, ELT in Bangladesh has difficulty carrying out the curriculum in the classroom (Pandian & Rahman, 2018). Despite this issue being widely reported in public opinion and empirical research, policy makers are often reluctant to acknowledge it. The Ministry of the education needs to recognize the complexity caused by inconsistent policy formulation. In order to adopt sustainable language policies, it is necessary for policymakers to objectively revisit portions of the policy, disregard donor, NGOs, or other stakeholder regulations, and plan accordingly (Rahman et al., 2019).

2.9 Female teachers in ELT in Bangladesh and ICT

Now, we will focus on the percentage of female teachers from elementary to university level and according to Bangladesh Education Statistics 2021, the percentage of female teachers in primary schools is 64.41% (English Medium- 71.31%), in secondary level 28.32%, in college 25.91% (school & college- 27.57%) and 29.33% (public- 26.73%, private- 31.90%) teachers of universities are female. According to UNESCO 2006, the majority of primary and secondary teachers lack the necessary subject knowledge and teaching skills, and roughly 63% of lower secondary instructors lack the necessary teaching certification (Nath & Chowdhury, 2009). However, the English teachers and students ratio is 1: 130 in secondary level (Nur, 2018). The majority of students have poor speaking (urban 52% & rural 60%) and listening (rural 26% & urban 24%) skills (Hossain, 2018). Since the percentage of English teachers is poor, it has an impact on teaching and learning.

However, the percentage of female teachers has decreased from primary to tertiary level and the percentage of English teachers and their qualifications are also not satisfying in primary and secondary level, which means the position of female teachers is not strong either

in our education sector and in ELT as well . Again, in primary education the implementation of technology is not significant at all especially in rural areas (Jamil, 2015) on the other hand, this implementation has been increased in universities for higher education. On the other hand, A study was undertaken by Cox et al. (1999) to examine the variables that affect the use of ICT in the classroom. According to the research, teachers who already regularly use ICT have faith in their abilities to do so, see its value in both their personal work and their instruction, and have plans to increase their use in the future. By these statistics it could be summed up that so far our female teachers do not meet required standards for technological skills. In this context, like another developing country Malaysia, Bangladeshi women also lack access to the internet due to socio-cultural status where religion, social status, insufficient use of technology in education, scarcity of time and poor income are vital factors (Sharma, 2003)

2.10 The Paw of Epidemic

In the continuation of this setting, according to WHO a novel coronavirus was detected in Wuhan city in January, 2020 in China and spread throughout the world as a pandemic. From then till February 2022 it has been reported to WHO that there have been 434 154 739 confirmed COVID-19 cases, including 5 944 342 deaths, and 10,585,766,316 vaccine doses have been given out in total. 1,94,5108 COVID-19 cases, including 29,053 deaths, have been found in Bangladesh. From around the mid of 2020 due to this pandemic when the whole world has been stopped as if people have been trapped into labyrinths, all kinds of educational institutes are closed for more than one year.

2.11 Commencement of Online Education in Bangladesh and the condition of ELT

According to a report of Daily Star, from the mid of 2020, 63 private universities, public and national universities, colleges, secondary and elementary level schools following the instructions of the government decided to continue the classes on different online

platforms such as- Google Classroom, Google Meet, Zoom, WhatsApp using technical tools for example- Microsoft Office, Zamboard, Google doc and so on. It began with sixth through tenth graders but quickly spread to primary schools and madrasas. Alternative methods, such as online classes through video conferencing apps, were also used in several urban areas English-speaking institutions.(BRAC, 2020).

Besides, the government also has taken steps to provide lessons via Bangladesh National Television through different experienced teachers for the students of primary, secondary and colleges. However, it has been found out in a study on the condition of ELT in Bangladesh by lecturer Fatima (2020) that students and teachers of developing countries are facing numerous problems conducting online classes due to lack of experience in technology, high priced internet with poor speed and scarcity of technological devices. A noticeable fact is that during this period internet subscribers have increased. According to the record of BTRC June-2021, Bangladesh belongs to 120.95 million internet subscribers where 110.90 million are mobile internet users and 10.05 million are broadband subscribers.

According to The Multiple Indicator Cluster Surveys (MICS) (2019), there are 40% of households without a single mobile phone, 90% of households without a single computer/tablet and 50% of households without internet access in Dhaka (Uddin, n.d). This study clearly states that students and teachers both had technological device and internet crises in Dhaka as well though in spite of being the capital of Bangladesh. Another major challenge was the adaption of computer based instruction in virtual classrooms. Switching from traditional classes to online learning was not easy (Fatima, 2020). It has been observed that students have difficulty adapting appropriately to this trend because learning experiences in virtual classrooms are very different from computer-based training for them (Cameron et al., 2012).

Moreover, in a study named *Secondary Education During Lockdown Situation Due to Covid-19 Pandemic in Bangladesh: Teachers' Response on Online Classes* by Farhana et.al., (2020) explained that teachers faced difficulties in teaching during COVID due to internet and electricity, non-availability of required gadgets, technological conservancy, class management and home environment. Again regarding English language Teaching Hossain (2021) found that in Bangladesh, the current method of online education presents teachers with challenges due to inadequate institute logistical support, inaccessible and slow internet supply, lack of sufficient financial support. By this, it has been clear that the poor condition of implementation of technologies before the pandemic and the scarcity of sufficient resources during the COVID pandemic became the foremost obstacle of online education as well as ELT. In this context, this comparative study will explore the difference of experiences in implementing technologies between pre, during and post COVID pandemic of female ELT teacher in Dhaka, Bangladesh. It will find out their development of integrating technology skill in teaching by comparing the 3 periods of time with their experiences and opinions.

2.12 Theoretical frameworks

To find out the development of female teachers' technology leadership in ELT in Bangladesh. Technological Pedagogical Content Knowledge (TPACK) model (Mishra & Koheler, 2006) and The Transformative Learning Theory (Mezirow, 1978) have been utilized for this research as theoretical frameworks. Technological Pedagogical Content Knowledge (TPACK) model has 3 domains-

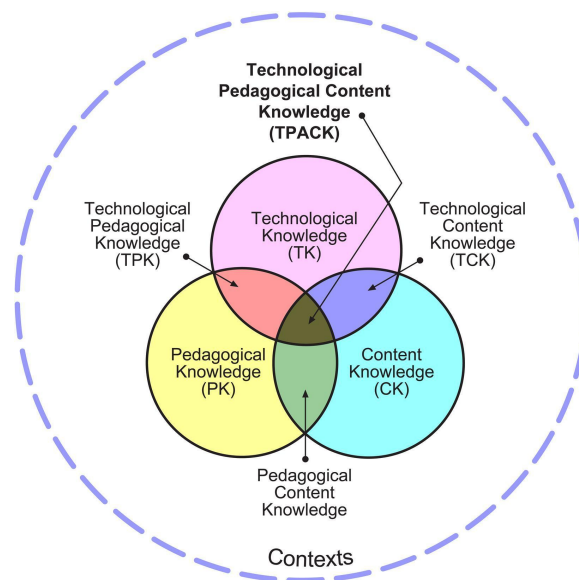
1. Technological Knowledge (TK): having knowledge of technology and being aware of its potential.
2. Pedagogical Knowledge (PK): knowledge of teaching and learning methodologies.

Moreover, understanding of classroom management, assessment techniques, and how students build their knowledge.

3. Content Knowledge (CK): understanding about the topic, including familiarity with related theories, ideas, and procedures.

Figure 1

The TPACK framework and its knowledge components.



