



**CHALLENGES IN LEARNING ENGLISH AS A SECOND LANGUAGE THROUGH  
ARTIFICIAL VOICES – A SURVEY**

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**Abstract**

English as a Second Language (ESL) learners have gained greater access due to the extensive number of artificial voices in language acquisition resources. However, sorting through these artificial sounds presents significant challenges, as it helps the learners to understand English phonetic patterns, phonological structures, stress, rhythm, and pronunciation; the role of their mother tongue strongly influences the difficulties in understanding artificial sounds. This study explores the obstacles that ESL students struggle with in understanding the English language through artificial voices, emphasising aspects such as naturalness, intonation, and correct pronunciation. Based on the statistical studies, learners have a hard time understanding artificial voices because of things like uneven pitch and intonation, accent, inadequate intelligibility, strange accents, speech pace, and noisy background interruptions. It also concentrates on pronunciation, accent variability and the impact of understanding. This study presents insights into the difficulties of ESL listening through artificial voices through a comprehensive evaluation and provides solutions for ways to enhance language learning tools. This study of research also emphasises the necessity for voice processing, which is more linguistically refined and more flexible. By presenting experimental research into optimising artificial voice tools in an attempt to improve linguistic acquisition results, it brings value to contemporary discourse in applied linguistics and educational technologies.

Key Words: Artificial voices, Language Learning, Accuracy, Intonation, Accent.

## **introduction**

### **Language**

Language is a form of communication in which meaning is expressed through symbols like words and gestures. It is an essential component of human civilisation and is used for information sharing as well as the expression of ideas, feelings, and opinions. It can be written, signed, or spoken, among other forms. There are thousands of languages spoken in the world, and each one has its own vocabulary, grammar, and structural elements. It is the most crucial concept in the world and assists in regulating all of our activities from birth to death. Human knowledge and culture are stored and transmitted through language. It dominates every aspect of our lives and sets us apart from other beings. It acts as a means of communication that permits us to express our thoughts and feelings to others.

Language is an exemplary tool that has spread across the globe, witnessing the development of society in terms of civilisation, culture, and technology. It helps us communicate and build connections among people of different groups, places, and ages, filling gaps and strengthening bonds. Learning and understanding the language spoken in a particular area and community is not a highly challenging task. While mother tongue acquisition is not obligatory, it is just a part of growing up since the entire system supports it. English has become an essential language for global commerce and management, and proficiency in English has brought success to numerous Indian business managers. It consists of rich literature and a technical nature and has become a major language worldwide. It is also widely accepted as a second language in India and used as a language of communication to diverse groups. As Gandhi once said, "English is a language of international commerce, diplomacy, and literary treasures." Thus, English occupies an important place in the school curriculum and serves as a binding force to keep diverse groups united.

### **English Language Teaching**

English Language Teaching (ELT) encompasses a range of approaches, techniques, and methods that are used to teach English. It is used by people who speak English as their first language, as well as by those who use it as a second or foreign language. English is used as the primary language of communication in workplaces and educational institutions, but at home, it is referred to as ESL (English as a Second Language). This is common in immigrant communities in countries such as Australia, New Zealand, and Canada. In countries like Brazil, Japan, and Thailand, English is not used for communication beyond elementary education. Instead, it is used solely for international communication, where another common language is lacking. In such cases, English is referred to as a foreign language (EFL - English as a Foreign Language).

### **English Language Teaching in India**

English Language in India serves more than just as an official language. It has been used as a language of diplomacy, higher administration, higher education, superior judiciary, and information technology. Besides, English is a language of opportunities and success for life in India. However, the Education Commission of India noted in 1966 that "when a degree holder from India goes to any of the developed countries, he is not treated at par with a degree

holder of that country." This shows the low standard of the Indian Educational System when it comes to English language learning. Additionally, most Indian curricula don't make the learning of English mandatory, which is why there is reluctance about teaching or learning the language. This reluctance is often considered an inherent quality of the Indian Educational System. To overcome this obstacle to academic growth, we need to evaluate our English Language Teaching (ELT) pattern and how it impacts the curriculum. In this analysis, we will learn about the state of ELT in India and how it has affected the quality of education.

