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Mobile technology as a dependable alternative to language labs and to improve listening skills

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ABSTRACT

There is an incessant gap between language acquisition and adoption of modern technologies, especially in semi-urban parts of economically growing countries in Asia. There is a need to establish infrastructure for Computer Assisted Language Learning (CALL), Information Communication Technology (ICT), Virtual Reality (VR), and Augmented Reality (AR) to enrich English Language Teaching. Though these types of establishments instil confidence and fluency among English learners, investment in procurement, running costs towards maintenance and service cost deter institutions from establishing Language Labs and Language studios. The objective of this study was to establish Mobile-Assisted Language Learning (MALL) in higher education institutions and enhance English fluency and accuracy with minimal operation and low maintenance cost. The study also methodologically shortlisted open-source mobile applications based on users' feedback on their user-friendliness, skill-levels, content, and options that promote Learners' Autonomy. A quantitative true-experimental study was conducted at the Vellore Institute of Technology, Vellore, India, to develop the listening skills of (n=121) students of first-year Bachelor of Technology in a varied branch. The pre-test and post-test results revealed improvements in the experimental group. The findings would immensely help the underprivileged to serve ESL learners from any part of the globe who intend to enhance their proficiency in English.

Contribution/ Originality: This experimental study was implemented across higher education institutions in the educationally backward district of Tamil Nadu, India. Though m-learning has already been implemented, choice of the right application and usage has been challenging for teachers and students. This study provides tested and user-friendly applications with learning guidance that promotes Learners' Autonomy and Teachers guided classroom.

1. INTRODUCTION

In the twenty-first century, communication among sixty percent of the world's population takes place multilingual, with English as one of the common key roots to connect everyone (Klee, Richards, & Rodgers, 1986). In addition, learning English has become a common practise in this globalized society as it shows significant gain and progress in many aspects and perspectives. Listening, Speaking, Reading, and Writing should be consistent throughout the process of teaching and learning. Among the four skills in English, emphasis is however given to listening, which is a receptive skill from where the language learning process starts. Research in English language teaching has identified that fifty percent of communication happens through listening (LaScotte, 2015). Listening skills precede all other skills and reduce the burden on comprehension. Listening skills are the primary processes to

comprehend and absorb a second language. English teachers encounter problems while they enhance their listening skills related to phonetic variations, morpheme systems, syntax and semantics. Sometimes, listeners find it difficult to understand the assimilation, elision and reduction of the language. Other challenges include material obstacles, habituation barriers, information processing hurdles, and standardized English barriers (Chen, 2005).

There are various approaches and methods of language teaching such as the Natural method, Audio-lingual method, Suggestopedia method, Silent way method, Total physical response method, Communicative Language Teaching (CLT) method and Mobile-assisted language learning (MALL). Among them, MALL is a recent, popular and flexible method to learn a language because learners can access material from ample sources (9 Different Methods of Teaching the English Language, 2022).

Mobile technology is being used widely at all levels of education. It plays a significant role in the second language learning process with reference to tertiary-level education. Technology quickly grasps the attention of Gen 'Z' learners in higher education and hence teachers can draw the attention of learners by using a technology that creates great mobility in learning English. Hence, mobile learning is an appropriate method to enhance language skills in a subtly flexible manner. Learners use various mobile devices for their educational purposes, which afford numerous opportunities to reinforce listening skills. Devices such as computers, phones and tabs are being used widely, and learners can carry the gadgets with them anywhere and access its e-sources.

Globally, there are one billion smartphone users, and 2.5 million applications are available in the google play store. According to key ideas InfoTech digital analytics, rather than using a computer, 65 percent of people use mobile phones to get updated news, publish their status, reply to messages, and share images (Sarwar & Soomro, 2013). Mobile technology has created a great impact on business, education, health and various other fields. Hence, MALL has emerged as one of the best smart learning systems that can greatly accentuate the digitalization of society. In addition, mobile phones have filled the gap between learners and teachers during the ordeals of COVID-19 and during current political emergencies in Ukraine and Sri Lanka.

The objectives of this paper are:

To understand M-learning and its learning outcomes.

To locate varied mobile applications that focus on Listening skills.

To identify appropriate mobile applications that suit learners and teachers in higher education institutions of the economically weaker countries.

To reveal M-learning as a cost-effective method for language acquisition.

The following research questions were framed to reach the problem statement.

RQ:1 Will the M-learning method enhance the listening skills among ESL learners?

RQ: 2 Does the content of mobile applications have an impact on listening skills?

This study exposes how mobile technology can be a valuable resource for higher education institutions in economically backward countries to improve their stakeholder's English proficiency without high investments in infrastructure. Institutions can execute policies of procuring android mobile phones for their learners and connect them to the Internet, which is one of the possible measures to adopt smart learning. Language teachers can identify and categorize the applications based on their learners' levels and guide them to accomplish the tasks. This process will yield fruitful results in enhancing ESL learners' language proficiency.

2. REVIEW OF LITERATURE

2.1. M-Learning and English Language Proficiency

The m-learning method is an innovative pedagogical method and is an excellent educational assistant to learners who study outside of the classroom (Sharples & Sharples, 2017). This method is helpful for learners to refer to and retain information on the go, anytime, anywhere. Oliveira, Pedro, and Santos (2017) stated that learners are physically separated, but mobile technology gathers them mentally. Besides that, the Bring Your Own Device

(BYOD) concept encourages collaborative learning and a self-learning approach among tertiary learners. Rao (2019) observed that mobile phones aid learners in all dimensions of learning, such as taking notes with the support of a camera facility as well as a calendar app used for scheduling the class plan. Google applications such as Gmail, Google forms, Google drive, Google podcasts and BlogSpot are some of the Google supported learning systems used for enhancing English proficiency.