These are interrelated between and among each other. When they are connected between each other, another 4 domains are found there-

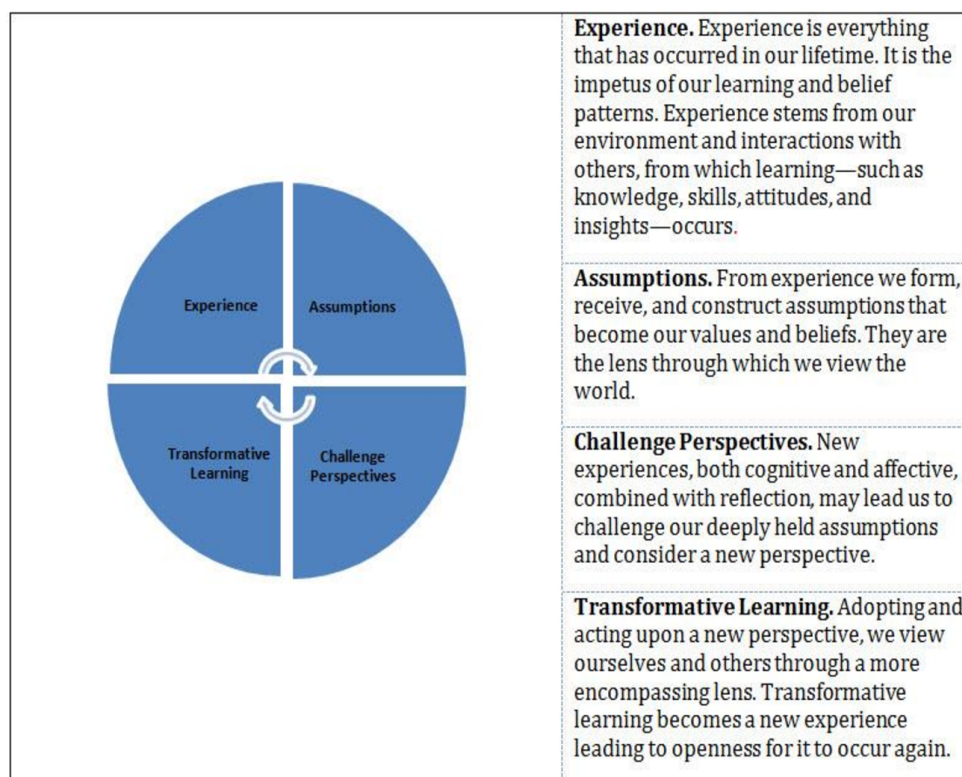
1. Technological Pedagogical Knowledge (TPK): the ability to support specific instructional approaches with the right technology as well as awareness of the pedagogical advantages and limitations of various technologies.
2. Pedagogical Content knowledge (PCK): knowledge of transforming the subject matter knowledge for teaching, organizing conditions for making the learning of certain contents easier.
3. Technological Content Knowledge (TCK): Knowing how technology and content interact and the ability to connect these three domains to build the ultimate domain by being conversant with the technologies used inside diverse subject matter domains.

4. Technological, Pedagogical Content Knowledge (TPACK): expertise of utilizing diverse pedagogies and technologies while teaching different subjects. Understanding that emerges when combining CK, TK and PK, knowledge underlying skilled teaching with technology.

The development of technological leadership in ELT will take place when a teacher will be able to prepare or choose such contents or will have such content knowledge which are applicable to integrate technology in teaching and learning. Again, along with having appropriate content knowledge, a teacher must need to have pedagogical knowledge to deliberate the contents to the students using technological tools and finally having technological knowledge is most important to integrate content knowledge and pedagogical knowledge to ensure the technological leadership development in ELT for a teacher. It indicates that to explore the development of ELT women teachers' leadership in technology, we have to explore to what extent they have knowledge about these three domains- TK, PK and CK and how they can apply these by interrelating between each other and among each other. This model has been used in the US for research and took responses from 596 online teachers and found it as a quite helpful tool (Archambault, Barnett, J. H. & L. M., 2010).

The Nerstrom Transformative Learning Theory:

The model is loosely based on Mezirow's (1978) phases of transformative learning. There are 4 phases in this model:

Figure 2*The Nerstrom Transformative Learning Theory*

Using the model five themes were identified: (a) examined prejudices, including biases, stereotypes, and learned beliefs; (b) incidental experiences, with sub themes of increased self-confidence, renewed personal values, fostered social involvement, and lasting friendships; (c) program structure fostering transformative learning, with sub themes of cohort and residential learning and traditional learning models; (d) reconceptualization of learning; and (e) transformed personhood. The Nerstrom Transformative Learning Model was used to provide an overview of these results. One might challenge their own thoughts, feelings, assumptions, and perspectives on their purpose through transformative learning, which is the extension of consciousness. In this study through this theoretical framework it will explore, to what extent a teacher's experiences on integrating ICT in ELT helps them to develop their leadership skills.

Chapter 3: Methodology

3.1 Research Method and Design

The research is based on a “mix method” methodology. Mix method design is the best method to use to build on the strength of both qualitative and quantitative data. Quantitative data is the result from instruments that provide specific numbers, provide results for evaluating the frequency and magnitude of trend of a large number of people and provide useful information to describe the trend. Moreover, qualitative data with open-ended questions provide actual words of the people, complex situations and offer different perspectives on the study topic (Creswell & Clark, 2011). As a research design, Convergent Parallel Design has been used to collect and analyse data. According to Creswell & Clark (2011) in this model, we collect both qualitative and quantitative data simultaneously then merge and use the result to understand the research problem. One basic justification for this design is that gathering both quantitative and qualitative data leads to a more thorough understanding of a study subject. Here, the quantitative data and results provide a general picture of the research problem and through qualitative data collection more specific analysis has taken place along with better refined and extended explanation relating the general picture and this why mix methodology is the appropriate method to explore the research questions of the study.

3.2 Research Context and Participants

In this research, it has been explored how far female teachers of particularly Dhaka, Bangladesh of English Language have developed in technological leadership in their teaching, kind of problems they have faced in implementing technology before and during the pandemic, how they overcame the situation, kind of facilities they were facilitated and others through a comparison study between pre, during and post COVID 19 pandemic. Here, along with female teachers, male teachers were also included as participants for comparison

purposes. Since the teaching profession is managed by both male and female teachers, a deeper understanding of female teachers' technology integration can be gained if we also take into account the male teachers' perceptions and experiences and compare them. To conduct the research, different English teachers (both male and female, 32 participants) of primary and secondary level schools (both Bangla and English Medium), govt. and private colleges and private universities from Dhaka have participated to fill up the survey form who were engaged with English teaching prior to the pandemic. Eight previously known private and public university teachers were approached directly via e-mail and messenger. Among them 3 teachers agreed. At first, they were briefed about the research and then after taking their consent the survey forms were sent to them via Google Survey Form where written consent were taken by a consent form. For Bangla Medium school and college teachers, some were approached directly and for some teachers permission was taken from the principal and headmaster of those institutions by briefing about the research. Then teachers were briefed too about the topic of the research. Following that hard copy of survey forms were distributed to them. Finally for English medium school, permission was granted from the vice principal of that school and then after briefed as usual. Then both hard copy and Google Survey forms were provided to them according to their preference after narrating about the research topic.

Table 2

Number of teachers participated in survey by Level of Teaching, Sex and Education

Background group

Level of Teaching	Number	Sex
School	20	F = 16, M = 4
College	9	F = 6, M = 3

Level of Teaching	Number	Sex
University	3	F = 1, M = 2

Table 3

Number of teachers participated in interview by Level of Teaching and Sex group

Level of Teaching	Number	Sex
School	3	F = 1, M = 2
College	4	F = 3, M = 1
University	1	M = 1

Again, for the interview session, teachers who participated to fill up the survey form were asked by a written question including in the form at the end that whether they are interested or not for a short interview. Interested teachers were asked for their suitable timing and then the interviews were taken accordingly. Mode for the interviews were phone calls, Zoom Meeting, Google Meet and face to face. During the interview, interviewees were asked for the permission to record the discussion and then with their permission it was recorded.

3.3 Data Sources/Procedures

To collect quantitative data, a set of survey questions based on the TPACK model were prepared. The questionnaires (See Appendix 1) developed in this study were largely adapted from the questionnaire of Pamuk et al., (2013) based on the context. Such as-

- I can learn technology easily

- I implement my technological skills to choose contents according to the level of students

Though the structure was followed from that questionnaire, the quantity was reduced (N=15). Since this is a comparison study between three time stages (pre, during and post), the questionnaires were designed according to the time stages. However, the main questionnaires were 15, for the three time stages it became 45 by changing the time frame.

Moreover, participants were asked to respond to each statement about the utility of the TPACK model in English teaching on a five-point Likert scale. Likert scales referred to such scales which are used to indicate degrees of agreement. Here, teachers were asked to indicate whether they *strongly agree, agree, neutral, disagree or strongly disagree* with the statement. Participants were provided with the questionnaire through handout or google doc as per their preference. After that, to collect qualitative data, a set of semi structured interview questions was also prepared connecting to the survey questionnaires to obtain detailed information. Along with technological, content and pedagogical knowledge, teachers' experiences, leadership development, expectations, obstacles and students' integration in integrating technology in the development of female teachers' technology leadership in ELT in Bangladesh. Such as-

- What kind of problems did teachers face in implementing technology in ELT before the pandemic?
- How does technological knowledge help to develop content and pedagogical knowledge?
- Do you believe that a 'teacher is a leader' and the implementation of technology in ELT will develop your leadership skills? How?