In 1835, Lord Macaulay emphasised the teaching of the English language in India through his "Minute on Education". He introduced English to Indians, even though the country prided itself on the classical languages of Tamil and Sanskrit. Sir Charles Wood supported the use of English as a medium of higher education, as a sound knowledge of English was a prerequisite for admission to established universities. However, the ground-level response to learning English was initially poor. English was adopted as the medium of instruction for fundamental sciences and mathematics, leading to a phenomenal development of secondary and higher education in urban areas.

### **Importance of English Language Teaching in India**

Effective English language learning takes place when learners can communicate fluently in both writing and speaking and can use English for library purposes. Therefore, promoting English Language Teaching (ELT) in modern India is in high demand and can lead to a great transformation from traditional ELT approaches. Indian ELT (English Language Teaching) is a multi-purpose approach that differs based on the purpose of learning English. In India, there are three fundamental approaches to ELT: English for Academic Purposes (EAP), English for Occupational Purposes (EOP), and English for Specific Purposes (ESP).

EAP is the teaching of the English language in primary, secondary, and graduate-level educational institutions. This approach aims to build students' awareness about the basics of English and encourages them to have a general understanding of grammar, pronunciation, and the use of English for common purposes.

English at the undergraduate level of engineering studies differs from English in other undergraduate courses because it has a specific purpose. It differs from other courses in three aspects: relevance, register, and style. These three aspects gain supremacy in material design because the course must engage students for both academic and professional purposes. The academic functions include oral and written communication, comprehension of lectures and books, note-making, note-taking, paper presentations, participation in regional, national, and international seminars, and interviews.

### **Information Communication Technology (ICT)**

Information and Communications Technology (ICT) refers to the use of computing and telecommunication technologies, systems, and tools to simplify the way information is created, collected, processed, transmitted, and stored. It encompasses computing technologies such as servers, laptop computers, and software applications, as well as wired and wireless communication technologies that support telephones, the Internet, the Internet of Things (IoT), and the metaverse. The ultimate goal of ICT is to enhance access to information and to make communication between humans, machines, and machine-to-machine (M2M) easier and more efficient.

This broad term includes the infrastructure and telecom components that enable synchronous and asynchronous communication across short and long distances. It also consists of telecommunication and cloud computing services, as well as the governance policies that support their use. The importance of ICT cannot be overstated because it has become the foundation of modern society. It drives innovation, enhances productivity, and fosters global connectivity.

The concept of Information and Communication Technology (ICT) has its roots in the 19th century, marked by the invention of the telegraph and telephone. These two inventions brought about a paradigm shift in the way people worked and interacted socially, making it possible for individuals to communicate in real or near-real time, regardless of their location. In the mid-20th century, radio and television introduced the concept of mass communication. By the end of the century, the Internet had emerged as a mainstream tool for communication, commerce, and entertainment. With its use growing rapidly in the following years, the internet has revolutionised the way people work and communicate digitally.

### **Artificial Voice**

The field of voice artificial intelligence is still in its early phases of development. There is still disagreement among industry experts over the exact meaning of this phrase. Generally, it refers to the combination of artificial intelligence with speech recognition (how computers understand spoken language) or text-to-speech generation (how computers speak). Bloggers who write about technology use this term to describe any intersection of these components. Some writers call smart speaker personas like Alexa “voice AI.” Others use the term to describe synthetic voice production that uses machine learning.

### **RESEARCH METHODOLOGY**

*“Without data, you're just another person with an opinion.” - W. Edwards Deming.*

The cognitive process that is imposed on research to articulate the issues resulting from the nature of its subject matter is known as methodology. The description, justification, and explanation of different research procedures are found in the research methodology. To enable the reader to critically assess a study's overall validity and reliability, the methods section outlines the steps to be taken to investigate a research problem and the justification for the application of particular procedures or techniques used to identify, select, process, and analyse information applied to understanding the problem.

Research methodology pertains to the pragmatic "how" of a particular research study. To be more precise, it concerns the methodical ways in which a researcher plans a study to guarantee accurate and trustworthy outcomes that meet the goals and objectives of the investigation. A strong methodology chapter in a dissertation or thesis is crucial since it not only clarifies the methodological decisions that were taken but also their rationale. To put it another way, the methodology chapter should support the design decisions by demonstrating that the strategies and tactics selected are the most appropriate for achieving the goals and purposes of the study and will yield accurate and trustworthy results. Findings from research using a strong methodology are supported by science, but those using a weak methodology are not. Here, I'm utilising quantitative research for my project to provide reliable and valid results.

