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Technology Integration in Teaching and Learning English Phonetics

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Abstract

The current research aimed to explore universal technological advancement in teaching pronunciation. The textual analysis method was adopted to explore various technological tools that could be used in teaching English pronunciation. The analysis explored various technological tools which are appropriate, feasible, less expensive, and accurate to teach English pronunciation. The study recommends various technological tools such as; Sounds of Speech, Phonetics, YouGlish, Voki, Fotobabble, Adobe Spark, Praat, and Automatic Speech Recognition (ASR) for teaching-learning English pronunciation. The study unfolds carefully designed technological programmes and instruction to address the need for technology-integrated intervention in pronunciation teaching.

Keywords: *Phonetics; technological tools; pronunciation; intervention*

1.0 Introduction

English phonetics has evolved as one of the prominent linguistics branches since the 19th century when (IPA) International Phonetic Association was established in 1886. Further, it is unfortunate that English pronunciation instruction is a challenging task for teachers, especially phonemic instruction. “Bad methods and techniques employed by the teachers, students, do not understand English and demand translation.”[20] “Assuming the point of language learning is to cooperative in the TL (Target Language), then, at that point, students of English as an L2/ ESL (English as Secondary Language) ought to make progress toward accuracy sound examples perceived as English, understandability audience comprehends the importance of expression and interpretability audience comprehends the reason for expression”. The 21st century has seen real changes in instruction and learning English as a remote dialect or a second dialect.

“Here in India, we have three significant factors for IndE (Indian English): capability as far as securing; provincial and primary language; ethnic foundation”[17]. The Indian population has a baffling set of multilingualism varieties, and English language is one of the languages that co-exist among many Indian languages. However, it holds a prominent position in India. It is the language of opportunities and privileges which leads to social mobility and social advancement and modernisation. The standard of English in India is a non-variety with some regional varieties of spoken English. L2 learners need to wean away from the strong interferences of L1 (mother tongue) and adopt English pronunciation to the standard norm so that the speech is intelligible and effective. The English language has un phonetics because it does not have correspondence between sounds and symbols. Therefore, Indian instructors and students need to make a systematic study of English phonetics. Educators must help learners to adopt technology-integrated pronunciation learning skills which would make them learn pronunciation proficiently.

In India, English is widely taught as a second language.

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Teachers and students at all levels find it difficult to learn English pronunciation through conventional methods. Except in cities, the exposure to English is limited, unlike L1. Language is essential for society because it is used for communication purposes. However, phonetics and phonology are the branches of linguistics, and it deals with the production, communication, and reception of human speech sounds. "Language instructing is a specialty that is amendable to a logical methodology"[18]. Technology-integrated teaching of phonetics and phonology would be more convenient to overcome difficulties in learning pronunciation and developing proficiency in pronunciation.

1.1 Technological Integration in Teaching Phonetics

As Levis[12] points out, "CAPT [computer-assisted pronunciation teaching] applications are apparatuses to meet educational objectives, and the device ought to be fitting to the job" (p.186). In "The Practical Study of Languages", published in 1899, Henry Sweet emphasizes the importance of phonetics. He says: "The fundamental maxim of living philology is that all investigation of language should be founded on phonetics". The rapid technological growth in the last years has resulted in the usage of computer technology in teaching English pronunciation. The learning paradigm has been synchronous and asynchronous among the learners. "The developing accessibility of discourse examination programming downloaded and put away in PCs or available online, just as modest remote innovation like remote amplifiers, works with the utilization of moment acoustic investigation in the classroom[1]". In spite of smart and other technological aids in educational institutions, there is infinitive innovation in teaching phonetics. "The utilization of the talking machine in showing dialects is in no way, shape or form new... furthermore the quiet decision got by its overall deserting is that it does not merit the difficulty includes[3]". This study aims to explore various technology tools through the intervention point of view to increase proficiency in English pronunciation. It also aims to organise and select technology-integrated intervention modules to teach English language phonology and phonetics. "Read reviews and proposals from definitive sources and afterward screen applications cautiously before prescribing them to students[4]". The research aims to bring out certain criteria to consider pedagogy and technology tools for teachers before they consider those to adapt for teaching-learning.