3.4 Data Analysis

To analyze quantitative data, one way ANOVA (Analysis of Variance) and Independent t Test were used. One way ANOVA (within a group) was performed between three time stages (pre, during and post) where the independent variable was time and the dependent variable was the perception of the participants. On the other hand, an independent sample t test was performed for all three time stages to investigate the effect of gender on teachers' perceptions about technology. To analyze qualitative data, thematic analysis has been used to generate new insights and concepts derived from data. At first the recorded interviews were transcribed in detail manually by me following the verbatim transcription method for data analysis.. Next, a set of codes were generated and then, a few themes were developed according to the research questions. Further, some sub-themes were also prepared to support the main themes. After that, particular codes were analyzed from the transcriptions and were highlighted. Finally, by collaborating the sub themes, main themes were constructed to explain the research questions.

Chapter 4: Quantitative Data Analysis

4.1 One Way ANOVA

A one-way within subjects (or repeated measures) ANOVA was conducted to compare the teachers' technological development in ELT in Bangladesh in pre, during and post COVID 19 time conditions. There was a significant effect of time, Wilks' Lambda = 0.471, $F(2,30) = 16.863$, $p = .000$. Three paired samples t-tests were used to make post hoc comparisons between conditions. A first paired sample t-test indicated that there was no significant difference in the scores for pre ($M=3.97$, $SD=0.480$) and during ($M=4.14$, $SD=0.318$) conditions; $t(4)=-171$, $p = .091$. A second paired sample t-test indicated that there was no significant difference in the scores for during ($M=4.14$, $SD=0.056$) and post ($M=4.621$, $SD=0.074$) conditions; $t(4)=-0.171$, $p = .091$. A third paired sample t-test indicated that there was significant difference in the scores for pre ($M=3.97$, $SD=0.480$) and post ($M= 4.621$, $SD=0.074$) conditions; $t(4)=-0.650$, $p = .000$. These results suggest that time has an effect on female teachers' technological development in ELT in Bangladesh, our results suggest that teachers' technological development has increased from pre pandemic to post pandemic time.

4.2 Report on Independent t test on the Pre Pandemic Situation

An independent t-test was conducted to determine whether there is a difference in implementing technology in ELT between males and females in the pre-pandemic situation. The results indicate a not significant difference between male ($M=4.0148$, $SD=.47584$) and female ($M=3.9536$, $SD=.49172$), [$t(30) = .319$, $p = .752 > .05$]. The 95% confidence interval of the difference between means ranged from $[-.33029$ to $.45267]$ and did not indicate a difference between the means of the data. Consequently, it shows that there was no difference between male and female in implementing technology in ELT before the COVID 19 pandemic.

4.3 Report on Independent t test for the During Pandemic Situation

This independent t-test was conducted to determine whether there is a difference in implementing technology in ELT between males and females during the pandemic situation. The results indicate a not significant difference between male ($M=4.2000$, $SD=.34960$) and female ($M=4.1188$, $SD=.31072$), [$t(30) = .642$, $p = .526 > .05$]. The 95% confidence interval of the difference between means ranged from $[-.17704$ to $.33936]$ and did not indicate a difference between the means of the data. Consequently, it shows that there was no difference between male and female in implementing technology in ELT during the COVID 19 pandemic.

4.4 Report on Independent t test for the Post Pandemic Situation

The independent t-test was conducted to determine whether there is a difference in implementing technology in ELT between males and females during the post pandemic situation. The results indicate a not significant difference between male ($M=4.2148$, $SD=.35711$) and female ($M=4.7797$, $SD=.32748$), [$t(30) = -4.281$, $p = .000 < .05$]. The 95% confidence interval of the difference between means ranged from $[-.83441$ to $-.29538]$ and indicated a significant difference between the means of the data. Consequently, it shows that there is a difference between male and female in implementing technology in ELT in the post COVID 19 pandemic.

Chapter 5: Qualitative Data Analysis

5.1 Situation of implementing technology in ELT before the pandemic

To find out the situation of implementing technology in ELT before the pandemic, first, we have to look into the situation of ELT before Covid 19. At that time, the teaching of English and the English language depended mostly on books, information sheets and whiteboards. Teachers used books and information sheets for content since the syllabus and curriculum were designed based on books. One of the male school teachers mentioned in his interview,

Before the pandemic, we used to believe that there are less scope to use technology for general subjects. For English, we just used books, some information sheets, whiteboards and practice in copy. Otherwise, in our curriculum, there is no opportunity to use technology in English Language Teaching.

Regarding this matter, a female teacher responded,

mmm..... Before the pandemic, we actually had to deal with a number of issues, including a lack of technological infrastructure, a lack of time, a problem with the curriculum, and a lack of administrative policy about the use of technology in teaching English. Other than that there was a belief that general subjects like Bangla, English, Math do not need to be taught by using projector. Ohh.... our campus have only one projector. So, we did not get enough chance to use technology in teaching.

Here, with the explanation of both female and male responses, it has been figured out that teachers had less opportunity to use technology in ELT and both female and male teachers experienced different issues. Whereas, the male teacher criticised the curriculum while the female teacher criticised poor technological infrastructure, timing, administration and curriculum as well. One of the female college teachers indicated time shortage as an issue too and expressed, “We get 35 minutes for one period where we need to fill up many criterias

without teaching.” Other than that the female teacher mentioned the belief about ELT that it is included in general education and that is why technology was not used in schools and colleges to teach and learn. However, A male college teacher added that

Kind of problem we faced definitely because language teaching or general subjects such as Bangla, English, Math are still following previous style like teaching and learning from books, doing exercises from books or different information sheets. No experiments took place to bring new style to teach those subjects. We have a projector in our school which is the only form of technology to use in teaching and I could not use it for teaching English.

Moreover, a female college teacher addressed it as ‘subject myth’ since she experienced that “Language learning process has no connection with technology, only science related subjects such as Biology needs technology I mean projector which we use as a tool.”

However, as technological devices, most of the institutions used projector and sometimes it was found that a whole campus has one projector. To justify the scenario, we can focus on the interview of one of the male school teachers, “Institutions did not provide facilities, encourage teachers to implement technology.” According to a college female teacher, they faced difficulties due to the scarcity of technological resources in their institutions rather than any other issues. She said, “I think the problems I have faced were not for the subject, rather the scarcity of technological devices of our institutions.”

Further, the classroom used to be monotonous as well since learning was limited to books only. In explaining this issue, a male college teacher mentioned, “Usually English class means monotonous where teaching happens only from books”. Another female college teacher added, “Bookish language and the explanation of bookish definition are not enough to hold the concentration of students.” In this case, both male and female teachers agreed in the same way.

Again, in spite of using technology a university male teacher explained,

So far we have faced a lot of difficulties to implement technology in teaching such as poor technological facilities, funding crisis, curriculum related issues, policy of administration. I can remember that I attended a training to improve teaching arranged by the government and there were 12 sessions. There was only 1 session was for technological development.

Though universities had more facilities than schools and colleges to use technology, they also faced different challenges in their classrooms due to the poor technological infrastructure and students also faced difficulties understanding the lecture and concentrating in the classroom. Another university female teacher precisely mentioned the problems she and her students faced in the classroom.

I did not face any other problem than the scarcity of technological devices. In countries like Bangladesh, we talk about technology a lot but do not work. For example, for listening class, we need a soundproof classroom, individual headphone and sound box with good quality but we do not have these. So the quality sound materials they get does not work properly, there is an issue of note taking since there are too much noise pollution outside of the classroom. So they do not understand properly. Besides, English fear works among them. So this kind of interruption detaches them from learning English.

On one side, Along with the crisis the male faced like school and college teachers another fact has been explained that though the government planned to improve the utility of technology in teaching, it did not work accordingly and also showed idleness towards the improvement of the implementation of technology, on the other hand, the female teacher showed a detailed picture of the condition of a classroom with poor infrastructure technologies. These explanations of teachers signify that ELT teachers from different levels

did not show any reluctance to use technology in teaching and did not get sufficient facilities from their institutions. Moreover, curriculum, syllabus, and government moves were not on their side as well.

5.2 Situation of implementing technology in ELT during the pandemic

It is needless to say that Covid 19 just came to us all of a sudden and everything became standstill and even it has affected our education system; ELT as well. Technology has been introduced in a way in our education system and opened a horizon. Explaining the impact of Covid on ELT, one of the male college teachers added,

we did not get facilities from our institution before the pandemic to implement technology in ELT because they thought that technology is more effective for biological subjects, not for Language teaching. During pandemic, everything became standstill. We did not get any facilities for devices, internet connection which are very costly. Yes, they arranged for training but there we need to prepare ourselves to train our colleagues.

Moreover, this pandemic has brought a detailed change in the process of ELT. In this case a female college teacher explained,

Before pandemic we really didn't realize that technology could be used in various forms for teaching and learning. From taking class, materials developing, taking tests, assessing and feedback. Who thought that using technology in Language learning is not important they knew how effective it could be. Though the pandemic compelled us for using technology at the beginning, gradually it encouraged us.