In carrying out this study, the source of data is primary. The data were collected using a questionnaire and an interview schedule from the respondents. The geographic area of study is PG & Research Department of English students in Sri Ramakrishna College of Arts & Science, Coimbatore.

### **Need for the Study**

Students find that using artificial voices to learn English as a second language is not particularly effective. Additionally, pupils these days do not perform very well on their internet platforms. Because of this, it is suggested that an analysis of the students' Artificial Voices performance be done as part of this dissertation project. The study must show how well students are performing in the PG & Research English Department at Sri Ramakrishna College of Arts and Science.

### **Objectives of the Study**

- To comprehend the particular difficulties that students encounter with Artificial Voices.
- To evaluate the efficiency of synthetic voices in aiding language acquisition.
- To analyse the effectiveness of artificial voice education for English.

### **Qualitative Research**

“We need quantitative assessments of the success of education. We need certification and qualifications both for teachers and for pupils. It is not a choice between quantity and quality, between access and excellence. Both of these will happen together if people really do believe in the importance of education to change lives”.

-Gordon Brown

The term "qualitative" denotes a focus on attributes of entities as well as meanings and processes that cannot be quantified, measured, or explored by experimentation. The socially created character of reality, the close link between the researcher and the subject of the study, and the situational limitations that mould the investigation are all highlighted by qualitative researchers. These scholars highlight how inquiry is fraught with values. They look for solutions to issues that highlight the construction and interpretation of social experience. Quantitative research, on the other hand, focuses on measuring and analysing causal links between variables rather than processes. Many social and behavioural scientists view qualitative modes of inquiry as both a method of solving a research problem and a means of doing so.

Research that concentrates on gathering and examining textual data, including spoken and written words, is referred to as qualitative research. Additional "softer" data items, such as body language or visual components, might also be the subject of a qualitative study. A qualitative technique is frequently employed when the goals and objectives of the study are exploratory in character.

For instance, a qualitative approach may be applied to find out how people feel about a presidential candidate or an actual event.

Almost any study setting that doesn't focus on determining "how many" can benefit from the use of qualitative research. One advantage of qualitative techniques is that they do not begin with a strict "hypothesis" that needs to be proven. Instead, it is a

flexible strategy that allows for adjustments and modifications as the study progresses, improving the calibre of the information and insights produced.

In addition to being widely employed in academic research, qualitative research is also crucial for more commercial applications as well as the nonprofit and volunteer sectors. It aids in your comprehension of the goals and viewpoints of clients or consumers, and it can be applied to prototype projects, create qualitative research and assessment, produce novel insights, thoughts, and ideas, as well as create and share captivating tales about your work. It can be applied to comprehend the social, institutional, or urban environments' cognitive, emotional, or affective landscape.

### **Research Tool**

Tools are instruments used to collect information for performance assessments, self-evaluations, and external evaluations. Tools need to be strong enough to support what the evaluations find during research. A tool is a testing device for measuring a given event, such as a questionnaire, an interview, or a set of guidelines or checklists for observation. It's an instrument or machine that aids in accomplishing a task. The research tools are the instruments used for data collection, are measurable and observable for data analysis and interpretation, constructed by researchers according to objectives.

"The questionnaire is a simple first step toward becoming more self-aware".

-Nick Morgan

The questionnaire is the major tool for my study. A questionnaire is a research instrument that consists of a set of questions or other types of prompts that aim to collect information from a respondent. A research questionnaire is typically a mix of closed-ended questions and open-ended questions. Open-ended, long-form questions offer the respondent the ability to elaborate on their thoughts. Research questionnaires were developed in 1838 by the Statistical Society of London. The data collected from a data collection questionnaire can be both qualitative and quantitative in nature. A questionnaire may or may not be delivered in the form of a survey, but a survey always consists of a questionnaire.

The Advantages of questionnaires include increased speed of data collection, low or no cost requirements, and higher levels of objectivity compared to many alternative methods of primary data collection. However, questionnaires have certain disadvantages, such as the selection of random answer choices by respondents without properly reading the question. Moreover, respondents cannot usually express their additional thoughts about the matter due to the absence of a relevant question.

