Perceptions of Incorporating Smartphones to Overcome Learners' Listening Difficulties in Bangladeshi Tertiary EFL Classrooms

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Abstract: The use of smartphones in higher education has significantly impacted the global education landscape, particularly in Bangladeshi tertiary English as a Foreign Language (EFL) classrooms. Despite their importance in improving students' communicative competence, listening skills are often overlooked in these classrooms due to limited access to listening equipment. This study, at the very outset, seeks to address their challenges while developing listening. Furthermore, it focused on identifying the perception of the learners and teachers towards the appropriate and effective use of smartphones to minimize their listening difficulties. This research design followed the sequential explanatory mixed-method approach to align the objectives. Convenience sampling was employed to select 11 participants for the qualitative component, ranging from lecturers to associate professors, as well as 159 students from 25 universities across Bangladesh for the quantitative component. A questionnaire survey and semi-structured interview were used to collect data. The study utilized SPSS 25.0 to analyze quantitative data presenting mean, median, mode, and standard deviation for the descriptive study, and a deductive thematic analysis technique was employed for qualitative data. The results showed that learners believe smartphones effectively help them overcome challenges like context sensitivity, pronunciation, missed or misperceived words, natural speech rate adaptation, accent comprehension, and vocabulary deficits. This study also finds that using smartphones to improve students' listening abilities in tertiary EFL classes is highly doable. This study also recommends that EFL teachers and administrative authorities work together in order to successfully integrate cell phones in an EFL classroom.

Keywords: Learners' Listening Difficulties, Incorporating Smartphones, Tertiary EFL Classroom.

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Introduction

With the recovery from the COVID pandemic, global socio-economic and educational activities have begun to recover all around. In the present landscape, connectivity and digital technology have begun to play a decisive role in shaping everyday life, student education, and business operations. Especially in the education arena, remote teaching and learning and e-learning activities have shown their popularity and effectiveness. In this backdrop, digital devices, especially smartphones, have been playing a significant role in taking education activities forward (Ibragimov et al., 2023). In this age of mass connectivity and digital technology, a huge portion of the global population uses smartphones for multifarious activities. In 2022, 6.64 billion people used smartphones, which represents 82% of the global population (Turner, 2023). Smartphones and other portable technologies have the capability to distribute online resources which contributes to English language learning. Currently, the number of individuals accessing educational content crosses 2 billion through these means. The volume of mobile phone subscribers crossed 186 million in Bangladesh by June 2023 (Mobile Phone Subscribers, 2023). Bhuiyan (2021) cited a prediction from GSMA (Global System for Mobile Communications Association) indicating that by 2025, the percentage of smartphone owners in Bangladesh will reach 62%.

Technology in the modern classroom is a vital component regardless of learners' proficiency level. Digital mobile devices (DMDs) have begun to play a pivotal role in promoting the acquisition of various cross-disciplinary or general skills (Sevillano-Garcia & Vázquez-Cano, 2015). The greatest advantage for a student using a mobile phone is its immediacy, providing access to any information, and the ability to control various tasks (Shorna & Suchona, 2019). In addition, its academic benefits most valued by teachers are its convenience, adaptability, and communication options with students, as well as the opportunities for student assessment and motivation (Salcines-Talledo et al., 2022).

According to Shorna and Suchona (2019), in Bangladesh too, adult learners are increasingly using mobile devices, including smartphones in particular. They also observe that at present, almost every university student has a smartphone, and this device has been incorporated into our daily lives due to its utility. Seraj et al. (2021) find that, in terms of language learning and teaching skills, learning through mobile devices and in-person learning is equally effective. However, they observe that the implementation of mobile phones to enhance English language proficiency among learners is still in its early stages (Seraj et al., 2021). Learning and teaching listening are largely overlooked, especially in tertiary EFL education in Bangladesh (Ahmed, 2021). The most common reason cited for this neglect is

the challenge of teaching listening in large classes where logistical support is lacking (Alam & Sinha, 2009). Reza (2013) presents a research report on tertiary students' listening proficiency. He states that the overall growth rate of proficiency (OGRP) in listening is 38.14%, indicating a poor position. He also reports that the overall rate of students who have minimum proficiency in listening is 25.85%.

Regarding this poor performance, Ahmed (2021) observes that Bangladeshi tertiary learners' primary problem in listening is to understand and retain information. Technological development in the digital world has brought some easy solutions to these limitations. Now, with the use of smartphones, listening development programs can be standardized in tertiary institutions as these gadgets, with the assistance of the Internet, can enable students to browse numerous helpful websites or apps and study important authentic content as many times as they want (Al-Shamsi et al., 2020). Klopfer et al. (2002) state that for learners of the English language, cell phones are individual, contextually sensitive, socially interactive, portable, and connective. Shorna and Suchona (2019) observe that many tertiary students coming from rural Bangla-medium backgrounds find it difficult to understand their teachers' lectures and these students can greatly benefit from mobile applications (Shorna & Suchona, 2019). Smartphones have the capacity to introduce a number of strategies through various applications, including WhatsApp, YouTube, Facebook, TikTok, and Instagram, to effectively acquire language (Uwizeyimana & Niyomugabo, 2023). Bangladeshi EFL classrooms can benefit from using smartphone features to improve listening skills, especially given the scarcity of multimedia devices in most classrooms. Smartphone applications possess multimedia components to enhance communication in a classroom setting through their sharing features. Smartphones have the capacity to simplify the learning process (Hafa & Moubtassime, 2021). By identifying learners' perceptions, this study outlines the possibilities of using smartphones in low-resource EFL classrooms in Bangladesh. The students in the study conducted by Uwizeyimana and Niyomugabo (2023) used several strategies, including playing games, listening to audio songs, watching recorded videos, and engaging in WhatsApp conversations, to improve their language skills. This creates the possibility to incorporate smartphones in Bangladeshi EFL classrooms to develop listening skills. However, tertiary EFL classrooms in Bangladesh are still not that open to using smartphones (Seraj et al., 2021). In this study, the researchers aim to explore the possibilities of smartphones in the tertiary EFL classroom to lessen the difficulties students have while developing listening skills. This study is needed to identify learners' perceptions of using

smartphones to help stakeholders address EFL learners' listening difficulties in low-resource classrooms in Bangladesh.