So far it could be said that implementation of technology in ELT was not easy during this pandemic as well but it made it mandatory to use technology since there was no other option. Here, both male and female teachers explained that since they did not use technology before the pandemic and the pandemic just came out all of a sudden they were not prepared at

all for implementing technology so it was really difficult for them. Along with that male teacher added in this case, they did not get any support from the institution too and the female teacher criticised the thought of those who believed that technology is not for language learning. Somehow indirectly she criticised the authorities who are responsible for preparing the curriculum and administration of educational institutions.

Teachers and students faced various kinds of problems in the online teaching and learning journey. Firstly, we will focus on the issues teachers faced in this journey. Sharing own experiences regarding the implementation of technology in ELT, one of the male school teachers expressed,

Really it was tough. On one side we needed to fight to survive didn't know where are we going. On the other side we needed to think out of the box (sigh). At first, it was quite tough but we colleagues helped each other. But the most toughest part was to arrange appropriate devices for some of us and institutions didn't help out.

By this it is quite clear that it was not easy for teachers to start their virtual classes during the pandemic. One of the university male teachers shared his feelings at that time,

During pandemic, we did not know how to start the virtual journey we needed to continue the previous process in a new way, there was a scarcity of proper training, facilities but authority is not actual responsible here.

Here he did not think his authority or institution was responsible for the problems.

on the other hand another female university teacher while explaining her situation that the institution did not help out at that critical moment added,

As support we got training but whatever we needed most was technological devices and internet supply which we did not get. Since before the pandemic we did not need those devices too much so many of us did not have appropriate devices. So when authority asked them to conduct online classes they were compelled to buy these

devices. Some of them faced financial crises too since it was a tough time. Yes, they told us that we can take classes by going to the office as well but it was not possible at that time.

It also explicates that at that time teachers were felt threatened to lose their jobs as well and that is why they were compelled to follow the instructions of the authorities.

However, the teaching profession is the bread and butter for teachers who were at risk of losing their jobs as well during the pandemic period. A male college teacher comparing the situation before and during Covid 19 regarding the technology implementation in ELT explained,

Before the pandemic we could not even imagine using technology for English teaching because only 40 minutes class time, huge syllabus, curriculum, and poor infrastructure of technology in our education system did not allow us to make it happen. Moreover, our belief did not let us feel that using technology will make our English language learning easier. That is why we did not get encouragement or facility at all to use technology before the pandemic. On the other hand, during the pandemic authority pressurised us to use technology in teaching without any proper facilities since it just fell upon us all of a sudden. We needed to manage on our own. we needed appropriate devices, internet connection and all of them just fell upon us all of a sudden. Somehow, gradually we did manage working collaboratively, we helped each other. You know, even we worked 24/7 with half salary. But we did it.

This also implies that the condition of teachers was really miserable from different sides.

Otherwise, it is also noticeable that difficulties in implementing technology in teaching before and during the pandemic were not the same but reason was not indifferent which was the scarcity of encouragement and support of institutions and pressurisation of curriculum.

Furthermore, this kind of situation affected the relationship between teachers and the institutions. Through the clarification of teachers of different levels from primary to tertiary level it has been found out that teachers did not get sufficient aid from the institutions to improve their teaching before and even during the pandemic. Teachers did not get opportunities and encouragement to use technology before the Covid 19 on the contrary, during the pandemic they pressured the teachers to use technology without providing any electronic device support, proper training and other necessities as well. However, during this pandemic though teachers did not come to their workplace but they worked collaboratively by helping each other at their tough time which worked to maintain their relationship as well.

Secondly, we will look into how the technological skill helped to improve teachers' content knowledge and pedagogical knowledge. In this field, most of the teachers believed that the right use of technological knowledge helped them to improve their content knowledge and pedagogical knowledge during this pandemic. Referring to this a male school teacher stated, "Actually right use of technology helps to grasp content knowledge according to the level of students and also helps to enrich pedagogical knowledge like it brings variation in my teaching". Another male school teacher enlightened his experience in this way,

I was able to use my technical knowledge to add variety to the content during my online classes. It gave me the opportunity to broaden my knowledge of the content and engage my students in the lessons. Again.... Content change, so it needed to change my teaching method. Therefore, I need to develop my educational knowledge. If technology can be used appropriately to develop content and further develop pedagogy, better results will be achieved.

While giving a description regarding this matter a female teacher of a university said,

I needed to do a lot of study to find out materials according to the level of my students, then I needed to prepare accordingly. So I needed to study a lot. I need to

think about their background. In the case of Content knowledge, I need to study more about content development. It could be happen that I did not study about a particular content in my student life but I needed to study for my teaching so I need to update my content knowledge. Besides, before I need to choose such contents which could be used orally and make the students understand by oral discussion. But now, I have jam board, white board so I need to update contents accordingly. It does not happen that we only add contents but also we need to reduce according to the context.

Here, male teachers express how the right use of technological skill works to enrich their content and pedagogical knowledge. Again, the female teachers explained how she needed to prepare herself as well to do the right use of technology to improve the technological and pedagogical skills. By these explanations, it is clear that teachers need to understand the right use of technological resources and skills to develop their contents and pedagogy. For this, teachers need to understand the level and needs of their students and these all are correlated to each other. That means, the right use of technological skills and student engagement are significant.

Moreover, one of the male university teachers simplified his statement in this matter by saying, “Yes, I believe that technology and pedagogy has a connection to develop teaching but it is not technology driven pedagogy rather my pedagogy defines how I will use technology in my teaching.” Supporting this context a female college teacher also added, “If I can include technological tools in my teaching in the right way it develops my pedagogy but again it depends on my pedagogical knowledge that how I include technological tools according to my content, students’ level.” Henceforth, it is obvious that right use of technological skills helped teachers during this pandemic to develop their content and pedagogical knowledge.

Since during the pandemic the teaching and learning process were completely dependent on online platforms and that is why only bookish contents were not sufficient and teachers needed to rely on online materials. Regarding this matter a male school teacher said,

I could arrange sometimes related materials not always then I need to reshape those according to my students. You know.... All students are not same, we need to be prepared with different kinds of explanation for different kinds of question from different level students so we need to prepare on ourselves.

A school teacher also agreed with this as well. She said, “Yes, there are many types of materials available online, but these are not suitable for student levels. After downloading from the Internet, the material should be modified according to the student's level.” This signifies that though materials were available online but these were not appropriate for the level of students and that is why teachers needed to modify those materials. However, again here students’ need was significantly important to both male and female teachers.

So far it has been cleared that students, their needs, engagements could be hold and meet up by the right the use of technology and ELT always prefer students’ engagement in the classroom.

According to the explanation of a female university teacher,

The big thing of ELT is it priorities the students centered. So, we care that where students face difficulties, where do they feel interested and feel their ownership in the class but it does not mean that they occupy class rather they get authority. So wherever we need help we take help from the technologies and try to make our class students centered.

Another male college teacher added,

Usually English class means monotonous where teaching happens only from books. Before coming teachers students used to be ready with their book. During online

classes, English classes do not mean only books. Different tools have been started to use from then and though it was virtual learning process students have got engaged with the classroom and different activities, discussion on different tools like after hearing a podcast on a grammar content or any story I throw different questions to them it makes my English class students centered.

This implies that according to both male and female teachers, using technology helps teachers to make a class students' centered.

To find out the comfort of the students with the use of technological tools, all the interviewees were asked and one of the male college teachers answered,

Actually since we were not in practice to use technology in our classroom for English learning so it was not easy for us at the beginning of online learning but gradually we became comfortable because obviously we had no choice. Moreover, it is interesting too to learn through technological opportunities because learning from only books is not interesting to students. On the other hand, using digital resources make the class interactive and interesting. You know when I use audio or video or ppt for teaching students become more concentrative. During pandemic, I observed these things more clearly.

However, now we are almost in the post pandemic situation and students started to come back to institutions and they are getting Blended learning where teachers using technology, online platforms along with books, whiteboard and classroom atmosphere.

According to a university teacher, students feel more comfortable. She stated,

Yes they feel comfortable because if students feel sick they cannot come to students they can join the class by staying at home or if students go out of the country so they can do classes from there as well. It is for online classes. Now, students get both facilities like they come to the physical classes and understand their queries from the

class and when they go back to the home and sit for study they get the materials in our sites as well so if they miss the class they will get materials. Other than that sometimes short tests are also time consuming and important as well. Now, I do not take those in physical class, I set it in online platforms, set the time and students attend those. There is no chance of extra timing, late submission and so on. So it is beneficial for both of the students and teachers.