### **Research Samples**

"In the vast landscape of knowledge, a carefully chosen research sample acts as a compass, guiding scholars toward the heart of understanding". -Unknown

In research terms, a sample is a group of people, objects, or items that are taken from a larger population for measurement. A sample is defined as a smaller set of data that a researcher chooses or selects from a larger population by using a pre-defined selection method. These elements are known as sample points, sampling units, or observations. Creating a sample is an efficient method of conducting research. In most cases, it is costly and time-consuming to research the whole population. Hence, examining the sample provides insights that the researcher can apply to the entire population.

The most effective sampling method for a study is the one that best suits the study's goals. The effectiveness of a sampling method is dependent on various factors and their complex interactions. Therefore, determining the "best" sampling method is rarely straightforward.

### **Research Design**

Research design refers to the conceptual framework that guides the research process for a given study. It acts as a roadmap for the research, outlining everything from hypothesis formulation and operationalization to the final data analysis required to achieve the study's objectives. Henry Manheim says that research design not only anticipates and specifies the seemingly countless decisions connected with carrying out data collection, processing, and analysis, but it also presents a logical basis for these decisions.

### **Sampling Design**

The sample design is a definite plan that deals with the method of selecting a sample to be observed from the given population. The convenience sampling method is used in the study to collect the sample data.

### **Sample Size**

Sample size refers to the number of sampling units selected from the population for investigation. In this study, the data were collected from the students of the PG & Research Department of English at Sri Ramakrishna College of Arts & Science. The sample for the research is taken as 100 samples.

### **Limitations of the Study**

- The study is based on the opinion given by the respondents (Students) of the PG & Research Department of English at Sri Ramakrishna College of Arts & Science, so the result cannot be generalised.
- The data were collected from the English Department students.
- A sample of 100 students because of limited time.
- A questionnaire comprising 20 questions only.

### **Data Collection**

“The goal is to turn data into information, and information into insight.” -Carly Fiorina.

Data collection is a systematic procedure for acquiring and analysing detailed information that helps to answer pertinent questions and evaluate outcomes. It aims to obtain a comprehensive understanding of a specific topic. The data is gathered for the purpose of conducting hypothesis testing, which aims to provide an explanation for a phenomenon. Hypothesis testing is a process of proposing a solution based on reasoning and eliminating assumptions.

Data collection has a variety of outcomes, but its main purpose is to provide researchers with the advantage of making predictions about future trends and probabilities. There are two core forms of collecting data: primary and secondary. Primary data is collected first-hand by the researcher, while secondary data is collected by an individual other than the user. It is important to understand that data collection can be broadly categorised into two types: Primary data collection and Secondary data collection. Primary data collection involves gathering raw data directly from the source. This process involves collecting original data for a specific

research purpose and can be further divided into two segments: qualitative research and quantitative data collection methods.

Qualitative research methods of data collection do not involve collecting numerical data that requires mathematical calculations. Instead, these methods focus on non-quantifiable aspects, such as the emotions and feelings of the researcher. An example of such a technique is an open-ended questionnaire. The importance of data collection lies in maintaining the integrity of the research, reducing the likelihood of errors, facilitating decision-making, saving time and costs, and supporting the need for new ideas, changes, and innovation.

Data collection is essential for capturing high-quality evidence that can provide answers to various questions. This evidence is crucial for businesses or management to make informed decisions. By collecting data, you can deduce quality information that will improve the quality of decision-making. Drawing inferences from data is necessary to make factual decisions based on accurate information.

### **Google Forms**

Google Forms is a survey administration software that is a part of the free, web-based Google Docs Editors suite provided by Google. This suite also includes Google Docs, Google Sheets, Google Slides, Google Drawings, Google Sites, and Google Keep. Google Forms is only accessible as a web application. It allows users to create and edit surveys online while collaborating with others in real time. The information collected through surveys can be automatically entered into a spreadsheet. Google Forms is a free web-based software that enables you to generate surveys, quizzes, and much more. It's a component of Google's online applications suite, which includes Google Docs, Google Sheets, Google Slides, and other tools. This multipurpose tool can be used for a variety of purposes, such as gathering RSVPs for an event or creating a quick quiz.

Google Forms stands out from other online software because of its extensive customisation options. The core of Google Forms is the Q&A format, and the Workspace tool provides a range of question and response options, such as multiple-choice, dropdown, and linear scale. Additionally, for each new question, you can include multimedia elements like images or YouTube videos, or add text descriptions that provide hints or elaborate on your question.