Literature Review

Smartphone to the Rescue: A Tool to Overcome Learner Difficulties in Listening

Underwood (1989) and McDonough et al. (2013) observe that the potential listening problems of learners arise for several reasons. Some of the prominent ones are unadjustable speed of speech by listeners, lack of repetitive words in discourse, inadequate vocabulary, and lack of concentration during the language learning process. Some more listening difficulties have also been identified by other scholars. The most common ones can be categorized in the following manner:

First, learners may face critical challenges while listening if they are not aware of the target language culture (Gilakjani & Sabouri, 2016; Saraswaty, 2018). However, their familiarity with texts that use common knowledge and familiar themes can enhance comprehension while listening. Learners should have access to real-world examples to understand the culture of the use of the target language (Illés & Akcan, 2016; Gilakjani & Sabouri, 2016). Gilakjani and Sabouri (2016) suggest various sources of input, including plays on television, radio news, movies, announcements, lectures, and even casual talks and interviews. A smartphone with all its technological features has the ability to deliver all the forms of those inputs in a classroom (Nash, 2007).

Second, Teng (2002) noted the speaker, listener, message, and physical context as the sources of listening difficulties. It is challenging for the learners if they miss out on the identity of the speaker, to whom the speaker is talking, the context of the oral text, and the medium in which the spoken texts are delivered. Smartphones have the capabilities to help with those listening issues. In her research, Saraswaty (2018) states that an improved learning environment can be complemented by a listening laboratory that is appropriately set up. Modern smartphones are a very good alternative to the listening laboratory since the students can browse, watch, and recognize linguistic contexts if the content is appropriate.

Many learners also face a significant challenge in comprehending word pronunciations which differs from their written forms (Bloomfield et al., 2010; Walker, 2014). Hossain (2015) also observes similar listening problems among Bangladeshi tertiary-level learners, who have yet to overcome vocabulary deficiencies and the unfamiliar pronunciation of words in various accents. To address such a challenge, researchers find the mobile phone or smartphone quite useful to learners (Hwang et al., 2015; Broersma & Cutler, 2008) as they

investigate the beneficial effects mobile devices have on language and vocabulary learning when mobile devices are implied as context-sensitive and always-on systems.

Many EFL learners find it comparatively difficult to identify the linguistic context in a spoken discourse. This leads the learners to misperceive or even miss some words from the context (Bradlow, 2007; Nowrouzi et al., 2015). In such contexts, the audio-visual facilities of the smartphone can help learners synchronize English words with the physical materials and recover missing or misperceived words. El Hariry (2015) and Kirana (2016) also agree that using audio-visual material (AVM) in the classroom is advantageous since it shows language in use.

Another prominent listening difficulty for EFL learners is that many of them cannot cope with fast, natural native speeches. Ur (1999), Cross (2009), Goh (2000), Vandergrift (2007), and Flowerdew and Miller's (1992) find that learners who cannot understand fast speech or natural native speech need to hear things repeatedly as they find it difficult to concentrate. To address such challenges, modern smartphones can be useful due to their ability to not only record or gather lectures but also play back those texts in numerous languages and translate words and texts (Sevillano-Garcia & Vázquez-Cano, 2015).

In addition, Kang et al. (2018) find that speaker accents can hinder listeners' understanding as they need to cope with various phonological features. Field (2008) identifies several aspects of informal conversations that pose significant difficulties for EFL listeners. With the aid of a smartphone, these issues can be reduced since, according to Kukulska-Hulme (2009), mobile devices have authentic and spontaneous access to vast sources of varied English accents.

Finally, EFL learners find it challenging to listen to idiomatic expressions, slang, short forms, and polysemous words leading to inappropriate use without identifying suitable context (Brown, 2001). However, several contemporary studies have disclosed that mobile phone apps on smartphones and tablet PCs contribute to a great extent to the improvement of different language skills, including vocabulary (e.g., Stockwell, 2010; Chang & Hsu, 2011; Kim, 2013). Kim (2013) also suggests viewing TV dramas on a mobile device can help with vocabulary and listening comprehension since it offers real-world learning resources.

The study conducted by Dang (2013) on Vietnamese students reveals their positive attitudes toward the use of mobile phones in favor of English language learning. Another study on Jordanian tertiary EFL students also discloses their favorable attitude toward mobile phone usage in learning English (Ababneh, 2017). Ta'amneh's (2021) study on Saudi

Arabian tertiary EFL students also explored that using smartphones in the EFL classroom helped them to improve their listening.

Muhammed (2014) carried out another similar study on tertiary Iraqi EFL students and 99% of the total participants showed a favorable approach to using mobile phones as an influential resource due to their capacity to offer numerous language-learning applications, listening practice websites, vocabulary games, practice tests, etc. The study recommends that these apps could easily be used in the tertiary EFL classroom through modern mobile phone technology.

Raj and Tomy's (2023) study of 121 Indian tertiary EFL students showed that mobile devices and applications helped the learners develop their listening skills to a great extent. They also found that mobile learning could be a powerful tool to bring about quality changes in the tertiary EFL listening classroom with the help of these applications. Salameh (2017), in this regard, considers the possibility of integrating mobile phones as additional materials within a curriculum.