In this case, though it was tough at the beginning to adjust with the use of technology for the students, gradually they developed and started to feel comfortable with it. Another fact has been cleared that, from content choosing to assessing in ELT class students get priority to their teachers most and technology helps both male and female teachers to understand the level of their students and work accordingly.

5.3 Impact of technology in developing ELT leadership

In the context of ELT leadership, the relationship between teachers and students is very important and technology worked as a helping tool in the pandemic period. All the interviewees of this context believed that technology helped teachers to develop their leadership skills. To enlighten the matter, one of the female college teachers stated,

Yes, definitely. Technology helps us to advance our world so if a teacher does not develop his/her skills in technological terms and use it in right way in teaching then it will not develop his/her leadership skills and will not be able to teach students and prepare them for the modern world.

To this another college male teacher added,

Yes it is true in such sense that...mmm we follow our teacher blindly, whatever they us we believe as true and we obey them as our idol. Now-a-days having better technological skill is must for any kind of person there as a teacher if I do not implement technology in my teaching how my students will learn, they will fall

behind in the competition of modern world and deprive of the advantage of technology which we all have understood during the pandemic.

That means, both male and female ELT teachers believed that to cope up with the modern world and to prepare their students for the future a teacher is needed to be a good leader and technology helps them to develop their leadership skills as well. However, here both female and male teachers explained the development of leadership skill with the cooperation of technology from their personal perspective.

5.4 Expectation from and continuation of technology after the pandemic

During the pandemic, the utility of technology increased in a significant way and it has created expectations among the teachers and the students. One of the male school teachers said,

I think some more online platforms should be there to use in teaching with more facilities and the most important thing is that we need access for those platforms. Now we find that there are many platforms which we can use but we do not have access. Maybe we have to purchase those. In this case, authority should help us.

Regarding this fact a female school teacher added,

I think according to the condition of Bangladesh, technology has enough features but we cannot use it due to our lackings. We are lucky that we live in urban areas but still who live in rural are as they even do not get one percent of us. Besides, If we could see that whatever students are doing on the other side of the camera it would be good..... (laughing) because when I ask any question their mike got muted, they face network issue (laughing) so as a teacher i think if I could see what is happening there, it would be good.

According to the male teacher, more opportunities and appropriate platforms need to be utilized in ELT for the students. On the other hand, the female teacher believed that whatever

technology is used in education is sufficient, rather they cannot use those due to the poor infrastructure of Bangladesh. Yet she thinks that such kinds of facilities are still needed to observe students from the other side of the camera.

Again, the learning process of students' has also been affected by the implementation of technology. Before the pandemic since technology could not be used on a large scale and when teachers started to use technological tools and other activities in English teaching it has brought improvement in learning. In this matter a college teacher added,

Usually English class means monotonous where teaching happens only from books. Before coming teachers students used to be ready with their book. During online classes, English classes do not mean only books. Different tools have been started to use from then and though it was virtual learning process students have got engaged with the classroom and different activities, discussion on different tools like after hearing a podcast on a grammar content or any story I throw different questions to them it makes my English class students centered.

Moreover, a female college teacher also explained,

Bookish language and the explanation of bookish definition are not enough to hold the concentration of students. Like group work, debate, opinion taking, technology such as ppt, video is also an effective way but a teacher has to be aware about his/her pedagogy that how she/he will use technology in the classroom.

However, in sum up it has already been clear that teachers and students are comfortable with the implementation of technology in ELT.

Furthermore, in the matter of continuation of the use of technology all the interviewees showed a positive attitude towards it. A school male teacher stated,

Yes, of course. If I have another chance, I will come back to my class... I would like to use resources, online teaching materials, if I have the chance, but the online

platform doesn't seem very suitable for assessment. Similarly, we used Google Classroom for assessment, but this was slow and students didn't get our feedback right.

Again, A female school teacher answered in this matter,

yes, but not like before the pandemic or during pandemic. Because, before the pandemic it was not sufficient and during the pandemic it became an overdose. So I prefer to use that much which I need according to my students.

Here, again both female and male teachers focused on opportunities which they needed most to implement their technological skills in teaching which they searched for pre-pandemic period but not like the pandemic situation where they were fully dependent on technology. Rather they want to apply technology according to their students.

Chapter 6: Discussion

This comparison study explored teachers' technology leadership development in ELT in Bangladesh in COVID 19 (pre, during and post) context. Along with that it was also explored, how far female teachers developed in terms of technology leadership in ELT compared to their male counterparts. Moreover, to what extent their experiences differed from each other and how far the implementing of technology contributed to develop female teachers' leadership in ELT both immediately and over time was also illustrated.

6.1 Integrating technology into English Teachers Classes in Pre, During and Post Pandemic Time

We found from our quantitative analysis (One way ANOVA) that teachers did not integrate technology much in pre pandemic time, it has increased during the pandemic and they are interested in integrating technology after the pandemic as well in ELT. That means the situation of integrating ELT and technology did not progress too well but during the pandemic situation started to develop and teachers are interested to use technology after the pandemic as well.

However, all teachers mentioned in their interviews that they faced numerous challenges; such as- poor technological infrastructure, scarcity of cooperation of the authority, curriculum and syllabus related complexity to integrate technology in ELT classes before the pandemic. Though the university teachers integrated technology into their classrooms but again they faced problems for poor technological infrastructure and curriculum related issues. Again, the prior studies regarding the issue also support the findings as well. The history of implementation of technology in the classroom is one of cycles of exaggerated promises, started with highly publicized promises with trained teachers, powerful and inventive excuses for why the promises went unfulfilled (Cuban, 1986; Venezky & Osin, 1991).

Moreover, deficit of budget and limitation of resources, shabbiness in infra-structural establishments, power crisis and lack of constant electricity supply, poor network and slow internet speed, unavailability of well-trained up teachers for smooth operation are the obstacles on the way of implementing technology in ELT in classroom (Ahmed, 2018). Another fact has come out from the interviews that since integrating technology in ELT was not possible properly from primary to college level, students felt monotonous due to their books and information sheet based learning.

One of the prior studies of Bangladesh Education Statistics 2021 found that there were 77.58% of institutions with multimedia. It was 21.94% in junior schools, 84.04% in secondary schools, 94.23% in schools and colleges, and 89.64% in colleges. The percentage of institutions with computers is comparatively higher: 87.36% of all institutions, 92.69% of schools and colleges, 43.41% of junior secondary schools, and 92.69% of secondary schools. On the other hand, through the interviews from junior, secondary, school & college and college teachers in Dhaka, this study explored that most of the institutions have only one multimedia and one computer as technological devices which is insufficient for a large number of students of these institutions.

Again, it was found in this study that during the pandemic, though teachers started to use technology in their virtual classes since they had no option but it was not a smooth journey. They faced different issues to utilize technology in ELT. They explained, poor internet connection, scarcity of technological resources, scarcity of the support of institutions have badly affected their virtual teaching. However, in a study on the condition of ELT in Bangladesh by Fatima (2020) explained that students and teachers of developing countries are facing numerous problems conducting online classes due to lack of experience in technology, high priced internet with poor speed and scarcity of technological devices. Here, the prior study justified the findings as well. Other than that during the online classes teachers

could use different online platforms, tools to teach students to keep students encouraged to connect with the class nevertheless, teachers were not satisfied since they did not attend students directly. They felt that with the collaboration of technology it is important to discuss and practice face to face from books.

Moreover, teachers believed that integrating technology in ELT is important to improve content and pedagogical knowledge but some of them claimed that content and pedagogy should not be driven by technology rather teachers should decide that where and how they will utilise technology according to the level of their students to develop content and pedagogy. At last, in the matter of continuation of utilizing technology in ELT classes teachers showed a positive attitude. They expressed, if they get opportunities and facilities they will integrate technology into their teaching in class after the pandemic to improve their pedagogy in their interviews.

6.2 Integrating technology into Female English Teachers Classes than their male counterparts in Pre, During and Post Pandemic Time

As a part of the quantitative analysis, three individual independent t tests were executed for three time periods (pre, during and post), and it has been discovered that female teachers are more interested in incorporating technology into ELT after the pandemic than male teachers, even if they had not done so much before the COVID 19. Because of the pandemic, however, the status of ELT and technology cooperation started to improve, and female teachers are now more motivated to use technology both before and after the pandemic than their male counterparts.

Through the interview, it has been explored that female teachers felt they did not get proper facilities and opportunities from the authorities of their institutions to implement technology in their classrooms before the pandemic. While, male teachers criticized the curriculum and syllabus of ELT, female teachers mentioned the poor facilities of institutions,

scarcity of opportunities, encouragement of authority to implement technology in ELT classrooms.