The m-learning method enhanced social collaboration and learning performance. Additionally, researchers and academic tutors coined words such as D-learning (digital learning), E-learning (Electronic or online learning) and M-learning (mobile learning) (Kumar, Wotto, & Belanger, 2018). In India, 81.2 percent of the learners receive or send materials via WhatsApp and other mainstream social networking applications. Educational-related android applications with Internet facilities support the learners to collect data effortlessly and learn new information using Edx, Google play books, Coursera, Udemy, YouTube, etc. Various types of audio-video content develops interest in the learner to develop listening skills (Safranj, 2015).

The use of mobile applications also creates more flexibility in the learning progress and avoids teacher-centred learning and boosts learner-centred learning. Lei and Liu (2020) shares how the WeChat application helps teachers maintain constant communication through live video calls, sending images, and audio messages. It is a low-cost medium for communication and fosters collaborative learning among peer groups and teachers. It is also an open learning forum where teachers could receive quick feedback from learners.

Elaish, Shuib, Ghani, Yadegaridehkordi, and Alaa (2017) observe that a mobile learning forum prefers formal communicative approach and provides day-to-day necessary conversation through which learners listen and learn a language, and it also promotes a self-learning approach. Kim, Ruecker, and Kim (2017) point out that communication technology increases social interactivity among teachers, learners and tutors. Besides, mobile devices have enlarged the number of key features such as increased mobility, versatility and multidimensional convergence. Ryabkova (2019) shows that learners could gain language accuracy and fluency through mobile technologies and their applications. Binod (2015) exclaims that utilizing mobile technology in teaching language is one of the best learning methods for tertiary-level learners to learn the correct English language. Even though Lem (2018) conveys that most of caretakers insist upon merits and demerits of mobile phones but this study considers good things only . Efficient teachers can guide the learners in the right way and promote the use of mobile phones to pursue their curriculum. In addition, technical problems might sometimes happen to disappoint the learners, but the advantages of technology learning benefits would surely far outweigh the problem if supposed diligence is followed. According to Kacetl and Klímová (2019), though the phone has a small screen to read, the M-learning system supports learners to rectify lots of doubts quickly. In addition, there are many user-friendly options to enlarge and zoom the text for users.

2.2. M – Learning in a Language Curriculum

The syllabus and curriculum in higher education in India are well structured, The Indian educational system, being the largest in the world, has a curriculum that aims to turn every learner into an entrepreneur and pursue updated knowledge in order to result in a well-developed India. Since 2004, when smartphones were introduced in India, the use of mobile phones have gradually gained more attention of learners for learning purposes. Digital devices have made work at home easier, and learners can access any digital material wherever they need.

M-Learning encourages educational collaboration. Tamil Nadu is one of the leading states to use technology in learning because government schools and colleges offer computer learning free of cost. For example, Learners can use a Quick Response (QR) code to access a digital textbook. There are many different websites established for tertiary-level learners to access e-sources, and the digital -library aids learners anytime, anywhere, for example, the National Digital Library (NDL). The University Grant Commission (UGC) and the International Organization for Standardization (ISO) insist that educational institutions maintain high standards of excellence in education, as well

as adequate facilities for learning, which would provide good outcomes. However, due to the lack of lab facilities, learning does not take place to its full potential, especially in isolated colleges. Mobile technology, such as phones and tablets, could compensate for this problem and help learners learn the English language without any hassle even in remote areas.

2.3. Mobile Application and Listening Skills

Today, there are several learning applications available online to enhance second language learning. Learners can access audio and visual conversations conveniently through these applications. Mobile applications create curiosity among learners to listen to the different topics of English conversations. Learners can practice their listening activity, which helps them imitate the target language. Mobile applications offer so many learning modes to imbibe the second language. The audiobooks on the mobile phone clarify learners' doubts without hesitation, and if they want to re-listen the audio file many times. Yasin, Mustafa, and Permatasari (2017) pointed out that listening to short conversation videos and English films in native speaker slang enhances the second language with the right pronunciation and it is not possible in the Indian classroom environment. Many existing mobile applications reinforce users' listening skills and depend upon the learners' listening ability and the task levels are segregated as per the pattern of the Common European Framework (CEFW) such as A) basic, B) intermediate, and C) advanced. Mobile technology supports conducive learning methods and reduces anxiety among learners.

2.4. Challenges in MALL

Teachers and learners from rural areas are not familiar with MALL and they face adaptability problems.

Choosing proper learning materials may be difficult to find for the learners, whether the slang or accent of the materials may be authentic or not.

Learning grammar without proper situations might confuse learners.

Learning English with the help of videos or movies does not work well for beginners and might help from intermediate learners or above.

Files from smartphones and tablets may not open on desktops due to operating system differences.

M-learning settings allow people to study whatever they want, but sometimes poor Internet service ruins the learning environment. Learning experience may be disrupted because of delays in file loading and inconsistent connection issues.

Teachers find it difficult to evaluate the learners through an online mode without the involvement of learners.

3. LISTENING SKILLS-THEORETICAL BACKGROUND

3.1. Listening-the Core Skill

Listening encompasses a wide range of fields, including cognitive and humanistic psychology, language and linguistics research, and phonetics and discourse analysis (Witkin, 1990). Hearing is a physical activity, and listening is a mental activity. Hearing refers to the sound that enters the ears involuntarily and is a day-to-day activity and it is a physiological system that allows the reception and conversion of sound waves. Sound waves are experienced as pressure pulse. The pulses are transmitted from the inner ear to the brain's auditory cortex. The auditory sensations are processed by a cortical area in the brain. The responses of neurons in the brain's auditory cortex can be strongly modulated by attention (Fritz, Elhilali, David, & Shamma, 2007).

Hearing is a fundamental step in listening. Hearing and listening interchange in everyday conversation, and both hearing and listening are initiated through sound perception. The essential difference between them is the degree of intention. The intention is involved at different levels. Initially, intention acknowledges the source and a willingness to influence the source (Allwood, 2002). The caretakers, teachers and tutors can facilitate the cognitive and linguistic knowledge of the child. It effectively engages the children in what they are learning and begins

investigating from the environments that provide stimulation and listening possibilities. Saxton (2009) showed that listening was a strenuous and voluntary activity that required more attention to objects such as voice, body gestures, and verbal and nonverbal messages. The ability to listen well is to understand the content in a single attempt. When we look at language acquisition, listening is a primary skill. It deals with phonology (sound system), morphology (word system), syntax (structure of the sentence) and semantics of the syntax (the meaning of the sentence) accordingly and imitates what is listened to.