2.0 Literature Review

Research in teaching pronunciation and intonation (Jennifer Jenkins; 2015) the study brings out contrastive effects from L1 to L2 which further addresses L1 influence on L2 learning. The study further highlights the influence of L1 on L2 pronunciation and pronunciation pedagogy shifting towards embracing technological and sophisticated approaches. Further, the study highlights pedagogical developments in teaching English pronunciation. The importance of current trends in online language learning[2] brings out hybrid and virtual learning classes. The research also highlights the attractiveness of CALL (Computer Assisted Language Learning) and its effectiveness in grabbing the attention of learners. Further, the study emphasises online learning, language games, and social computing which facilitate mediated language instruction for learners. Furthermore, it also juxtaposes the learning environment and L2 development through technology integration. Computer technology in teaching and researching pronunciation[12] highlight that pronunciation and speech recognition is an issue because of the varieties of English spoken in the world. Moreover, the intelligibility of varieties of English creates comprehensibility. The research focuses on (CAPT) computer-assisted pronunciation teaching and enhanced usage of technology for pronunciation teachers. The current study also juxtaposes pronunciation and computer technology which further enhances pedagogical goals and measurements. Furthermore, it also brings out feedback processes through CAPT and the technological competencies of teachers related to English pronunciation.

3.0 Methodology

Qualitative research was adopted to answer the research questions in this current research. "by using qualitative research one finds realities, as well as rather the understandings one has that, are explicit to the person..." (Dilley, 2004). The current article adopts a textual analysis research method and evaluates relevant technological tools to teach English pronunciation and offers individual learning practice in English pronunciation. The textual data was accumulated by formulating the research problem and clarifying the concepts in technological tools in teaching phonetics and phonology. The research had begun with a literature survey, an inductive textual analysis was used as exploratory research in this study to bring out various technological tools that could be used in teaching-learning phonetics and phonology.

3.1 Research Questions

This paper explores to answer the research questions:

Which technological tools are feasible in cost and time to teach pronunciation?

Which technological tools are practical and reliable to teach pronunciation?

3.2 Research Objectives

The current study intends to guide the teachers to choose the best technology tools to teach English phonetics and pronunciation in the classroom, and it also brings out the objectives in choosing necessary tech tools in teaching English phonetics and pronunciation for L2 learners. To choose appropriate technology tools to teach, the study intends to bring; the feasibility, reliability, and cost of technology tools in choosing those.

4.0 Findings and Discussion

4.1 Audiolingual and the Oral Approach

The current study brings out the Audiolingual Approach of US and the Oral Approach of Britain have contributed to the analytic linguistics approach as pedagogy which supplemented to teaching-learning movement. Both methods have contributed to teaching-learning methods as a direct method to enhance the learning of phonemes. The current research unfolds four approaches in teaching-learning phonetics by adopting technological tools to develop pronunciation skills among learners.

With the knowledge of phonetics in the areas of speech, language teaching, and communication, the learners need to listen to the phonemes and connect with examples with the above situations. Technology tools supplement teachers in pronunciation models.

"Students can profit from recording and paying attention to their articulation to assist them with fostering the capacity to self-correct". Technology tools benefit from recording the pronunciation and listening to the recordings, which pedagogically enhances learning, unlearning, and re-learning English pronunciation.

The process of listening to recordings and giving feedback could be simple with technology tools for teachers. Further, it could be very effective with the supplement of technological tools to give feedback to learners.

Individual practices to learn pronunciation is possible through numerous technology tools and apps designed for the same purpose.

4.2 Technology Tools to Supplement Learning English Pronunciation Through Technology Model

4.2.1 CAPT

"Computer Assisted Pronunciation Teaching (CAPT) applications are tools to meet instructional goals, and the tool should be appropriate to the job". (Levis, 2007, p.186). CAPT (Computer-assisted pronunciation teaching) is well-known instruction to teach phonetics to students by teachers. While instructing by the teachers on how to articulate the phonemes, it will be difficult to show the organs of articulation in the mouth. "The utilization of pictures has been having been displayed to assist students with further developing their capacity to recognize sounds and words[12]". The Sounds of Speech, YouGlish, and Phonetics are prominent resources to give instructions as modeled pronunciation.