On the other hand, Bangladesh Education Statistics (2016) explained, the percentage of female teachers in primary schools is 61.91%, in secondary level 25.63%, in college 23.56% and 26.01% teachers of universities are female and others are male. Again, according to UNESCO (2006), about 63% lower secondary teachers do not have the required teaching qualification and the majority part of the primary and the secondary teachers lack the required subject knowledge and teaching skills (Nath & Chowdhury, 2009). These statistics further strengthen the fact that female teachers did not get enough facilities and opportunities to implement technology in their classrooms before the pandemic.

Female teachers also added in their interviews that their utilization of technology started to increase from during the pandemic. At first, they were forced to implement technology in online classes. Then, experiencing the facilities of digital platforms they were inspired to utilize those tools in their teaching and learning process. Here, they were facilitated by the authorities with devices, training and others rather they got half salary. Teachers used to help each other and tried to prepare the contents, develop their pedagogical skills to make the learning process easier and effective for the students. Like another developing country Malaysia, Bangladeshi women also lack access to the internet due to socio-cultural status where religion, social status, lack of convergence of technology and education, scarcity of time and poor income are vital factors (Sharma, 2003, p.514-515).

6.3 Qualitative Differences Between Female English teachers' Male English Teachers Experiences in Three Stages of the COVID-19 Pandemic

Female teachers from primary, secondary and college level mentioned in their interviews that they were not provided encouragement, facilities by the authorities to implement technology in ELT classrooms before the pandemic and during pandemic.

Whereas, they did not get any opportunity to utilize technology in teaching there they were completely forced to use technology as their prime teaching tool. Because they did not get aid from the authorities of the institution. That means, though they used technology in online classrooms during the online classes more than before, it was tough for them. In this matter in a prior study by Fatima (2020) explained, ELT teachers are already introduced and working with technologies. On the other hand, it is found from the interview that only university teachers implemented technology in their classrooms before the pandemic. Again supporting this matter, Bangladesh Education Statistics (2016) concluded there are only 26.01% female teachers, which means in this case, female ELT teachers also did not implement technology more than male counterparts.

Regarding this fact, results of several prior studies resembled the findings of this study. The English teachers and students ratio is 1: 130 in secondary level (Nur, 2018). It is not only for secondary level students. It is the situation for primary and college level as well. Again, The majority of students are weak in listening (rural 26% & urban 24%) and speaking skills (rural 52% & urban 60%) (Hossain, 2018). That means, the effect of insufficient English teachers has a strong impact on students' learning process. However, in this circumstance of Bangladesh, the percentage of female English teachers is worse. On the other hand, since the percentage of female teachers is poor in our education sector and the percentage of English teachers is also not satisfying, which means the position of female teachers is not as strong either than male teachers. In this fact, Cox et al. (1999) conducted a study to look at the factors that influence the use of ICT in the classroom. The findings revealed that teachers who are already regular users of ICT have confidence in their ability to utilize it, believe it is valuable for their personal work and teaching, and plan to expand their use in the future. Since, female teachers position is not stronger in Bangladesh in ELT than

male teachers counterparts, that means, before the pandemic female teachers were not that much developed like male teachers in integrating technology in the classroom.

However, female and male both ELT teachers showed equal interest in implementing technology in their classrooms after the pandemic as well as much as they will feel necessity for their students according to their level.

6.4 Contribution of implementing technology in developing leadership skills

To explore the contribution of implementing technology in developing leadership skills in ELT, the 'Transformative Learning Theory' has been used in this study. The fundamental goal of transformative learning is to improve cognitive and emotional skills so that a person may create a critical reflection by creating new viewpoints and meaning structures. From the interview, it has been explored that both female and male teachers think from their personal perspective that technology helped them to improve their leadership skills. Because, the collaboration of technology and teaching keeps them updated with modern equipment and techniques for teaching.

Other than that they feel that it helps them to develop their teaching methods, contents and keep the classes student centred which are very essential for practising good teaching. However, The main focus is on the teaching and learning practices to ensure students' proficiency in 21st-century skills in the classroom as preparation for working life (Leahy & Dolan, 2010). Moreover, 'digital literacy' introduced by Gilster (1998) has also been integrated as a 21st century skill which means, the ability to understand and to use information from a variety of digital sources. That means to develop 21st century skills which is also important for developing leadership skills and also include the ability to properly integrate technology in teaching and learning. The implementation of technology has a significant impact in developing leadership skills of ELT teachers.

Chapter 7: Conclusion

The main objective of the study was to explore the leadership development of female ELT teachers in Bangladesh by implementing technology in the context of COVID-19. It was also aimed to explore the experience of female teachers' experience before, during and post of the pandemic in comparison to male teachers' experience.

Along with that, the study also investigates how far technology helped teachers to develop leadership skills and the experience of students in implementing technology in their learning process as well.

Analyzing both qualitative and quantitative data it has been concluded that both female and male teachers did not get opportunities to implement technology in English teaching in their classrooms before COVID 19 pandemic and during the pandemic the dimension of utilization of technology increased via online class. Moreover, both female and male teachers showed a positive attitude and on the other hand, the quantitative data statistics of this study showed that female teachers are more interested than male teachers towards including technology after the pandemic.

Furthermore, the studies and statistics that have been found so far also go along with the exploration of this study that female teachers got less opportunities to implement technology in English teaching than male teachers before the pandemic and female teachers also claimed that institutions did not provide sufficient facilities to utilize technology both in online and classroom teaching. However, during the pandemic they developed technological skills to evolve their content and pedagogy more with the help of their teachers community to apply in teaching

Another investigation claims that teachers believed that technology helped them to develop their content and pedagogical skills in teaching which contributes to engage students in classroom activities and make the class students centered. Moreover, the investigation on

leadership development of teachers showed, teachers believe that applying technology in teaching assists them to develop their leadership skills in a large dimension.

Summing up all these explanations of this study it is concluded that integration of technology in ELT has a great impact on developing teaching and leadership skills of female English teachers in Dhaka, Bangladesh.

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Appendix A

Survey Questionnaires

Consent Form

Key Information

It is a research study. I would like to humbly request you to take time to evaluate the information carefully. Your participation in this study is voluntary, which means you can withdraw your participation at any time without any kind of penalty or loss of benefits. You can even ask questions to the researcher about the study whenever you like. If you decide to take part in the study, you will be asked to sign this form and kindly be sure what you will do and any possible risks or benefits.

The research is based on the Integration of ICT leadership into ELT and female teachers in Bangladesh. We believe that female teachers' progression in technology leadership in ELT is essential. There has been much research done on the development of technology leadership, but limited research has been conducted on female teachers in ELT. To conduct the research we will compare the development of female teachers in the realm of ICT in comparison to male teachers in three stages (pre-pandemic, during pandemic and post pandemic).

Your participation in this project will take no more than 20 minutes of your time and includes (1) completion of the pre-survey for background information (approx. 3 minutes) and (2) the survey (approx. 15 minutes). There is also an optional interview part. If you have time, I also would like to interview you for half an hour to know more about your experience.

What is the purpose of this study?

In this context, the main purpose of the research is to find out the development of female teachers' technology leadership in ELT in Bangladesh prior to the pandemic, as well as how the pandemic has affected female teachers' technology leadership in ELT and what they think about the usability of technology in ELT after the pandemic.

What will I do if I choose to be in this study?

For this study we ask for the following from participants:

- (1) completion of the pre-survey for background information (approx. 3 minutes),
- (2) the survey (approx. 15 minutes),

How long will I be in the study?

Your participation in this project will take no more than 20 minutes of your time.

What are the possible risks or discomforts?

The risks for this project are minimal yet we will take precautions to minimize this risk as described in the confidentiality section. Kindly check the confidentiality section for further information about the security we are putting in place to prevent this risk.

Are there any potential benefits?

There are no direct benefits for participants in this study. However, benefits stemming from the study could include a new understanding of female teachers' development in technology leadership in ELT.

Will information about me and my participation be kept confidential?

The project's research records may be reviewed by departments at BRAC University responsible for regulatory and research oversight. Your confidentiality is being protected as this is an anonymous survey. If you agree to participate in an interview, your name and present position will be removed from all documentation once you have verified your transcribed interview for accuracy. You will not be identified as an individual in the findings or in relation to the project in any way. Recordings will be kept until verification by participants for accuracy has been occurred and then it will be destroyed.

Who can I contact if I have questions about the study?

If you have questions, comments or concerns about this research project, you can talk to the project supervisor or the researcher as well:

Project Supervisor: Mohammad Shams Ud Duha

Faculty member (on leave), Brac Institute of languages (BIL), Brac University

Email: mduha@purdue.edu

Researcher: Afroja Alam

Student of MA in TESOL, BRAC University

Email: afroja.alam@g.bracu.ac.bd

Documentation of Informed Consent

I have had the opportunity to read the consent form and have sufficient explanation on the research study as well. Now, I am prepared to participate in the research study.