3.2. Listening and ESL Learners

Learning the English language becomes a struggling experience for learners who live in undeveloped areas because of socio-cultural challenges, financial crises, illiterate parents, and a lack of enthusiasm. Communication skills are required for academic purposes to gain knowledge as well as when they will go into the job market in other countries. Hence, English is an essential one and being aware of how to improve the language through the skills of listening, and it would be important for career development. Good listening ability aids in preventing miscommunication and makes one to be cognizant. Therefore, teachers should focus on listening skills, particularly in linguistic and pragmatic aspects. The education ministry currently recommends that English be used as the medium of instruction in colleges. To enlighten language skills, the government of Tamil Nadu modified the curriculum design in 2020 to communicative English and professional English, and the curriculum significantly touches on all four language skills.

The present-day infrastructure in developing institutions is inadequate to enhance listening skills. The language laboratories have no or few seats with a limited number of laboratory computers and earphones, and no projectors or displays. These problems do not arise with the mobile learning method and learners can do listening practice inside and outside of the classroom with the help of adequate use of mobile technology.

3.3. Challenges in Listening Skills

There are numerous obstacles in developing listening skills such as learners' lack of interest in the topic, pre-assumption of the content, closed mind, lack of understanding of phonological and syntax assimilation, and lack of clarity with the speaker's voice in many cases. Ineffective nonverbal behaviours like eye contact, facial expression, and sluggish body position of the speaker affect empathy between speakers and listeners. Nushi and Orouji (2020) state that when learners listen to unfamiliar words and long grammatical structures of the syntax, it is difficult to understand the semantics of the spoken discourse. Further, lack of consciousness and insufficient exposure to the English language, and different vernacular cultural influences pose challenges to listening. According to Kapur and Radhika (2019), the educational environment in rural areas is limited in terms of infrastructure, due to which schools and institutions do not reach the needs and expectations of learners. Though most of the learners have a solid knowledge of English vocabulary and grammar, they still get too nervous while speaking. This is because of issues such as fear of making grammatical errors, shyness, hesitation, lack of confidence when speaking English, education taking a backseat due to financial crisis and lack of guidance. At the same time, there is no great potential or effective monitoring, as well as no opportunity to listen to high-quality resources. Hoque, Karthikeyan, Islam, and Islam (2021), in their quantitative study, observe that there is a need for the improvement of the English listening skill as it was evident in their study that statistically proved that 202 responses out of 211 responded that there was a need for such improvement.

3.4. The Proposed Method for Teaching Listening Skills

Some of the methods adopted by teachers and trainers for teaching communication skills include Learning by Insight, learning by Imitating, Transfer of Training, Visual (learn through lookup the material and understanding), Aural (use audio-lingual for learning), Verbal (learn through narration), Logical (learn through why & how),

Solitary (learn alone) and Physical (learn through the physical act). The bottom-up and top-down processes are the best methods to develop listening skills (Murray, 2011). Both could be used alternatively, depending upon the learning requirements (Richard, 2008). The eclectic method with the engagement of mobile technology is so flexible and it is one of the best methods to teach listening skills to different levels of ESL learners. Through this method, learners will learn the meaning of sound, intonations, morpheme variations, syntax structure, decoding and interpretation. With the support of MALL, there are a lot of chances to listen to the news and conversations by adjusting the speed of speech. Other skills can also be achieved by adopting MALL.

3.5. Difference between Proposed Work and Existing Work

The M- learning method existed in 1979 and many of them utilized and denoted the merits of the method. it is 'highly grasping' so the attention of varied users can be synchronized (Patel & Parekh, 2021). Rao (2019) conveyed that technology has changed the learning environment into a 'Digital environment'. Aidarbekova, Abildina, Odintsova, Mukhametzhanova, and Toibazarova (2021) find that digital materials and digital educational infrastructure enable "flexible knowledge transfer". Though this method yields so much positivity in the area of teaching language, existing method failed to share the appropriate teaching material, platform and useful applications with the listening skill. The proposed study filters the best applications that suit the learners and is systematically explained in Table 1, Table 2, Table 3 and Table 4.

4. METHODOLOGY

Figure 1 exhibits the research design which depicts the flow of the research study and how the mobile applications should be implemented and shortlisted based on excellent features such as listening content applications, auto assessment availability, and ease in downloading the content file and using it in offline mode.

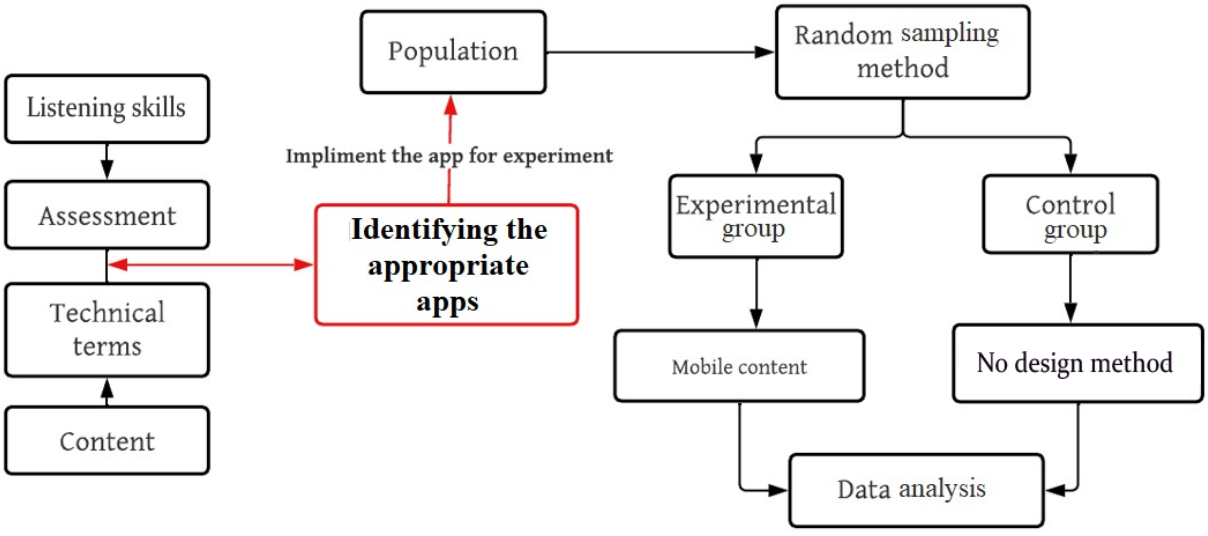

Figure 1. Research design.