The findings of the study developed by Hossain (2018) at a Bangladeshi private university indicate that for learning purposes, 76.47% of EFL students use smartphone apps. In addition, the study also discloses the desire of the students who want the Bangladeshi tertiary EFL teachers to permit them to use smartphones and apps in the classroom for learning purposes. The students (72%) in the qualitative study conducted by Shorna and Suchona (2019) talked positively about the impacts of mobile phone apps on listening practices.

However, the earlier studies only involved a small number of people and were carried out at a relatively limited number of study sites. The data cannot be generalized because of this. The data obtained from the research carried out in the Bangladeshi context has also been backdated.

Hence, further intuition is needed to gather an extensive understanding of the feasibility of integrating smartphones to improve tertiary students' listening abilities in EFL classes. This study seeks to address the gap in realizing the function of smartphone apps to reduce listening challenges faced by learners and assess the feasibility of smartphones to incorporate them in tertiary EFL classrooms in Bangladesh. With a deeper insight into these matters, this study focuses on assisting educators to upgrade their teaching strategies and resources to align the listening skill development needs of their students.

Research Questions

This research is guided by the following two research questions, which align with the previously stated objectives:

1) What are the perceptions of tertiary EFL students on the effectiveness of various smartphone features in minimizing listening difficulties?

2) How do tertiary EFL teachers interpret the effectiveness of smartphone features in minimizing students' listening difficulties based on students' feedback?

Research Methodology

Research Design

The sequential explanatory mixed-method approach was introduced to align the objective of the study (Creswell & Creswell, 2018), where students' information realized from the quantitative design has been further explained through the qualitative data obtained from the teachers (Mackey & Bryfonski, 2018; Creswell & Clark, 2017). The purpose of this choice was to gather data by allowing faculty members to interpret the information provided by the students (Birgili & Demir, 2022). The study's quantitative portion introduced a Likert-type questionnaire for tertiary EFL students, while EFL teachers were involved in the qualitative portion comprised of semi-structured interviews. To visualize the research design, Table 1 depicts the concise outline of the research paradigm, sources of information, method of sampling, instruments for data collection, and methods of data analysis in connection with the research questions.

Table 1. Summary of the Research Design

Research Design	Research Question	Research Paradigm	Source of Information	Sampling	Data Collection Instruments	Data Analysis Method
Explanatory sequential mixed-method	1	Mixed	Students, EFL teachers	Convenience sampling	Questionnaire	SPSS Version 25.0
	2	Mixed	Students, EFL teachers	Convenience sampling	Semi-structured interview	Thematic analysis approach

Population and Sampling

A convenience sampling method was adopted prioritizing participants' location, time flexibility, accessibility, and willingness (Dörnyei, 2007). In the quantitative part, a total of 159 volunteer tertiary EFL students participated in this study, comprised of 57.9% female (n = 92) and 42.1% male (n =67). The students from English departments consisted 55% (n = 87) of the total sample size while the rest 45% (n = 72) were from 16 various departments of 25 universities (Table 3). All the participants took compulsory English language courses where all basic language skills, including listening skills, were taught. In addition to the qualitative data collection, eleven tertiary EFL teachers from eleven universities (1 public and 10 private) from the Dhaka and Chattogram regions of Bangladesh participated in the study (Table 3). In the qualitative portion, among the 11 participants, males constituted 73% (8 participants) while females made up 27% (3 participants). Participants were from diverse academic roles within their institutions, being distributed as lecturers and assistant professors (each accounting for 45.5%), and associate professors (9%). Their experience in teaching English at the tertiary level varied, with 18% having 0–5 years, 45% between 6–10 years, and 37% ranging from 11–15 years. A significant majority, 91%, were affiliated with private universities, in contrast to 9% from public universities. The researchers obtained permission to conduct questionnaire surveys among the student participants and interviews among the teacher participants from the concerned authorities of the universities under investigation. Research ethics guidelines were strictly followed, and all ethical concerns were addressed before the participants' voluntary participation.

Demographic Information

Table 2. Students' Demographic Status

		Demographic Status (Students)		
		University	Department:	Gender:
N	Valid	159	159	159
	Missing	0	0	0
Minimum		1	1	1
Maximum		25	17	2

Table 3. Teachers' Demographic Status

Demographic Status (Teachers)				
Sl.	Factors	Category	No.	Percentage
1	Designation	Lecturer	5	45.5
		Assistant Professor	5	45.5
		Associate Professor	1	9
2	Work Place	Public University	1	9
		Private University	10	91
3	Gender	Male	8	73
		Female	3	27
4	Teaching Experience	0-5 years	2	18
		6-10 years	5	45
		11-15 years	3	37
5	Educational Qualification	M A	8	73
		M Phil	2	18
		PhD	1	9

Data Collection Instruments and Procedure

A questionnaire (Appendix A) and a semi-structured interview (Appendix B) were introduced as the data collection tools in this study. The questionnaire designed for the quantitative part (Appendix A) comprised two segments. Five questions focused on demographic factors were raised in the first part, while the second part elicited EFL students' opinions on solutions to the challenges of listening when incorporating smartphones in the Bangladeshi tertiary EFL classroom. Constructed with 10 closed-ended items, the questionnaire adapted a four-point Likert scale for ipsative assessment, assigning values as follows: 1 for strongly agree, 2 for agree, 3 for disagree, and 4 for strongly disagree (Bertram, 2007).

Two experts in English language teaching administered the questions to verify the questionnaire's validity. They checked to see if the questions had any inconsistencies or ambiguities. Some useful opinions were obtained, and the questionnaire was improved further. In the next round, after piloting 20 responses, the reliability of the questionnaire's final version was statistically assessed, yielding a Cronbach's alpha value of 0.733. The value validates the standardization of the question items' marking points, their suitability for achieving the research objectives, and their comprehensibility to the participants (Cortina, 1993).