Kindly provide your signature and date below:

Survey Purpose and Terminologies

General explanation: As ELT educators, our concern is to improve teaching experience to develop the learning experience for students.

The purpose of this project is to assist educators in understanding your experience on the integration of technology into your teaching in the three stages of the COVID-19 pandemic (pre, during, and post)

We are requesting you to complete a survey to help us know whether these technology integrations in your teaching were/are/will be effective or not and how you managed/are managing/will manage. Your participation in completing these surveys will inform educators of the learning activities and teaching strategies that were most valuable. Your responses will be kept private. The survey should take approximately 20 minutes to complete. You will also be asked if you are willing to participate in an interview.

Please respond to each item if you are in service in teaching at an elementary/secondary school, college or university.

Definitions

Technological Knowledge: The knowledge of technology to use in teaching and learning such as- MS Word, PPT, operating different software and tools of the computer.

Content Knowledge: This term refers to all knowledge related to the content of your teaching.

Pedagogical Knowledge: The knowledge of teaching and learning practices, knowledge of classroom management and assessment and the knowledge of how students assemble knowledge.

Section 1

Demographic Questions

1. What is your gender? Male women Other
2. What is your age group? 20-25 25-30 30-35 35-40
 40-45 45- above
3. What is the highest level of education you have completed? _____
4. Are you currently a student? ____ If yes, grad or undergrad? _____ Major:

5. Describe your employment status: _____
6. Location of your institution: Urban Rural
7. Level of students you teach: primary secondary higher secondary
Under Graduation Post Graduation

Section 2: The aim of this section is for you to reflect on your integration of technologies in ELT during the pre-pandemic period.

For each item select your level of agreement or disagreement by putting an “X” in the appropriate box using the scale below:

Strongly Disagree (SD)

Disagree (D)

Neither Disagree or Neither Agree (ND/NA)

Agree (A)

Strongly Agree (SA)

<p>A) Technological Knowledge (TK):</p> <p>1. I used and tried different technologies in regular life আমি আমার দৈনন্দিন কাজে বিভিন্ন প্রযুক্তি ব্যবহার করার চেষ্টা করতাম</p>					
<p>2. I implemented my technological skills in my ELT(English Language Teaching) আমি শিক্ষাদানে আমার প্রযুক্তিগত দক্ষতা প্রয়োগ করতাম</p>					
<p>B) Content Knowledge (CK):</p> <p>3. I had adequate knowledge and ideas to teach English Language ইংরেজি ভাষার শিক্ষা দানের বিষয়ে যথেষ্ট জ্ঞান ছিল</p>					

<p>4. I could explain the main concept of any topic/theory of English Language easily</p> <p>আমি ইংরেজি ভাষা সংক্রান্ত কোন তত্ত্ব অথবা প্রসঙ্গের মূলভাব ব্যাখ্যা করতে পারতাম</p>					
<p>5. I used to connect the English Language lesson contents with real life</p> <p>আমি শ্রেণীকক্ষের পাঠের সাথে দৈনন্দিন জীবনের সংযুক্তি করে ছাত্রছাত্রীদের বোঝাতে পারতাম</p>					
<p>C) Pedagogical Knowledge (PK):</p> <p>6. I could use different approaches/tools to teach English language</p> <p>আমি ইংরেজি ভাষা শিক্ষাদানে বিভিন্ন পদ্ধতি/ সরঞ্জাম ব্যবহার করতাম</p>					
<p>D) Pedagogical Content Knowledge (PCK):</p> <p>7. I could adjust my teaching according to level of ease and difficulties with learning of English Language</p> <p>আমি ইংরেজি ভাষা শেখার সাথে সহজে এবং অসুবিধার মাত্রা অনুযায়ী আমার শিক্ষাদান সামঞ্জস্য করতে পারতাম।</p>					
<p>E) Technological Content Knowledge (TCK):</p> <p>8. I used to use technology to prepare/develop my contents to teach English Language</p>					

<p>আমি বিষয়বস্তু তৈরি করতে প্রযুক্তি ব্যবহার করতাম</p>				
<p>9. I used to implement technology explain difficult terms of English Language content to students</p> <p>আমি প্রযুক্তি ব্যবহার করে কঠিন বিষয়গুলো ছাত্র/ছাত্রীদের কাছে সহজ করে বুঝাতাম</p>				
<p>10. I could add additional resources with the content of English Language using technology that may not be available otherwise</p> <p>আমি প্রযুক্তি ব্যবহার করে বিভিন্ন সহযোগী তথ্য সংযুক্ত করতাম যা হয়ত অন্য উপায়ে সম্ভব নয়</p>				
<p>F) Technological Pedagogical Knowledge (TPK):</p> <p>11. I could use technology to increase students' engagement with the contents of English Language</p> <p>আমি প্রযুক্তি ব্যবহার করে পাঠদানের বিষয়বস্তুর সাথে ছাত্রছাত্রীদের সম্পৃক্ততা বৃদ্ধি করতে সক্ষম হয়েছিলাম</p>				
<p>12. I used to implement my technological skills to choose contents according to the level of students</p> <p>আমি প্রযুক্তিগত দক্ষতা ব্যবহার করে ছাত্রছাত্রীদের ধরন অনুযায়ী বিষয়বস্তু বাছাই করতে পারতাম</p>				

<p>G) Technological Pedagogical Content Knowledge (TPCK):</p> <p>13. I could use technology to in such a way that students feel its positive impact in their learning on different contents of English Language</p> <p>ছাত্রছাত্রীদের নির্দিষ্ট বিষয়বস্তুর প্রতি ইতিবাচক প্রভাব যেন সৃষ্ট হয় সেই অনুযায়ী প্রযুক্তি ব্যবহার করেছিলাম</p>					
<p>14. I could use technology to bring real-life experience, examples and analogies on the topics/theories of English Language</p> <p>আমি প্রযুক্তি ব্যবহার করে বাস্তব জীবনের অভিজ্ঞতা কাজে লাগিয়ে নির্দিষ্ট তত্ত্ব/ বিষয়বস্তু ব্যাখ্যা করতে পেরেছিলাম</p>					
<p>15. I could use technology to teach certain content of English Language within the defined pedagogical approach in a given context</p> <p>নির্দিষ্ট বিষয়বস্তুর সাথে, নির্দিষ্ট প্রসঙ্গে শিক্ষাদানের ক্ষেত্রে প্রযুক্তি ব্যবহার করেছিলাম</p>					

Section 3: The aim of this section is for you to reflect on your integration of technologies in ELT during the pandemic period.

For each item select your level of agreement or disagreement by putting an “X” in the appropriate box using the scale below:

Strongly Disagree (SD)

Disagree (D)

Neither Disagree or Neither Agree (ND/NA)

Agree (A)

Strongly Agree (SA)

<p>A) Technological Knowledge (TK):</p> <p>16. I have used and tried different technologies in regular life</p> <p>আমি আমার দৈনন্দিন কাজে বিভিন্ন প্রযুক্তি ব্যবহার করার চেষ্টা করেছি</p>					
<p>17. I have implemented my technological skills in my ELT (English Language Teaching)</p> <p>আমি শিক্ষাদানে আমার প্রযুক্তিগত দক্ষতা প্রয়োগ করেছি</p>					
<p>B) Content Knowledge (CK):</p> <p>18. I have had adequate knowledge and ideas to teach English Language</p> <p>ইংরেজি ভাষার শিক্ষা দানের বিষয়ে যথেষ্ট জ্ঞান বিদ্যমান</p>					

<p>19. I believe explain the main concept of any topic/theory of English Language easily</p> <p>আমি ইংরেজি ভাষা সংক্রান্ত কোন তত্ত্ব অথবা প্রসঙ্গের মূলভাব ব্যাখ্যা করতে পারি</p>					
<p>20. I prefer to connect the English Language lesson contents with real life</p> <p>আমি শ্রেণীকক্ষের পাঠের সাথে দৈনন্দিন জীবনের সংযুক্তি করে ছাত্রছাত্রীদের বোঝাতে সক্ষমবোধ করি</p>					
<p>C) Pedagogical Knowledge (PK):</p> <p>21. I use different approaches/tools to teach English language</p> <p>আমি ইংরেজি ভাষা শিক্ষাদানে বিভিন্ন পদ্ধতি/ সরঞ্জাম ব্যবহার করি</p>					
<p>D) Pedagogical Content Knowledge (PCK):</p> <p>22. I can adjust my teaching according to level of ease and difficulties with learning of English Language</p> <p>আমি ইংরেজি ভাষা শেখার সাথে সহজে এবং অসুবিধার মাত্রা অনুযায়ী আমার শিক্ষাদান সামঞ্জস্য করতে পারি।</p>					
<p>E) Technological Content Knowledge (TCK):</p> <p>23. I add additional resources with the English Language content using technology that may not be available otherwise</p>					