### **Advantages of using Google Forms**

- It is a free online tool that allows you to collect information easily and efficiently.
- With Google Forms, you can create surveys in a few minutes to ask your clients or collaborators information about your products or services.
- To start using this tool, you only need a Google account, the same one you need to access Gmail, YouTube, or Google Drive.
- The interface is very easy to use. Any user with average Internet knowledge can create forms using this tool.
- The assistant is simple to use. The What-You-See-Is-What-You-Get interface makes it easy to drag and drop form elements and organize them based on actions or events.

### **Disadvantages of using Google Forms**

- It is necessary to have internet to be able to use this tool.
- The design customization is very limited. Advanced users can change the design to use

the tool with a greater number of purposes.

- There are some security concerns. The user has to create a good password and protect it to increase the level of security.
- There are certain limitations regarding the capabilities of this tool. It accepts texts up to 500 KB, images up to 2 Mb; and for spreadsheets, the limit is 256 cells or 40 sheets.

### **Tools for Collection of Data**

The questionnaire is a crucial tool for collecting data from respondents. It has been developed with the state of the undergraduate students in mind, ensuring that it is easy to administer. The questions in the questionnaire have been designed to be simple. The questionnaire has been thoughtfully designed to encompass all aspects of the topic being studied and to gather general information about the respondents. The questions are focused on the performance of students and their effectiveness in dealing with the challenges of online learning. The study includes the opinions of first-year undergraduate students regarding their online learning experience. The total sample size comprises all first-year undergraduate students.

### **Data Collection Details**

To analyse my objectives, I prefer 20 questions for my study. The questions are comprised under four categories. They are Expressive TTS, Articulatory Synthesis, Transportation Hubs, and Emergency Alerts. Each category contains five questions. Using the Forms application, I have created a questionnaire entitled Challenges in Learning English as a Second Language through Artificial Voices- A Survey. After creating the forms, I shared them with our respective students of the PG & Research Department of English at Sri Ramakrishna College of Arts & Science on WhatsApp. I have also fixed two days to fill out the questionnaires. When students fill out the questions, I can automatically receive the responses on my Forms app. After getting 100 responses, I sorted them out in the form of tables to find out the results.

### **Data Interpretation**

Data interpretation refers to the process of examining data using predefined methods to assign meaning to it and arrive at a relevant conclusion. This involves analyzing the results of data analysis, drawing inferences on the relationships studied, and using them to conclude. Data analysis, on the other hand, is the process of organizing, categorizing, manipulating, and summarizing data to obtain answers to research questions. It is usually the first step taken towards data interpretation.

The correct interpretation of data is crucial and requires proper execution. To facilitate this process, researchers have developed some data interpretation techniques. These techniques are used by analysts to help people comprehend numerical data that has been collected, analyzed, and presented. Raw data can be challenging for the layman to understand. Therefore, analysts need to break down the information gathered to help others make sense of it.

### **Qualitative Data Interpretation Method**

The qualitative data interpretation method is a technique used to analyze qualitative data, also known as categorical data. This approach primarily relies on texts to describe information, rather than numerical or pattern-based data. Qualitative data is often collected

through person-to-person techniques, which can make it more challenging to analyze compared to quantitative research methods.

**Method for Analysis**

After collecting questionnaires from students, the data were classified, processed, and analysed using statistical tools to achieve the study's objective.

- Average score analysis

**Average Score Analysis**

Average score analysis is a useful tool for measuring the level of satisfaction across various categories related to a particular study. Based on the feedback received from respondents using a 4-point scale, an average score is calculated and presented in tables with appropriate interpretations.

**AVERAGE SCORE ANALYSIS**

The table shows the average score analysis for satisfaction with Artificial Voice Learning.

**1) ANALYSIS FOR EXPRESSIVE TEXT-TO-SPEECH**

Compare	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Percentage
Expressive Text-to-speech (TTS)	01	02	35	35	27	100	77	77
Score	01	04	105	140	135	385		
Variation of Pitch and Intonation	01	06	23	36	34	100	79.2	79.2
Score	01	12	69	144	170	396		
Difficulties in Emotions or Tones	01	07	34	30	28	100	75.4	75.4
Score	01	14	102	120	140	377		
Challenging for your Comprehension	03	10	32	29	26	100	73	73
Score	03	20	96	116	130	365		
Influences your other	01	04	31	31	33	100		