The design shows this experimental study was organized and how it can impact listening skills by using mobile applications. The population comprised tertiary level students from a state level university in Tamil Nadu from where a sample was identified. The research study adopted a simple randomized sample method for this experimental study and designated the sample into a control group and an experimental group. Mobile application contents addressed the experimental group while the currently prescribed contents (no intervention) were assigned to the control group. Finally, the data analysis part was done at the end of the study to assess the impact of the M-learning method.

4.1. Identifying the Appropriate Apps

Android Operating System (OS) provides many learning applications for English language learning. Table 1 shows the shortlisted applications. These mobile application features possess authentic audio content to enhance listening skills. These feasible features include a clear background voice, proper accent and pronunciation, British English (native speakers) slangs, and not many advertisements while using the application. A few other features can also be installed based on terms of services, and the specific needs of the learners.

Table 1. List of shortlisted apps for listening skills enhancement.

S. No.	Name of the apps	Skill	S. No.	Name of the apps	Skill
1	6 minute English - practice listening everyday	Listening	24	English practice listening	Listening
2	Advance English listening	Listening	25	English speaking and listening with audiobooks	Listening
3	Advance English listening Pro	Listening	26	Famous English listen offline	Listening
4	Audiobooks for English language learners	Listening	27	Google podcast	Listening
5	Cambly	Listening	28	IELTS (International English language testing system)	Listening
6	Daily English listening	Listening	29	IELTS listening practice - English listening	Listening
7	ELLLO - English listening	Listening	30	Learn English	Listening
8	Ello English grammar - listening - ESL free	Listening	31	Learn English audio stories - beginners audiobooks	Listening
9	English 1500 conversation	Listening	32	Learn English by listening	Listening
10	English conversation	Listening	33	Learn English listening	Listening
11	English conversation listening & speaking	Listening	34	Learn English podcasts - free English listening	Listening
12	English listening	Listening	35	Learning English by listening	Listening
13	English listening and practice	Listening	36	Learning English: Listening & speaking	Listening
14	English listening and speaking	Listening	37	Listen audiobooks	Listening
15	English listening A-Z	Listening	38	Listen English daily practice	Listening
16	English listening daily	Listening	39	Oxford English listening	Listening
17	English listening daily - learn English	Listening	40	PORO English	Listening
18	English listening practice	Listening	41	Speak English fluently	Listening
19	English listening practice	Listening	42	Spotlight English	Listening
20	English listening skills practice - ELSP with CUDU	Listening	43	The chosen	Listening
21	English listening step by step - English speaking	Listening	44	TOEFL listening	Listening
22	English listening test	Listening	45	TOEIC listening & reading	Listening
23	English podcast & audio books listen by subtitles	Listening	46	Tomato - learn English listening effectively	Listening

4.1.1. Apps Analysis based on User Ratings

Applications are shortlisted based on the high rating given by users and review comments. In Figure 2 the line chart shows the segment of the forty-six different applications and their ratings. In the line chart, the horizontal axis shows the rating of the applications out of five points, and the vertical axis shows the number of applications that have been collected. The applications selected for the study scored four points and was rated as high. In addition, the applications were selected based on the 'content' such as commonly used English phrases, accuracy, commonly used idioms, useful expressions, and general conversation types.

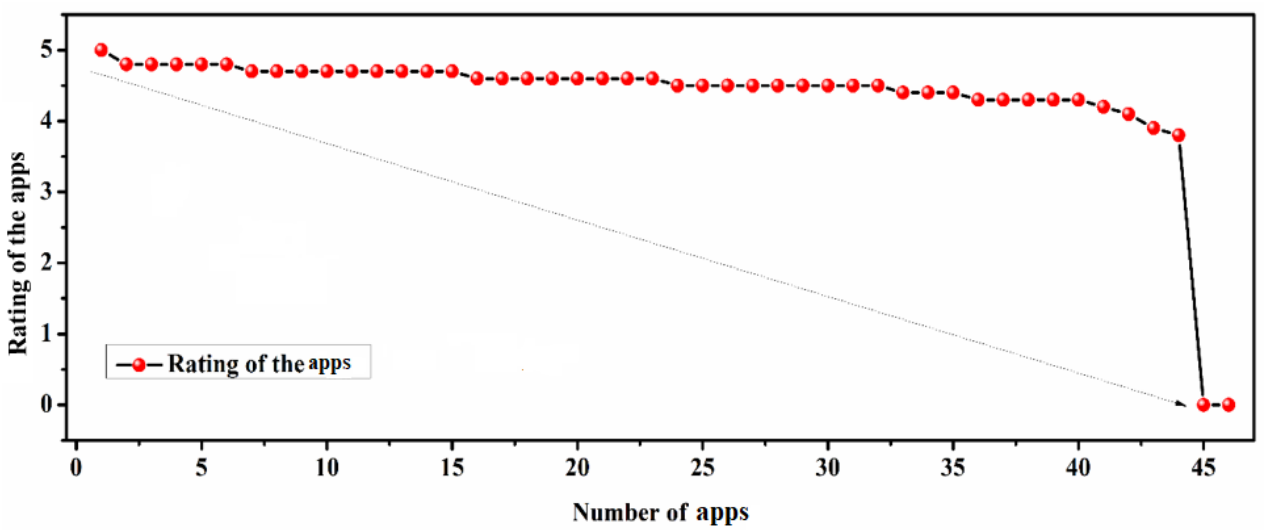

Figure 2. Analysis of apps based on user rating.