4.2.2 Sounds of Speech

One of the effective URLs http://spoundsofspeech.uiowa.edu. For modeled instructions on English pronunciation from the University of Iowa. It is also available on mobile apps of Apple and Android, and it offers a free demonstration on some phonemes and other phonemes; the app costs $3.99. The illustrated and 3D animated visuals and videos on each phoneme describe and demonstrate the manner of articulation.

4.2.3 Phonetics

The App created by the Tokyo University of Foreign Studies. The app includes 3D animated articulation, and it has a demonstration of each phoneme with examples of words. The users can opt between male and female voices, and recorded material can be used at a nominal pace. The Phonetics app costs $7.99, and it is available only on Apple Store. The app can be used in the classroom and practiced simultaneously by the students in the classroom and outside their classroom. In addition to it, Oxford Advanced Learner's Dictionary www.oup.com/elt.oald can be used for better learning of pronunciation.

4.2.4 YouGlish

YouGlish is a Tech tool http://youglish.com which provides various resources on English pronunciation by sourcing the YouTube videos of native speakers. The learner has to type a word to listen to and can be chosen from UK, US, Aus or other pronunciations. Then, youglish finds the video or probably from TeD Talks (http://www.ted.com), and subtitles will be provided. "These recordings allow the students to hear multiple speech models in addition to their own teacher's voice, which can increase their flexibility in understanding many varieties of English[12]". "A successful procedure in which the students used shadowing by repeatedly listening to a chosen one-minute video, and imitating it repeatedly until they could come close to the original[8]". Video archives such as English Central (https://www.englishcentral.com) and Voicetube (https://www.voicetube.com) are video sources for learning

and imitating. "Evidenced-based pronunciation teaching is both possible and effective[4]". Further, www.bbcenglishlearning.com learning English is free learning material and videos from BBC English. The site helps to learn English pronunciation and get mastery of the phonemes. The site has a video on every phoneme with examples of words, allowing learners to watch the videos multiple times and learn at their pace.

4.3 Technology Tools Benefit Recording the Pronunciation

The process of recording the students' voices has become more accessible through technology tools. There are recorders, computers, tablets, mobile phones which record both audio and video. The students and teachers analyse the recorded voices. Even a free programme (http://www.audacityteam.org) is much beneficial for teachers and students to record their sounds. Furthermore, the students can improve their pronunciation with peer-learning by sharing the recordings, enhancing their communication and pronunciation skills. There are various tech tools following are the some of those:

4.3.1 Voki It is a hands-on interactive app (http://www.voki.com) for students and teachers. It engages and integrates technology in a fun and empowering way. It allows students to complete their tasks of assignments, projects, and homework. It also could be propagated among the peer, and learning happens quickly. It also endorses a tool of presentation for both students and teachers and enhances classroom management for teachers. Spur conversation among students and engagement lead to social experience with a learning focus.

4.3.2 Fotobabble It is software (http://www.fotobabble.com) that supports photo-audio integration and helps the organisation and the stakeholders. It attracts and engages users and learners through social networks. It is on iPhone, learners record and uploads their photographs and network through social networks and media. The app is more of an interactive approach that allows teachers to record the pronunciation sessions and supplement learning among students. Further, it provides hands-on experience with specific needs on pronunciation models through their job specifications and other specific needs of the learners.

4.3.3 Adobe Spark It is a free app (https://spark.adobe.com) that suits anyone to create visual content. Adobe's new suit is Adobe Spark, which is compatible with both web and apps. Through Adobe Spark, learners can develop visual content and share content stories, assignments, posts, and graphics. Completed sides could be viewed on the website or downloaded as videos.

4.4 The Process of Listening to The Recordings and Giving Feedback

"Received feedback is an essential aide in distinguishing elocution mix-ups and attempting to make their articulation more understandable[9]". Students recorded materials are further sent for feedback by the teachers. Teachers would instead send them feedback for students on the pronunciation assignments. The task of giving feedback for individual assignments is tedious for teachers; instead, other tech tools can be used to give feedback to students on their recordings. The following are some of the tools much beneficial:

4.4.1 CALL

"As a language learning environment, online instruction beginning to enjoy the same popularity already experienced within other disciplines for some time now[11]". "One more avenue inside instructional exercise CALL utilizes the utilization of regular language handling and a small portion of man-made reasoning to upgrade the kind of criticism given to the understudies working alone on the web[14]". E-learning by many institutions and organisations are in a trend, and it is gaining momentum. Furthermore, E-learning provides a package of learning for students; web tutorials, trial and error learning, and technological multimedia assistance. The online e-courses with multimedia embedded aims to enhance practical learning for learners of English pronunciation. Moreover, e-learning and Moodle (MOOCS-online interactive courses) provide a platform for teachers and students in a more interactive manner.