Table 4. Cronbach's Alpha for Internal Consistency in Assessing the Quantitative Data Gathering Instrument's Reliability

Case Processing Summary		N	%
	Valid	20	100.0
Cases	Excluded[a]	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.733	20

The long-distance survey approach was applied with the help of the Internet, which allowed the researchers to cover more social ground with the least amount of time, money, and effort (Schilling, 2013). After designing the questionnaire, it was formatted into a Google Form and distributed among the participants through email and social media platforms. The participants answered the Google-formatted questionnaire through a link and sent back their answers to the researchers. For collecting qualitative data, the researchers used a semi-structured interview. The interviews were around 30 to 100 minutes long and with the consent of the interviewees, data were recorded for analysis.

Data Analysis

Following the collection of quantitative data in favor of Research Questions 1 and 2, the responses from participants were initially recorded into an Excel spreadsheet before being statistically analyzed using SPSS 25.0. Finally, the results for descriptive and inferential statistics were obtained where mean, median, mode, and standard deviation reflected the descriptive study in favor of Research Questions 1 and 2. The quantitative responses gained from the students have been charted under Table 5. It is important to clarify that the statements within the questionnaire are documented as questions, which means that "Q1" denotes the first statement.

Conversely, a deductive or theoretical thematic analysis technique was employed to analyze the qualitative data to synchronize the research question and provide more specific information to the quantitative data (Braun & Clarke, 2006). As suggested by Corbin and Strauss (2008), inconsistencies were minimized and mutual exclusivity was maximized in

this process. Owing to space constraints, this article did not report on or examine minor categories. The participants' identities were covered up for privacy concerns in favor of specific, distinctive code numbers (for example, Teacher 1 as TP1). Finally, the codes were classified into different themes to harmonize the aims of this study. In addition, the qualitative data was also analyzed and quantified to align and correlate the findings derived from the teachers and learners.

Results

The extracted field notes during the data collection process revealed several intriguing findings, including conflicting opinions on the usage of smartphones to address issues with students' listening abilities. However, their attitudes confirmed that Bangladeshi learners have issues with English listening, and the majority acknowledged the high capacity of smartphones. In addition, Bangladeshi EFL teachers also mentioned similar listening problems that many other scholars have identified in other contexts.

The major listening problems the teachers mentioned are learners' inability to understand their teachers' lectures, lack of technological facilities in the EFL classroom for enhancing students' listening skills, fear and shyness to express their inability to comprehend lectures in the class, inability to understand connected speeches, long and complex sentences, and listening features like streams of consciousness, ellipses, etc. In addition, the absence of listening components in the assessment system has also been identified as a major issue. According to Harmer (2008), learners who want to improve their listening skills are at a disadvantage if they have restricted access to technology, less control over speech, and no listening centers where they can practice on their own. According to Underwood (1989) and McDonough et al. (2013), EFL listeners find it challenging to follow speeches because they are typically unable to control the speaker's pace of delivery, cannot always hear terms repeated, and have a limited vocabulary that prevents them from comprehending long and complex phrases. Hossain (2015) further notes that Bangladeshi students' limited vocabulary and unfamiliarity with how to pronounce English terms in various accents cause them the most hearing difficulties. However, in response to research question 1, the solutions addressing the problems mentioned by the research participants are presented below. In addition, participants from the qualitative study also addressed research question 2 to explore the feasibility of incorporating smartphones in the tertiary EFL classroom in order to develop listening.

Table 5. Descriptive Quantitative Analysis of Students' Perception of Using Smartphones to Overcome Listening Difficulties

Item No.	Overcoming the Barriers of Listening in an EFL Classroom with the Help of Smartphones	N		Mean (M)	Median	Mode	Std. Deviation
		Valid	Missing				
1	Smartphones can help learners develop their contextual knowledge and familiarize them with English culture.	159	0	1.75	2	2	0.539
2	Smartphones can provide EFL learners with opportunities to familiarize them with various daily life topics.	159	0	1.46	1	1	0.525
3	Using smartphones learners can see and listen to the language materials and practice the language in a similar environment.	159	0	1.69	2	2	0.551
4	Smartphones can help learners recognize standard phonetic sounds of English expressions to improve their pronunciation.	159	0	1.7	2	2	0.614
5	The audio-visual facility of a smartphone helps learners to identify the linguistic context to recover missed or misperceived words.	159	0	1.71	2	2	0.577

Item No.	Overcoming the Barriers of Listening in an EFL Classroom with the Help of Smartphones	N		Mean (M)	Median	Mode	Std. Deviation
		Valid	Missing				
6	Learners can re-listen and control the pace of natural speech through smartphones to improve their listening skills.	159	0	1.63	2	2	0.58
7	Smartphones with an Internet connection can be a source of various English accents.	159	0	1.5	1	1	0.538
8	Learners can learn different phonological features of the English language on smartphones.	159	0	1.69	2	2	0.575
9	Students can listen to authentic English programs to improve informal conversation skills.	159	0	1.66	2	2	0.604
10	Traditional instructor-led training in the classroom accompanying smartphone applications can enhance learners' vocabulary.	159	0	1.67	2	2	0.559
	Overall Score	159	0	2.2453	1.9	1.00[a]	.98756

Multiple modes exist. The smallest value is shown

Table 6. Analysis of Teachers' Responses to Sub-theme Questions Through Thematic Examination ($f = 11$)