4.1.2. Apps Classification Based on Cost

The study selected forty-six easily adopted applications for tertiary learners. Figure 3 depicts the pie chart showing a bunch of information related to the cost-effective applications, and it figures out different categories of cost variations such as paid, partially free and free applications. There were 20 percent of free-cost applications that help learners to learn effortlessly and afford more opportunities and 46 percent of partially free app support middle-class students. Out of a hundred, 33 percent of the applications best open source for learners.

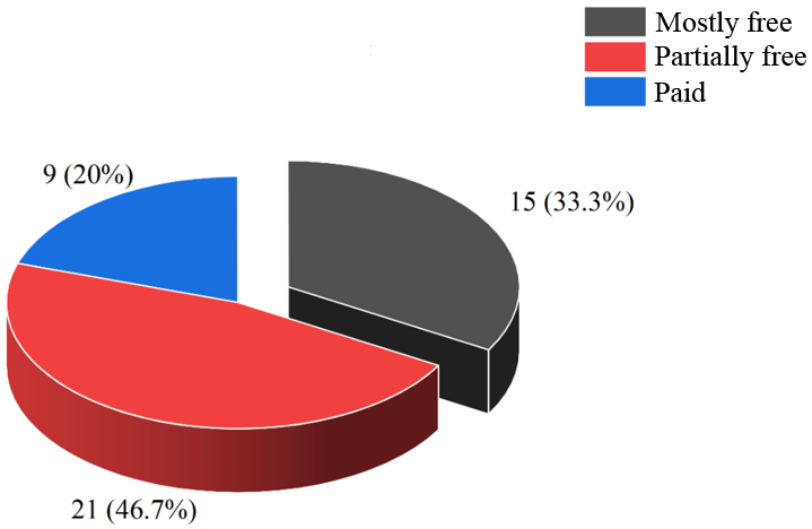

Figure 3. Classification of apps based on cost.

4.1.3. Apps Shortlisted Based on Connectivity

Figure 4 presents details of the applications that were shortlisted based on free availability to the user and quick connectivity, ensuring that even in the absence of a Wi-Fi or Internet connection, the offline mode applications should work. Offline mode applications strictly prohibit unnecessary advertisement. These applications are not disturbed by a poor network connection and so it is very convenient for the learner. Moreover, it is cost-effective because of the consistency of the Internet. Learners can focus on learning without the worry of the Internet net package cost. The downloading option is also beneficial to the learners.

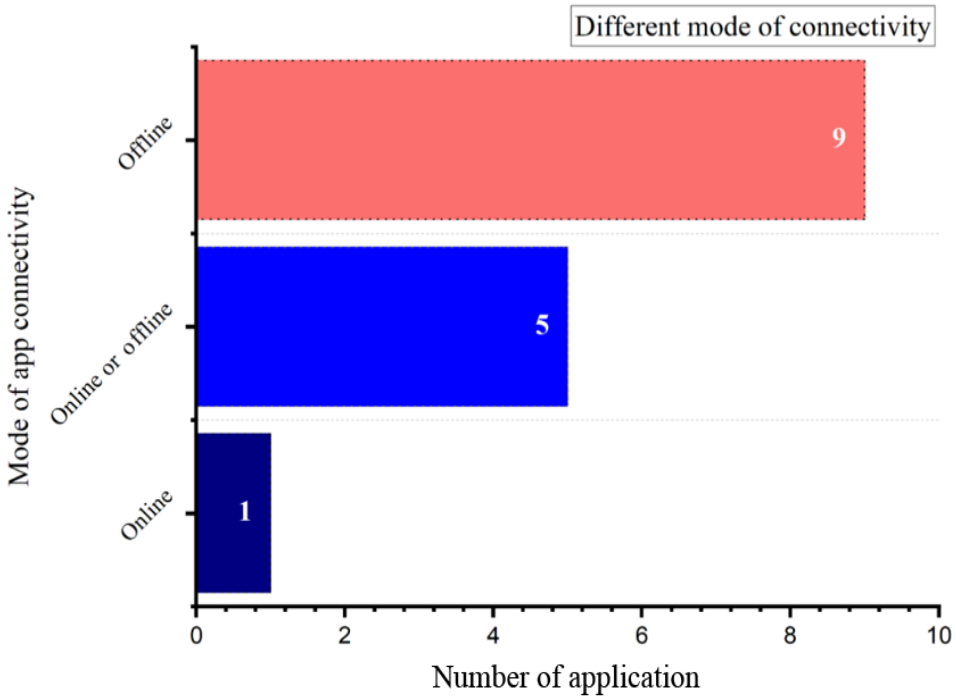

Figure 4. Shortlisted apps based on connectivity.

4.1.4. Apps Classification Based on Content and Support Mode

Table 2 presents a furnished list of fifteen applications which focus on listening skills enhancement and varied activities. This list displays the availability of content in various forms for the user's benefit. Additionally, the users can adjust the audio speed like 1x, 2x speed as well as slow. These technical systems enable users to listen to the conversation file comprehensively and many times at their convenience. The audio mode aids the users to imbibe the right pronunciation, accent and practice correct English. This method is based on the audio-visual and communicative language learning approach.

Table 2. Classification of apps based on content and support mode.