<p>আমি প্রযুক্তি ব্যবহার করে বিভিন্ন সহযোগী তথ্য সংযুক্ত করেছি যা হয়ত অন্য উপায়ে সম্ভব নয়</p>					
<p>24. I implement my technology explain difficult terms of English Language content to students</p> <p>আমি প্রযুক্তি ব্যবহার করে কঠিন বিষয়গুলো ছাত্র/ছাত্রীদের কাছে সহজ করে বুঝাই</p>					
<p>25. I use technology to prepare/develop my contents to teach English Language</p> <p>আমি বিষয়বস্তু তৈরি করতে প্রযুক্তি ব্যবহার করি</p>					
<p>F) Technological Pedagogical Knowledge (TPK):</p> <p>26. I use technology to increase students' engagement with contents of English Language</p> <p>আমি প্রযুক্তি ব্যবহার করে পাঠদানের বিষয়বস্তুর সাথে ছাত্রছাত্রীদের সম্পৃক্ততা বৃদ্ধি করতে সক্ষম হয়েছি</p>					
<p>27. I implement my technological skills to choose contents according to the level of students</p> <p>আমি প্রযুক্তিগত দক্ষতা ব্যবহার করে ছাত্রছাত্রীদের ধরন অনুযায়ী বিষয়বস্তু বাছাই করতে পেরেছি</p>					

<p>G) Technological Pedagogical Content Knowledge (TPCK):</p> <p>28. I use technology to in such a way that students feel its positive impact in their learning on different contents of English Language</p> <p>ছাত্রছাত্রীদের নির্দিষ্ট বিষয়বস্তুর প্রতি ইতিবাচক প্রভাব যেন সৃষ্ট হয় সেই অনুযায়ী প্রযুক্তি ব্যবহার করেছি</p>					
<p>29. I use technology to teach certain content of English Language within the defined pedagogical approach in a given context</p> <p>নির্দিষ্ট বিষয়বস্তুর সাথে, নির্দিষ্ট প্রসঙ্গে শিক্ষাদানের ক্ষেত্রে প্রযুক্তি ব্যবহার করেছি</p>					
<p>30. I use technology to bring real-life experience, examples and analogies about specific topic/theory of English Language</p> <p>আমি প্রযুক্তি ব্যবহার করে বাস্তব জীবনের অভিজ্ঞতা কাজে লাগিয়ে নির্দিষ্ট তত্ত্ব/ বিষয়বস্তু ব্যাখ্যা করতে পেরেছি</p>					

Section 3: The aim of this section is for you to reflect on your integration of technologies in ELT during the post-pandemic period.

For each item select your level of agreement or disagreement by putting an “X” in the appropriate box using the scale below:

Strongly Disagree (SD)

Disagree (D)

Neither Disagree or Neither Agree (ND/NA)

Agree (A)

Strongly Agree (SA)

<p>B) Technological Knowledge (TK):</p> <p>31. I will use and try different technologies in regular life</p> <p>আমি আমার দৈনন্দিন কাজে বিভিন্ন প্রযুক্তি ব্যবহার করার চেষ্টা করব</p>					
<p>32. I will implement my technological skills in my ELT (English Language Teaching)</p> <p>আমি শিক্ষাদানে আমার প্রযুক্তিগত দক্ষতা প্রয়োগ করব</p>					
<p>B) Content Knowledge (CK):</p> <p>33. I believe that I have adequate knowledge and ideas to teach English Language</p>					

<p>আমি বিশ্বাস করি যে ইংরেজি ভাষার শিক্ষা দানের বিষয়ে যথেষ্ট জ্ঞান বিদ্যমান থাকবে</p>				
<p>34. I believe I will be able to explain the main concept of any topic/theory of English Language easily</p> <p>আমি ইংরেজি ভাষা সংক্রান্ত যে কোন বিষয়ের মূলভাব মূলভাব ব্যাখ্যা করতে পারব</p>				
<p>35. I will prefer to connect the English Language lesson contents with real life</p> <p>আমি শ্রেণীকক্ষের পাঠের সাথে দৈনন্দিন জীবনের সংযুক্তি করে ছাত্রছাত্রীদের বোঝাতে সাক্ষন্দবোধ করব।</p>				
<p>C) Pedagogical Knowledge (PK):</p> <p>36. I will use different approaches/tools to teach English language</p> <p>আমি ইংরেজি ভাষা শিক্ষাদানে বিভিন্ন পদ্ধতি/ সরঞ্জাম ব্যবহার করব</p>				
<p>D) Pedagogical Content Knowledge (PCK):</p> <p>37. I will adjust my teaching according to level of ease and difficulties with learning of English Language</p> <p>আমি ইংরেজি ভাষা শেখার সাথে সহজে এবং অসুবিধার মাত্রা অনুযায়ী আমার শিক্ষাদান সামঞ্জস্য করতে পারব</p>				

<p>E) Technological Content Knowledge (TCK):</p> <p>38. I will add additional resources with the English Language content using technology that may not be available otherwise</p> <p>আমি প্রযুক্তি ব্যবহার করে বিভিন্ন সহযোগী তথ্য সংযুক্ত করব যা হয়ত অন্য উপায়ে সম্ভব নয়।</p>				
<p>39. I will implement my technology explain difficult terms of English Language content to students</p> <p>আমি প্রযুক্তি ব্যবহার করে কঠিন বিষয়গুলো ছাত্র/ছাত্রীদের কাছে সহজ করে বুঝাব</p>				
<p>40. I will use technology to prepare/develop my contents to teach English Language</p> <p>আমি ইংরেজি ভাষা পড়ানোর বিষয়বস্তু তৈরি করতে প্রযুক্তি ব্যবহার করব</p>				
<p>F) Technological Pedagogical Knowledge (TPK):</p> <p>41. I will use technology to increase students' engagement with contents of English Language</p> <p>পাঠদানের বিষয়বস্তুর সাথে ছাত্রছাত্রীদের সম্পৃক্ততা বৃদ্ধি করতে প্রযুক্তি ব্যবহার করব</p>				
<p>42. I will implement my technological skills to choose contents according to the level of students</p>				

<p>আমি প্রযুক্তিগত দক্ষতা ব্যবহার করে ছাত্রছাত্রীদের ধরন অনুযায়ী বিষয়বস্তু বাছাই করতে পারব</p>					
<p>G) Technological Pedagogical Content Knowledge (TPCK):</p> <p>43. I will use technology to in such a way that students feel its positive impact in their learning on different contents of English Language</p> <p>ছাত্রছাত্রীদের নির্দিষ্ট বিষয়বস্তুর প্রতি ইতিবাচক প্রভাব যেন সৃষ্ট হয় সেই অনুযায়ী প্রযুক্তি ব্যবহার করব</p>					
<p>44. I will use technology to teach certain content of English Language within the defined pedagogical approach in a given context</p> <p>নির্দিষ্ট বিষয়বস্তুর সাথে, নির্দিষ্ট প্রসঙ্গে শিক্ষাদানের ক্ষেত্রে প্রযুক্তি ব্যবহার করব</p>					
<p>45. I will use technology to bring real-life experience, examples and analogies about specific topic/theory of English Language</p> <p>আমি প্রযুক্তি ব্যবহার করে বাস্তব জীবনের অভিজ্ঞতা কাজে লাগিয়ে নির্দিষ্ট তত্ত্ব/ বিষয়বস্তু ব্যাখ্যা করতে পারব</p>					

Appendix B
Interview Questionnaire

1. What kinds of problems would you face in implementation of technology in teaching English Language before the pandemic?
2. How does technology help to develop your pedagogical knowledge in the English Language?
3. Do you believe that a 'teacher is a leader' and the implementation of technology in ELT will develop your leadership skills? How?
4. To make an ELT class students centered, how does technological implementation help you?
5. How far 'Technological Knowledge' affects 'Content Knowledge' or/and 'Pedagogical Knowledge'?
6. Could you arrange adequate materials from online resources according to your students' level? How do you manage?

7. Do you think that your students feel comfortable to use technology in their learning process? How?
8. How did your institution/authority facilitate your implementation of technology in your teaching before and during pandemic ?
9. Do you believe that this pandemic has compelled/encouraged you to implement technology in your teaching?
10. How have you managed to implement technology in your teaching during this pandemic?
11. Will you continue the use of technology in your teaching in the post pandemic period? How?
12. What kind of development/changes do you expect from technology to improve your teaching?