Sub-Themes	Positive	Negative	Codes	f
Contextual Knowledge	8	3	Proper and appropriate instructions are needed to browse content on smartphones.	2
			Contents can be shared to introduce the context before listening.	2
			Learners' motivation towards developing listening	2
			Proper and appropriate instructions are needed to browse contents on smartphones.	2
Concerning the sources	9	2	Learners can use smartphones' recording features to re-listen to the text.	4
			Headphones, airphones, or enhanced speakers can be used to reduce source-generated challenges.	3
			Clear, audible, and well-prepared content can be introduced.	1
			It is difficult to overcome listening difficulties fully.	1
Pronunciation	10	1	Smartphones can be a source of native pronunciation.	6
			Smartphones help assess or develop pronunciation.	3
			Through contextualizing the listening texts, listening difficulties regarding correct pronunciation can be overcome.	2
			It is also instrumental in teaching learners how to use or operate smartphones to learn correct pronunciation.	1
Missing or Misperceived Words	9	2	Recording features of a smartphone can be introduced in the classroom.	6
			Smartphones have the features to recorrect or recommend missing or misperceived words.	4
			Smartphones provide 'ear training' to develop pronunciation.	2
			Adequate teacher guidelines can help overcome challenges regarding missing words or sounds.	1
Re-Listening and Controlling the Pace of the Recorded Speech	9	2	Smartphones can be used to record and control the pace of natural speech.	5
			Smartphones can store target language resources and help comprehend natural speech.	4
			Teacher guidelines for using smartphones are instrumental in comprehending the sounds of natural speech.	3

Sub-Themes	Positive	Negative	Codes	*f*
			Motivation and practical strategies help learners learn to control their speed, re-listen to texts, and improve their listening.	1
Learning Different English Accents	10	0	Various websites, browsed through smartphones, help learners become familiar with different English accents.	6
			Appropriate content and guided practice are helpful in extracting content from the internet.	4
			Bangladeshi learners should focus more on fluency.	3
			Smartphone applications can help differentiate between British and American accents.	1
Enhancing Vocabulary	10	1	Smartphone dictionaries can help enhance vocabulary.	4
			Google dictionaries help develop vocabulary.	3
			Watching videos on the smartphone helps develop vocabulary.	3
			Using the smartphone in and outside the classroom helps learners improve their vocabulary a lot.	2
Potentials of the Smartphone	10	1	The smartphone can work as an alternative listening lab.	8
			Proper guidelines help learners make the best use of the smartphone to develop listening skills.	5
			Smartphones save time and energy and are very handy.	4
			Most of the students already use smartphones in the classroom for various language-learning purposes.	3

Developing Learners' Contextual Knowledge

In response to Q1 of the quantitative study, the result found that the tertiary EFL learners strongly believed that smartphones have the capacity to develop their contextual knowledge and familiarize them with English culture ($n = 159$, mean = 1.75, $SD = 0.539$) (Table 5). They also believed that smartphones provide them with opportunities to become acquainted with different forms of English expressions used in daily life through different types of English programs ($n = 159$, mean = 1.46, $SD = 0.525$) (Table 5). The median (1) and mode (1) scores indicate that most of the participants strongly agree with the viewpoint.

In addition, the teachers ($f = 11$) in the qualitative study confirmed learners' opinions, as 8 of them voiced positive opinions (Table 6) towards the ability of the smartphone to develop learners' contextual knowledge. In this regard, TP11 (Teacher Participant 11)

acknowledged that smartphones with an internet connection are very helpful for developing learners' contextual knowledge. As he stated,

> "Nowadays, the internet offers the availability of web sources for academic topics. As a result, using the smartphone, a student can learn various perspectives on the same topic from different sources that create an opportunity to familiarize them with the English language widely".

Simultaneously, the teachers put emphasis on proper and appropriate instructions, sharing contents, learner motivation, and the incorporation of smartphones in the lesson plan to make the best use of the smartphone for language learners.

Overcoming Listening Difficulties Concerning the Sources

In the quantitative study, the responses to Q3—if using smartphones learners can see and listen to the language materials and practice the language in a similar environment—indicate that the learners strongly believe (n = 159, M = 1.69, SD =.551) that by using smartphones learners can see and listen to the language materials and practice the language in a similar environment and thus overcome listening difficulties concerning the source. The details of the findings are presented in Table 5.

In addition, the teachers (f = 11) in the qualitative study confirmed learners' opinions, as 9 of them stated positively (Table 6) towards the ability of the smartphone to overcome learners' listening difficulties regarding the source. In this regard, TP3 acknowledged that smartphones with an internet connection are very helpful for minimizing learners' difficulties. As he stated,

> "... it is possible to reduce in this sense that in a regular classroom setting, you can hear different man-made noises but there will be no noise while you are listening on the smartphone with the help of some devices like an earphone or a headphone".

Polishing Learners' Pronunciation of English

In response to Q4 of the quantitative study which inquiries about smartphones' effectiveness in improving English pronunciation, a notable number of EFL learners (n = 159, M = 1.7, SD = .614) reported that smartphones significantly help enhance English pronunciation. The details of the findings are presented in Table 5.

In this regard, the teachers (f = 11) in the qualitative study confirmed the learners' opinion, as 10 of them stated positively (Table 6) towards the ability of the smartphone to

develop learners' pronunciation. With regard to the smartphone's ability to provide different authentic sources, TP6 stated,

> "In order to improve learners' English pronunciation, we could listen to the BBC, CNN, or some other prominent news channels or some other good sources on the smartphone that offer and promote standard English".

To learn, assess, and further develop their English pronunciation, learners can browse dictionary apps rich in pronunciation facilities on their smartphones and practice pronunciation extensively. In this regard, the TP9 said:

> "There are different useful online dictionary apps that students can use to listen to various authentic sources and learn the pronunciation of English in different accents".