S.No.	Name of the app	Content format & support
1	English listening	Audio
2	English listening skills practice - ELSP with CUDU	Audio and transcript
3	Listen English daily practice	Audio and transcript
4	Learn English podcasts - free English listening	Audio and transcript
5	English listening test	Audio and transcript
6	English listening step by step - English speaking	Audio and transcript
7	Oxford English listening	Audio and transcript
8	English listening practice	Audio and transcript
9	English podcast & audio books listen by subtitles	Audio and transcript
10	TOEFL listening	Audio and viewable syntax
11	IELTS (International English language testing system)	Audio and viewable syntax
12	Advance English listening	Audio and viewable syntax and voice recording option
13	PORO ENGLISH	Audio, transcript and phonetic transcription
14	English listening and speaking	Audio, transcript and phonetic transcription
15	Listen English daily practice	Audio, video and transcript

4.1.5. Analysis of Apps Based on Levels and Number of Activities

Table 3 shows that information on different proficiency levels are available for the learner and options are available as well to choose an appropriate lesson from the applications. These the levels are segregated as per the Common European Framework Reference (CEFR) scales. The modules in these applications are also constructed based on a day-to-day practical conversation in English, listening for general purposes and listening for academic purposes. The exercises can help to sort out English accent and accuracy problems through listening skills. The audio runs at a normal speed level so that learners can listen without any problem. Through listening to the audio, the learners learn common English phrases, words, and different types of slang and enhance the pronunciation and varied kinds of sentence structure of the English language. Different situation-related conversations help to better understand spoken discourse. The app's lessons were taken from the Technology Entertainment Design (TED) talks forum. Learners can listen to the authentic listening material of the International English Language Testing System (IELTS) team. Learners can peruse international standards which will help them to learn much faster. The audios cover native voices of speakers from the United Kingdom and the United States. The stories are framed most frequently with useful English expressions such as how to communicate at a hotel, workplace, with colleagues, at residence, or in academia. All these easy methods to enhance listening comprehension skills are based on various themes for regular practice.

Table 3. Analysis of apps based on levels and number of activities.

S.No.	Name of the apps	Levels /Classification/Activities
1	IELTS (International English language testing system)	Basic (34 lessons) /intermediate (34 lessons)/ advance (34 lessons)
2	TOEFL Listening	Listening to conversations & lectures.
3	PORO ENGLISH	Basic /Elementary/ Intermediate /Advanced
4	Advance English listening	Listen with repeat voice /Listening with Audiobooks
5	English listening skills practice - ELSP with CUDU	Simple conversations with categories Life in pictures, going to the Forest/ice cream around the world /The sapling project
6	Listen English daily practice	Level A (235c) /Level B1 (251c) /Level B2 (179c)/ Level C1 (103) / Level C2(54c)
7	Listen English daily practice	Easy/ Medium /Difficult General listening / Basic listening Academic listening / Listening for kids
8	Learn English podcasts - free English listening	No levels
9	English listening test	General listening Basic listening
10	English listening step by step - English speaking	Listening English level, A (239) Listening English level B1(251) Listening English level C1(181) Listening English level C2(54)
11	Oxford English listening	General listening / Basic listening
12	English listening	Basic listening Beginner 1 / Beginner 2 /Beginner 3 / Beginner4 Intermediate Upper/High/Advanced
13	English listening and speaking	Basic (40) / Elementary (35) intermediate (35) /Advanced (25)
14	English listening practice	Basic listening Beginner 1 / Beginner 2 /Beginners 3 / Beginner4 Intermediate Upper/High/Advanced
15	English podcast & audio books listen by subtitles	General listening Basic listening / Academic listening

4.1.6. Apps Classified Based on Assessment Modules

Table 4 presents the classified applications based on the evaluation schema. Apps assist in how much the learners have benefited and help to display outcomes of what learners have listened to. The assessment would tune the children's cognition more and more such as face-to-face live tests, objective type tests from the listened conversation, listening quizzes, rearranging words of the sentence and practice games, and promoting self-evaluation. Assessment criteria show the progress of the learners by themselves. This also gives general training for beginning and Intermediate level learners for Test of English as a Foreign Language (TOEFL), IELTS, or Test of English for International Communication (TOEIC) exams.

Table 4. Apps are classified based on assessment modules.

S. No.	Name of the apps	Mode of assessment
1	IELTS (International English language testing system)	Objective type (From the conversation). Choose the best answer and choose the correct words
2	TOEFL listening	Objective type (From the content). Choose the best answer Choose the correct statement
3	PORO ENGLISH	Objective type (From the content). Rearranging words in the given sentence
4	Advance English listening	Objective type (From the conversation). Choose the best answer Find out the right event
5	English listening skills practice - ELSP with CUDU	Objective type (From the conversation). Choose the best answer Find out the incident
6	Listen English daily practice	Objective type (From the content). Choose the best answer Find out the incident
7	Listen English daily practice	Objective type (From short listening activity). Listening quizzes
9	English listening test	Objective type Choose the best answer
10	English listening step by step - English speaking	Objective type (From the conversation). Choose the best answer Find out the incident
11	Oxford English listening	Only practise
12	English listening	Objective type (From the conversation). Choose the best answer Rearrange the words
13	English listening and speaking	Pronunciation test
14	English listening practice	Objective type test Choose the best answer
15	English podcast & audio books listen by subtitles	Only practise

4.2. Participants

The primary data were collected from tertiary-level students in India. The first-year B. Tech learners (n=121) were the targeted sample. this sample was randomly divided into one control (n=60) group and one experimental (n=61) group. The sample comprised (n=68) male and (n=53) female. The learners involved in this study were from different mediums of instruction. The influence of the medium of instruction was diagnosed and it was found that the sample comprised Tamil medium learners (n=49) and English medium learners (n=72). Figure 5 presents the frequency distribution of the samples.