<b>Educational Content</b>							78.2	78.2
<b>Score</b>	01	08	93	124	165	391		

The Highest Mean Score for Articulatory Synthesis is **79.2%** shows that they **face challenges in the Variation of Pitch and Intonation.**

## 2) ANALYSIS FOR ARTICULATORY SYNTHESIS

<b>Compare</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Total</b>	<b>Mean</b>	<b>Percentage</b>
<b>Clarity and Intelligibility</b>	01	04	31	36	28	100	<b>77.2</b>	<b>77.2</b>
<b>Score</b>	01	08	93	144	140	386		
<b>Consonant and Vowel Sounds</b>	02	10	29	36	23	100	<b>73.6</b>	<b>73.6</b>
<b>Score</b>	02	20	87	144	115	368		
<b>Spoken Content in Various Contexts</b>	0	02	36	34	28	100	<b>70.4</b>	<b>70.4</b>
<b>Score</b>	0	4	72	136	140	352		
<b>Obstacles for the Comprehend</b>	0	09	29	34	28	100	<b>76.2</b>	<b>76.2</b>
<b>Score</b>	0	18	87	136	140	381		
<b>Articulatory Synthesis</b>	02	02	34	33	29	100	<b>77</b>	<b>77</b>
<b>Score</b>	02	04	102	132	145	385		

The Highest Mean Score for Articulatory Synthesis is **77.2%** shows that they **face challenges in Clarity and Intelligibility.**

**3) ANALYSIS FOR TRANSPORTATION HUBS**

Compare	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Percentage
Clarity and Effectiveness	01	15	27	29	28	100	73.6	73.6
Score	01	30	81	116	140	368		
Difficulties in other external factors	02	07	27	28	36	100	57.6	57.6
Score	02	14	81	112	180	288		
Public transportation announcements	02	09	30	30	29	100	75	75
Score	02	18	90	120	145	375		
Specific types of information,	04	10	31	30	25	100	72.4	72.4
Score	04	20	93	120	125	362		
Announcements lack sufficient information	0	06	38	31	25	100	75	75
Score	0	12	114	124	125	375		

The Highest Mean Score for Transportation Hubs is **75%** shows that they **face challenges in Different accents, languages, or speech styles used in public transportation announcements** and also **lack sufficient information or details, leading to confusion about transportation schedules or procedures.**

**4) ANALYSIS FOR EMERGENCY ALERTS**

Compare	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Percentage
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<b>Noise Levels in Emergency Announcements</b>	0	08	31	29	32	100	<b>77</b>	<b>77</b>
<b>Score</b>	0	16	93	116	160	385		
<b>Different Accents, Languages, or Speech Styles</b>	0	12	26	28	34	100	<b>76.8</b>	<b>76.8</b>
<b>Score</b>	0	24	78	112	170	384		
<b>Specific Types of Emergency Information</b>	02	11	40	22	25	100	<b>71.4</b>	<b>71.4</b>
<b>Score</b>	02	22	120	88	125	357		
<b>Pause for Information Absorption</b>	03	08	34	24	31	100	<b>74.4</b>	<b>74.4</b>
<b>Score</b>	03	16	102	96	155	372		
<b>Challenging for the General Public</b>	02	08	33	27	30	100	<b>75</b>	<b>75</b>
<b>Score</b>	02	16	99	108	150	375		