4.4.2 Blog

An interactive page on a website, an individual uploads materials, videos, audio, and links to the website. It is very interactive where the learners can post a comment on the blog, and it further leads to learning. The popular blog on phonetics is Das, a Phonetik-Blog, contents of phonetics and phonology could be learned through this blog.

4.4.3 LMS

Learning Management Systems is used for education and training programmes. It organizes learning courses and also creates, assigns and grades the students in the learning process. It is the most convenient software embedded system for interactive learning and delivering eLearning courses.

4.5 Individual Pronunciation Practice

4.5.1 ASR

Automatic Speech Recognition Systems, translate spoken utterances into text (words, syllables, etc.,) examples: voicemail, transcriptions, dictations systems, Siri front, etc.

Speech processing features the production and analyses of speech sounds. The speech recognition techniques recognise the static pattern (a speech sound) and recognise words (sequence of words) and sentences (sequence of sentences). ASR technology process is "speech to text". "Research has shown positive outcomes in involving ASR for free elocution practice with global instructing aides". Pronunciation is a significant concern for non-native speakers; moreover, concerning immediate feedback for learners, ASR (Automated Speech Recognition) could provide feedback for learners to assess their pronunciation if they have pronounced it proficiently. (e.g., if the score is less than 62%, the learner has mispronounced the words). "Ideal frameworks ought to consistently incorporate a choice to give input using ASR innovation so the client can get quick data on his/her presentation[15]". Teachers need to understand CAPT application and fundamentals of technology tools and how it used in phonological research. The software programmes like PRAAT, WASP and CSL (Computerised Speech Lab) supplement the teaching-learning of phonetics and phonology. The teachers need to be effective and familiar in adapting CALL (Computer Assisted Language Learning)/ computer-based pronunciation exercises through ASR in the wide variety of pronunciation learning.

4.5.2 Praat

It means 'talk', a free software programme to analyse speech in phonetics. It has been designed and developed by Paul Boersma and David Weenink of Amsterdam University. "A few applications and projects guarantee to investigate English elocution and rate its exactness. In any case, the majority of these would not convey all that they guarantee, and numerous wrong decisions of clients' articulation[4]". Finally, what about a programme that displays visual representations of speech as spectrograms, waveforms, and pitch patterns? These waveforms and spectrogram could be used as part of many pronunciation applications and produced by more specialised tools such as Praat (http// :www.praat.org.) The programme is compatible with UNIX, Mac, and Microsoft, and the programme supports the learners with speech synthesis and articulatory synthesis but, Praat is not capable of cutting and inserting phonemes for that Goldwave, shareware which supplements to insert sounds. Praat software is capable of analysing changing pitches and allows learners to learn aspects of pronunciation. It is also very useful for phonetic analyses, strips of spectrogram pictures indicate the vibration of vocal cords, and the vertical strip shows the frequency of decibels and their intensity. "Reading and accurately deciphering spectrogram requires thought about aptitude in phonetics. Therefore, these portrayals are probably not going to be very useful in the classroom[4]".

5.0 Conclusion

"While a consistently developing exploration demeanour has started to set up the advantages of articulation showing guidance, many have noticed a distinction between lab-based experimental examination and instructive, study hall executions[4]". Technology has become an essential part of phonetic pedagogy and research. Lack of pronunciation learning could be due to a lack of practical and technological implementation by a teacher. The study addressed the severe dearth of practical and technological implementation in English phonetics pronunciation instruction. The study was concluded with a word of caution, "As has been emphasized a few times in the CALL [Computer-helped language learning] writing, innovation would not supplant instructors, nor is it fundamentally better than, or even as great as, conventional educational methods... [we would] treat innovation as one apparatus among others[4]".

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