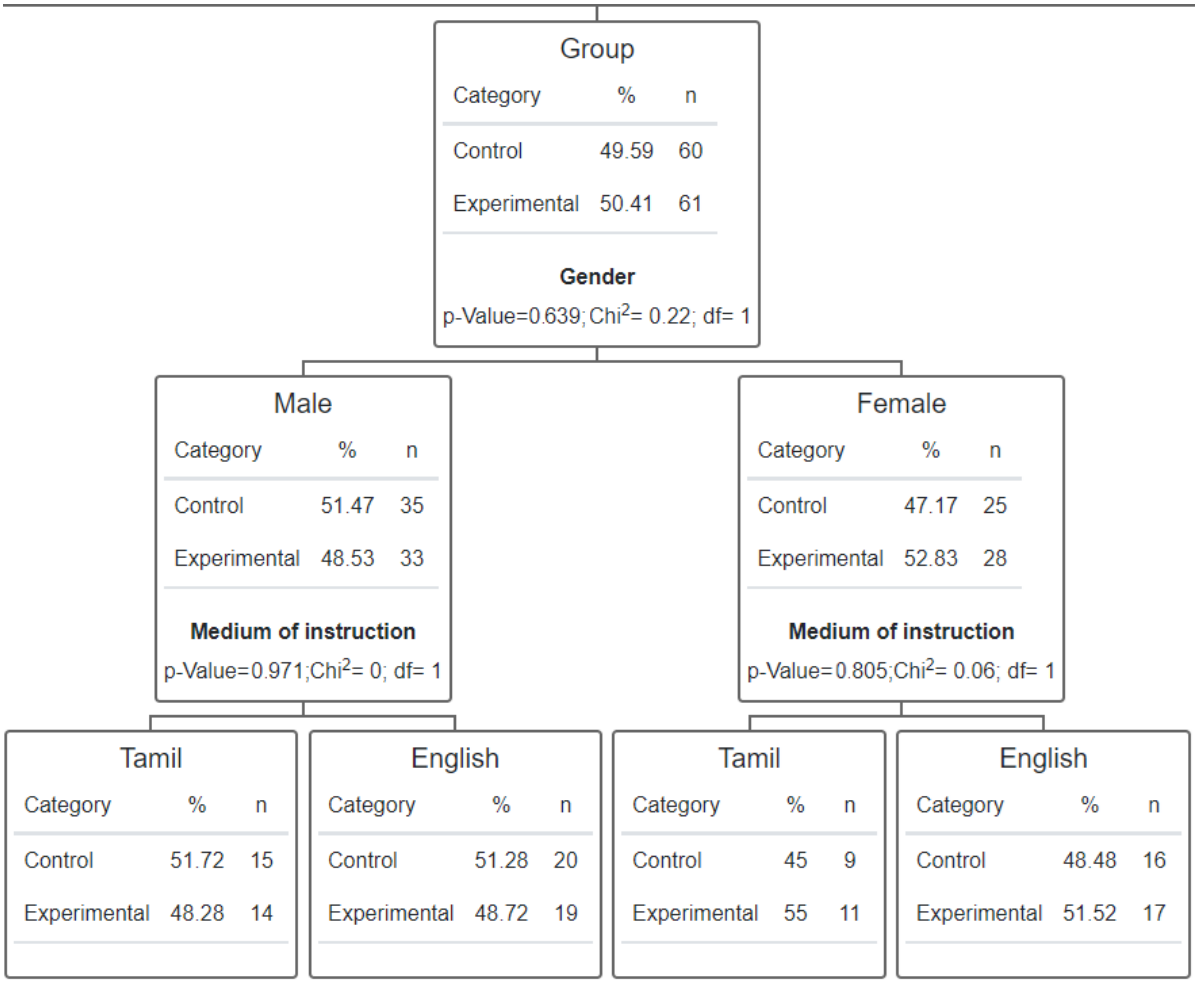

Figure 5. Frequency of the sample.

4.2.1. Data Collection

Testmoz tool was used for data collection. It is an anti-cheating-based software, which helps to conduct secured tests using mobile devices. This application provided limited features in the free version and multi-feature in the paid version (Sangle, Nandurkar, & Pawar, 2020). The test was configured for twenty marks with audio conversation and daily routine incidents. The audio files were shared through this application along with objective-type questions following CEFR standards.

Table 5. Reliability scale test

Scale reliability statistics	
	Cronbach's α
Scale	0.893

Table 5 illustrates the scale reliability value and measures how all items of the factors were correlated. Here the Cronbach's α value is 0.893, which estimates that the level of interpretation is good.

4.2.2. Data Analysis

Data were analysed with help of the Data tab and Jamovi software (The Jamovi Project, 2021). Experimental hypothesis framed (null hypothesis) in order to find the effectiveness of the intervention study (Chawla & Sodhi, 2011).

H_0 1: The m-learning method will not enhance the listening skill among ESL students.

$H_0$2: Content of mobile applications will not make an impact on listening skill.

The values furnished in Table 6 and the data are normally distributed followed by the value (p= 0.488) and as per the Kolmogorov-Smirnov data normality test. The value is seen as greater than the alpha value which means the null hypothesis is accepted, the data is normally distributed and a good fit for the parametric test. So Parametric tests such as paired sample t-test, independent t-test and one-way Analysis of Variance (ANOVA) were taken for the results output. No missing values were found.

Table 6. Data normality test.

Test for normality	Statistics	p
Kolmogorov-Smirnov	0.07	0.488

5. RESULTS

5.1. T-Test for Paired Samples

Table 7 shows descriptive statistics of the mean difference among the same group of two tests. The pre-test results show lower values (M = 11.05, SD = 3.27) than the Post Test results (M = 13.76, SD = 3.46) which means the intervention treatment impacted the group.

Table 7. Paired samples t-test.

Pair 1	N	Mean	SD	SE
Pre-test	121	11.05	3.27	0.3
Post test	121	13.76	3.46	0.31

Table 8. Paired differences.

Pair 1	t	df	p (2-tailed)	Lower limit	Upper limit
Pre-test - post test	-14.26	120	<0.001	-3.09	-2.33

Table 8 presents the paired sample t-test results of dependent variable and the difference was statistically significant, t (120) = -14.26, p = <0.001, 95% Confidence interval [-3.09, -2.33]. This results in a p-value of <0.001, which is lower than the specified significance level of 0.05. The t-test result is therefore significant for the present data so, the null hypothesis is rejected, and the intervention study made an impact on the samples.