Recovering Missed or Misperceived Words

The findings of the quantitative study with regard to Q5, which probes how much a smartphone's audio-visual capability aids students in recognizing the language context to recover missing or misunderstood words, show that the vast majority of students ($n = 159$, $M = 1.71$, $SD = 0.577$) strongly believed about the capacity of smartphones to identify the linguistic context to recover missed or misperceived words (Table 5).

In this connection, the teachers ($f = 11$) in the qualitative study confirmed learners' opinions, as 9 of them stated positively (Table 6) towards the opinion that smartphones can help learners overcome the listening challenges regarding missing or misperceived words from their teachers' lectures. Regarding the above idea, one of the teachers at TP9 said:

> "There is a default app for recording on every smartphone, but there are some advanced apps that can help increase or decrease the speed of the recorded speech. Using those apps, you can easily control the pace of the recorded speech and try to recover the missing or misperceived words".

Re-listening and Controlling the Pace of the Natural Speech

Most of the students ($n = 159$, M = 1.63, $SD = 0.58$) agreed that smartphones help learners identify the linguistic context to recover missed or misperceived words (Table 5). This is according to the results of the quantitative study with respect to Q6, which asks how much the audio-visual facility of a smartphone helps learners identify the linguistic context to recover missed or misperceived words. Learners' responses in the quantitative study

synchronized teachers' responses as 9 of 11 teachers stated positively (Table 6) towards the opinion. With respect to the above idea, the teacher TP2 said:

"When students feel that the pace of an English lecture is going to be fast, they can record it and re-listen to it for better comprehension after the class".

Familiarizing Different English Accents and Helping Learn Different Phonological Features

The results of the quantitative study, with respect to Q7, which inquires whether smartphones with an Internet connection can be a source of various English accents, show that a very large majority of the students ($n = 159$, $M = 1.5$, $SD = 0.538$) maintained that smartphones with an Internet connection can be a source of various English accents. The Median (1) score and Mode (1) score confirmed that most students strongly agreed with the viewpoint (Table 5).

Another similar result was found from the replies to Q8 that indicated that almost all students ($n = 159$, $M = 1.69$, $SD = .575$) believed that by using smartphones, learners can learn different phonological features of English (See Table 5).

In this connection, the teachers ($f = 11$) in the qualitative study confirmed the learners' opinion, as 10 of them stated positively (Table 6) towards the same opinion. With regard to the above idea, the teacher TP1 said:

"Using different keywords like Australian accent, American accent, New York English, or British English, learners can search on Google or YouTube. This is how a learner can benefit from a smartphone to become familiarized with different English accents".

In order to enhance the effort to get accustomed to various English accents, the teacher TP7 also stated,

"They need to know the key features of an accent and listen to the variety of that accent as many times as they need, and the smartphone can help in that regard".

Improving Learners' Conversation and Vocabulary Skills

Learners' response to Q9 of the quantitative study favors the capacity of smartphones to present authentic video and audio programs (Table 5). Most of the learners acknowledged ($n = 159$, $M = 1.66$, $SD = .604$) that smartphones have the capacity to improve their informal conversation skills.

The learners also responded positively to the quantitative question Q10, and their responses confirmed that the vast majority of the students ($n = 159$, $M = 1.67$, $SD = .559$)

believed smartphone apps were helpful for enhancing vocabulary. The details of the findings are presented in Table 5.

The teachers ($f = 11$) who participated in the qualitative study had a similar response, as 10 of them stated positively (Table 6) towards the opinion.

Regarding developing learners' conversation skills, teachers showed their interest in introducing short ranges of conversations through their smartphones. In this regard, TP10 stated,

"If I introduce a mini-conversation in English or a dialogue for initiating a text, it will be better than presenting only my voice in a listening class".

With regards to enhancing learners' vocabulary, most of the teachers suggested smartphone dictionaries would be a great help. In this regard, the teacher TP7 said:

"You can have access to a lot of useful cue cards and audio and video programs online through your smartphones. It is an enormous storehouse of helpful vocabulary and expressions".

The rest proposed that learners could browse different websites on Google and develop their vocabulary with pronunciation. In this regard, the teacher TP1 said:

"I have seen many students searching for vocabulary on their smartphones in my classes. I sometimes encourage them to do it by using dictionary apps or by browsing Internet resources".

Potentials of Smartphone Applications in Listening Classes

The overall mean score ($M = 2.2453$) and standard deviation ($SD = .98756$) derived from Table 5 strongly suggest a positive learner attitude towards using smartphones in the EFL classroom to assist in overcoming listening challenges. Their claim showed that the incorporation of smartphones was quite feasible in the tertiary EFL classroom for improving listening skills.

In addition, the teachers were asked about the potentiality of smartphones and their applications to develop listening skills in their tertiary EFL classrooms in Bangladesh. The findings identified a positive response from the majority of the teachers, as 10 out of 11 ($f = 11$) stated positively (Table 6). They believe that there is great potential for smartphone applications in listening classes in the tertiary EFL classrooms of Bangladesh. In this regard, some significant comments came from the teachers. One such comment came from TP2, who stated:

"Even whenever you know, I teach them any texts, and if they cannot understand any words or any phenomena, they search them on their mobile phones. They are highly dependent on mobile phones. They are not only dependent but also fond of using smartphones for their academic purposes, like enriching vocabulary, improving English pronunciation, and searching for information very often".

Regarding the economic value and comfortability of the smartphone, TP6 said:

"Obviously, there is no other alternative to using a smartphone in the classroom. Nowadays, students in Western countries do not bring pen and paper; rather, they are dependent on digital devices. As the smartphone is the miniature of other devices like a laptop or a computer, obviously, it has a bright future".

Interestingly, some of the participants found the role of smartphones more significant after the pandemic. They observed that, due to their long dependence on smartphones for their online classes, the EFL learners became more affiliated with smartphones in the post-pandemic period.

Probable Disadvantages and Limitations of Using Smartphones

Although many teachers were highly positive and enthusiastic about the use of smartphones and their potential to reduce EFL learners' listening difficulties, some also expressed concerns. They emphasized ensuring teachers' appropriate support and guidelines to bring about the best experience in the listening class. In this regard, the teacher TP3 said,

"While selecting contents, the teacher needs to pick the right contents and present them with proper instructions and guidelines".

The teacher TP7 believed that smartphones could play a vital role in institutions where there is no language lab. In this regard, he stated,

"If the smartphones can be used properly in language classes, it can be very helpful. It can be a good alternative to listening labs".

However, during the interviews, some of the teachers raised their concerns over the inappropriate, uncontrolled, and excessive use of smartphones inside and outside of the classrooms. In this regard, TP9 stated,

"In the classroom, using the smartphone has both good and bad sides. If its use is properly directed and controlled in the classroom, it can be a great help in improving students' listening skills. But if the students misuse the smartphone during the class, it may not be very useful".

Some others felt that incorporating smartphones might not bring the best result if the learners are not properly motivated to enhance listening. This was reflected in the comments of TP7, who said,

"In the curricula of most of the tertiary EFL courses, there is no option for listening skills activities".

Discussion

The findings indicate that smartphones have significant potential for enhancing EFL learners' listening skills and helping them overcome listening difficulties in the classroom. These results are closely aligned with the study by Seraj et al. (2021). This study identified the beneficial impact of a positive learner attitude towards using smartphones in the EFL classroom to address listening challenges. Similarly, Azar and Nasiri (2014) observed a shift in attitudes among their experimental group after successfully implementing cell-phone-based learning for listening comprehension.

Furthermore, this study found that smartphones are effective in helping learners understand contextual knowledge and become familiar with English culture. This aligns with the findings of Chang et al. (2016) and Zhang & Zou (2020), who also identified that mobile learning can significantly contribute to exposing EFL learners to real, contextualized, and life-connected scenarios. Additionally, this study explored learners' positive perceptions of smartphones' capacity to minimize listening difficulties, similar to the function of a language laboratory. Bless et al. (2013) also found that smartphones have the potential to serve as an alternative to traditional listening laboratories.

This study also revealed that learners positively responded to overcoming challenges such as native pronunciation, missed or misperceived sounds, natural speech pace, various accents, and understanding words and phrases through smartphone use. Vu and Bui (2019), in a small-scale experimental study, similarly found improvements in learners' fluency, intonation, pronunciation, and intelligibility when incorporating cell phones for developing listening skills. Moreover, this study confirmed that incorporating smartphones in tertiary EFL classrooms is feasible for minimizing learners' listening difficulties. This finding mirrors the outcomes of Bless et al. (2013), who also found smartphone usage to be feasible and reliable for managing the dichotic listening paradigm.

Recommendations

Bangladeshi tertiary learners are highly motivated to learn English due to its dominance at home and abroad and its direct link with economic gain (Sajib et al., 2020). However, listening is a neglected skill in Bangladeshi EFL education (Alam & Sinha, 2009). The tertiary EFL curriculum does not include listening in its assessment system, which has led to it being even more neglected by EFL learners. The problems regarding developing listening skills could be better solved with the help of a language lab, including technological support through multimedia, a computer, a soundbox, and/or earphones with a proper internet connection. Unfortunately, many Bangladeshi tertiary EFL classes fail to provide such resources, and this study tried to evaluate the scope of smartphones as a filler in those contexts. The findings advocate in favor of smartphones being utilized in the tertiary EFL classroom to overcome learners' listening problems, and this recommends that smartphones should be incorporated into the EFL classroom.

However, the current study also highlighted teachers' concerns about the inappropriate and uncontrolled use of smartphones, which challenged their feasibility and reliability in the listening class. To address these concerns, this study suggests that the only solution is to use these sophisticated digital devices with judicious guidelines. This recommendation is in line with the statement of Anshari et al. (2017), who emphasized the need for clear guidelines and strong motivation to help learners mitigate the negative aspects of smartphones in listening classes. Harmer (2008) believes that learners need to be adept at multiskilling, including recognizing paralinguistic clues, listening for specific information, and listening for general understanding while developing listening skills. This study highly recommends smartphones for multiskilling due to their benefits and practicality in an EFL classroom.

Limitations and Scopes of Further Study

To generalize the feasibility of smartphones for developing listening skills in EFL classrooms, data from more students and teachers across Bangladesh was necessary. This study also excluded members of the authorities responsible for classroom settings who might have given additional information about technical difficulties in incorporating smartphones in EFL classrooms. In addition, some participants in the questionnaire survey had a limited idea about the various features of smartphones and their capability of contributing to listening development. This led to poor comprehension by the participants of the questionnaire. This study feels that it is necessary to add more variables to select participants while initiating convenience sampling.

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Further studies can include more teachers and students from more private and public universities, which will help generalize the findings. Teachers with experience in using smartphones to develop listening skills might add richer information about incorporating smartphones into future studies. In addition, cutting-edge technologies incorporated into smartphones might reveal better ideas for overcoming English language learners' listening difficulties in future research.