5.2. ANOVA

Table 9 denotes that there is a significant difference between the tests of the independent variable group in relation to the dependent variable. There is no significance in the pre-test results of the control group (M = 11.1, SD = 2.59) & experimental group (M = 11.0, SD = 3.85) which means that before the intervention, the students are at the same level as in the listening skill. The post-results of the two groups' value (M = 12.1, SD = 2.20) & (M = 14.0, SD = 4.06) shows improvement when compared to the pre-test. The experimental group yielded high score when compare to the control group.

Table 9. Group descriptive.

Test	Group	N	Mean	SD	SE
Pre-test	Control	60	11.1	2.59	0.334
	Experimental	61	11	3.85	0.493
Post-test	Control	60	12.6	2.2	0.284
	Experimental	61	14.9	4.06	0.52

Table 10. One-way ANOVA (Welch's).

Test	F	df1	df2	p
Pre-test	0.00324	1	105.3	0.955
Post-test	15.05921	1	92.8	< 0.001

Table 10 displays a significant difference between the groups. Pre-test p= > 0.955 value determines that there is no relation to the dependent variable. After the intervention the post-test p= <0.001 value was highly significant in relation to the dependent variable of the control and experimental groups.

6. ANALYSIS OF THE RESEARCH QUESTIONS & DISCUSSION

The M-learning method is accessible for learners to learn from anywhere and anytime. It opens the door for learners' autonomy where there are no boundaries of learning and progression. Dropouts, financially weaker or learners who are unable to continue their studies for varied reasons can adopt this method. The mobile learning system creates curiosity among learners because they can learn the English language through stories, news, and habitual action conversations. This system formulates portability, accessibility, and individuality. Learners learn in private with its instant search option and assistance.

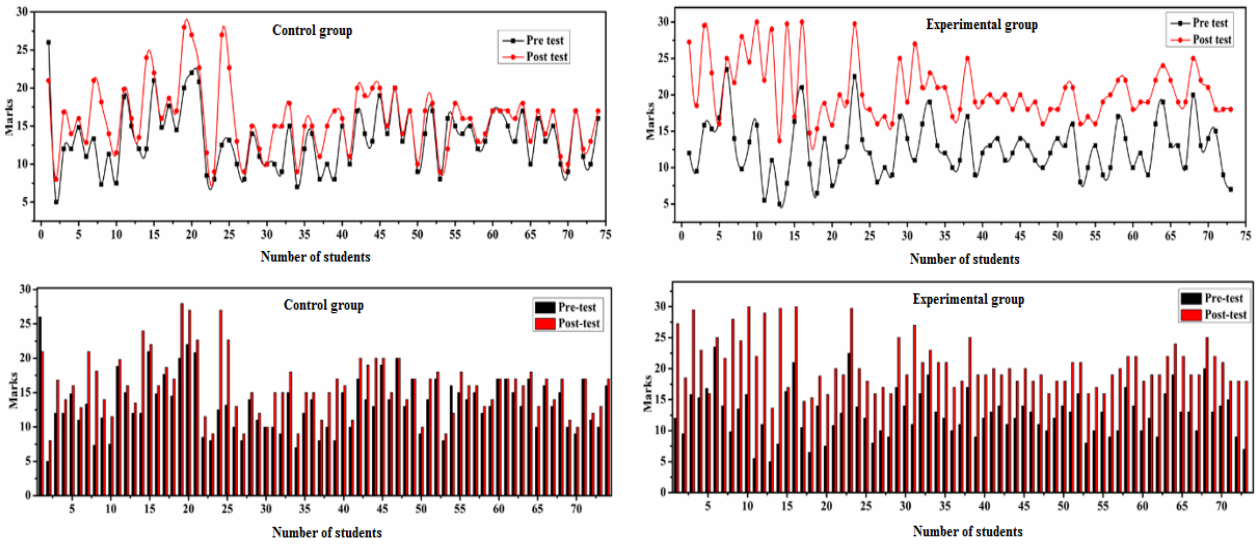

Figure 6. Variable changes in pre-test and post-test.

The results in Figure 6 are seen in line chart which determine that the M-learning method has improved listening skills among the groups. Both the control and experimental group got results of same average (μ=11) in the pre-test. Whereas after the intervention, the Post Test of the control group shows results with an average of μ=12.6 and the experimental group results with an average of μ=14.9. The experimental group's results are better than the control group and the graph illustrates laid line on the post-test, since the score steadily rose. The theoretical framework of the study proved statically. The first hypothesis test value t (120) = -14.26, p = <0.001 determined a significant difference between before and after the intervention study. So, the m-learning method made changes positively among ESL students.

The Content of mobile applications made impact between the two variables group and pre-test and Post Test. In the second hypothesis, the test result was highly significant p= <0.001 less than 0.05, hence the students decoded the sound pattern comprehensively after the listening practise. There are tentative probability assumptions on the positive side. Here apart from the classroom, learners can undergo language skill practice with the help of the online course in any way they prefer. As a choice-based learning system, it gives comfort to the learners to choose

the content according to their knowledge level (basic to advanced) and interest. As a personal guide, it provides many free educational channels for skill development.

7. CONCLUSION AND FUTURE SCOPE

This study proved that mobile devices and applications supported to the learners for develop the listing skill. Mobile devices created a good learning environment and kindled an interest to listen to the components of the target language. It is affordable, and user-friendly and has various features related to learning, discussion, and assessments. There are over thousands of language learning applications available and allowing learners to choose according to their preference and level. The analysis and findings of this study show how mobile technology will serve ESL learners effectively to improve language skills and specifically their listening skills. After scrutinizing eighty-seven top applications, forty-six of them applications were shortlisted based on the content of listening skills, and from which, fifteen applications were preferred for tertiary level learners. Evaluation, feedback, and terms of services are also taken into consideration while filtering appropriate applications. Mobile learning thus proved to be a powerful tool that could brought changes in ESL classrooms. The quality of m- learning methods could raise the excellence among the students while listening the English language. This study is on enhancing the listening skills with the help of mobile applications and the future scope of the study is to extend this M-learning to the PAD (Presentation, Assimilation and Discussion) method that provides enormous support for self-learning which still improvises the output of learners.

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