Conclusions

The objective of this study is to address the challenges of listening through the use of smartphones. This study in particular aims to measure the possibilities of incorporating smartphones into Bangladeshi EFL listening classes. This study explored that smartphones can be effective in overcoming learners' challenges to understand contextual knowledge and familiarize them with English culture, minimize listening difficulties concerning the sources, comprehend native pronunciation, recover missed or misperceived words, adapt to the pace of natural speech, familiarize themselves with different English accents, and understand words and phrases. Teachers advocating the feasibility of smartphones in the EFL classroom recommended proper guidelines to ensure maximum output from smartphone use. Prior to sincere attempts by authorities and teachers to downplay the tag of smartphones as a merely disturbing factor in an EFL classroom, Begum (2011) characterized the issues of cell phones as resolvable. The advantages of using smartphones in listening classes identified in this study suggest smartphones not only open the avenue for overcoming listening difficulties but also help meet the challenges of other language skills. This study is expected to offer an opportunity for ELT practitioners and relevant policymakers to redesign smartphone-friendly EFL curricula. In its latest policy declaration, the Bangladesh government prioritized the need for teachers to create a learning atmosphere that nurtures technological expertise (Seraj et al., 2021). Therefore, it is high time to inspire tertiary EFL learners to utilize smartphone apps in the classrooms. In this context, establishing a mobile learning environment in higher education demands a curriculum, and strategies tailored to current smartphone functionalities and materials, supported by adequately trained instructors and motivated learners.

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The authors report no conflicts of interest related to this study.

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Data Availability Statement

Due to confidentiality and sensitivity considerations, access to the quantitative and qualitative data underpinning this study's findings is restricted. However, upon valid and logical requests, either of the researchers can make the data available as far as standard norms and conditions allow.

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Appendix A: Questionnaire for Students

Questionnaire for Students

The attached questionnaire has a number of questions related to the solution to the challenges of developing listening skill by incorporating smartphones in the Bangladeshi EFL classroom. You are requested to kindly go through the prompts and select your opinion. Full confidentiality will be maintained as to whatever responses you make, and all the information will be used for research purposes only.

Thank you in advance for your cooperation.

Part I: Profile of the Student

1. Name (optional):

2. Name of your University:

3. Department:

4. Number of completed semester/s:

5. Sex: (a) Male   (b) Female

Part II: Questions

Please read the following questions carefully and choose the appropriate answers (**you may use Text Highlight Color to highlight your chosen option**):

(1) = Strongly agree, (2) = Agree, (3) = disagree, (4) = Strongly Disagree

	Factors	Strongly agree	Agree	Disagree	Strongly disagree
Overcoming the Barriers of Listening in an EFL Classroom with the Help of Smartphones	1. For comprehending proper expressions of an oral text used in an English culture, smartphones can help learners develop their contextual knowledge and familiarize them with that culture.				
	2. Smartphones can work as mini-TV sets that can provide opportunities to watch and listen to different types of English programs, both formal and informal, and thus can help the learners to be accustomed to various daily life topics.				
	3. Using smartphones learners can see and listen to what, how and where the language materials are used and can even practice the language in a similar environment after listening to them.				
	4. The smartphone feature of converting printed words into phonetic sounds can help learners to recognize standard phonetic sounds of English expressions and improve their pronunciation.				
	5. The audio-visual facility of a smartphone helps learners not only to identify the linguistic context but also to recover missed or misperceived words.				
	6. In order to practice native sounds and expressions and improve their listening comprehension skills, learners can re-listen and control the pace of the natural speeches through smartphones.				
	7. Smartphone with the Internet connection can be a source of various English accents.				
	8. Through smartphones learners can listen to English programmes of prominent standard English varieties and learn different phonological features of English language like intonation, stress, contractions etc.				
	9. Students can listen to the authentic English programs and improve their knowledge of daily life informal conversation skills like hesitations, interruption, recurrent pauses etc. with the help of smartphones.				
	10. Traditional instructor-led training in the classroom equipped with smartphone applications like dictionaries or entertainment applications can enhance learners' vocabulary.				

Appendix B: Semi-structured Questionnaire for Teachers' Ideas

The following question sheet has a number of questions related to the smartphone assisted solutions to the problems Bangladeshi tertiary EFL learners face while developing their listening skill in the classroom.

You are requested to go through the questions and state your opinion in answer to the questions. Full confidentiality will be maintained as to whatever responses you make and all the information will be used only for the research purpose.

Thank you in advance for your kind cooperation.

Part I: Profile of the teacher

1. Name (optional):

2. Designation / Job title:

3. Name of the institution you are working in:

4. Sex: (tick)   (a) male   (b) female

5. Teaching experience: (tick)
(a) 0-5 years   (b) 5-10 years   (c) 10-15 years   (d) more than 15 years

6. Last achieved educational qualification: (tick)
(a) MA   b) MPhil   (c) PhD
(d) Other qualifications (if any, please specify) ……………

Part II: Semi-structured interview questions

Please read the following questions and give your opinion.

Question 1: What difficulties do the Bangladeshi EFL learners usually face in listening classes?

Question 2: How do you think smartphone applications can help Bangladeshi learners improve their listening skills?

Question 3: To what extent do you think smartphones can develop learners' contextual knowledge and familiarize them with the target language culture?

Question 4: How far do you think smartphones can help learners overcome their listening difficulties concerning the sources: speaker, message, listener, and the physical context?

Question 5: How do you think smartphones can help develop learners' pronunciation of English?

Question 6: To what extent the audio-visual facilities of a smartphone can help the learners recover missing or misperceived words?

Question 7: To what extent do you think smartphones can be useful to the learners in re-listening and controlling the pace of the natural speeches?

Question 8: Smartphones with the Internet connection can be a source of various English accents. To what extent do you agree with it?

Question 9: Do you think smartphone applications like dictionaries or entertainment applications help teachers enhance their vocabulary in the classroom? How much and how? Please share your opinion in greater detail in this regard.

Question 10: What is the potential of using smartphone applications in listening classes in your context?

Part III: Further Comments (optional)

Please add (if there is any) other relevant issues and factors that you think have not been covered in the above question sheet regarding the topic of the research.

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