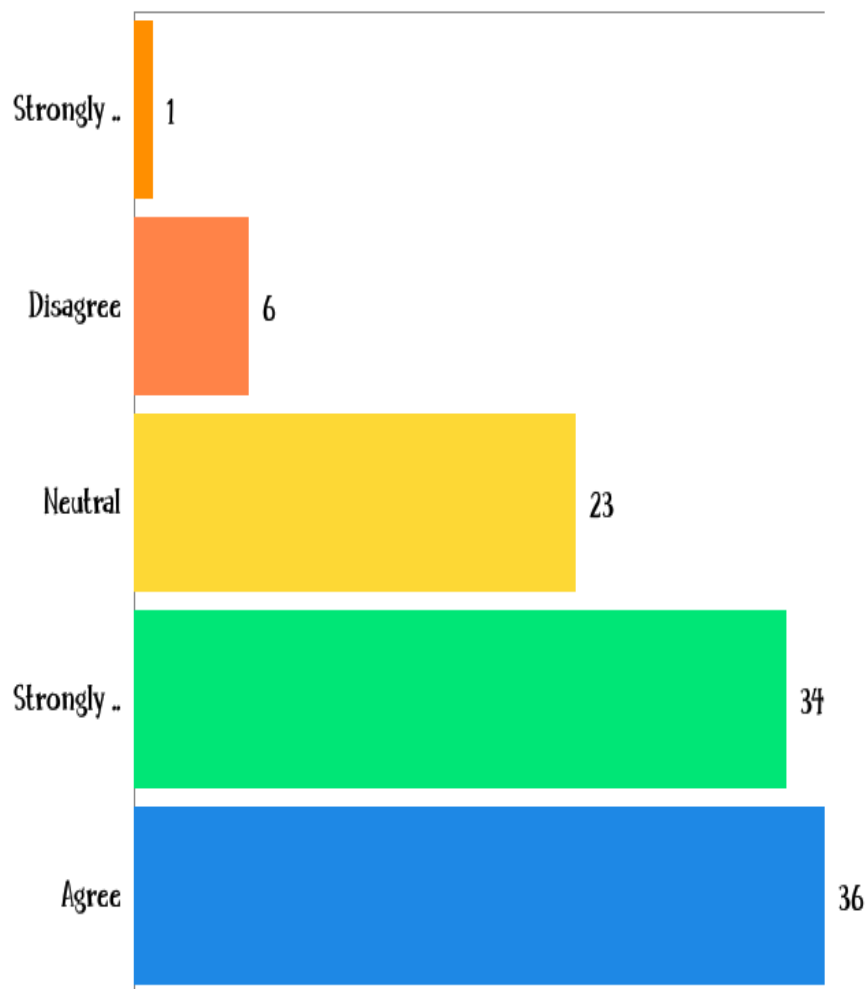
The Highest Mean Score for Emergency Alerts is **77%** shows that they **face challenges in Noise levels in shopping environments, affecting your ability to hear and comprehend emergency announcements.**

**MAJORITY**

<b>The majority of Issues</b>	<b>Percentage</b>
<b>Expressive TTS</b>	<b>79.2%</b>
<b>Articulatory Synthesis</b>	<b>77.2%</b>
<b>Transportation Hubs</b>	<b>75%</b>
<b>Emergency Alerts</b>	<b>77%</b>

The Highest Mean Score for the Majority of Issues is **79.2%** shows that **Expressive Text-to-Speech (TTS) is challenging for the respondents.**

## BAR CHART

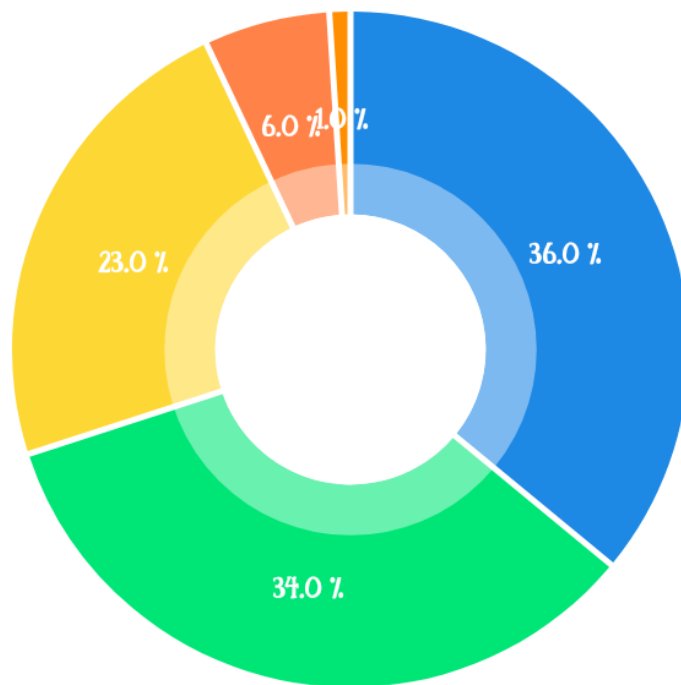


## PIE CHART

## PIE CHART



- Agree - 36
- Strongly Agree - 34
- Neutral - 23
- Disagree - 6
- Strongly Disagree - 1



## RESULTS

## RESULTS



Options	%	Count
Agree	36.00	36
Strongly Agree	34.00	34
Neutral	23.00	23
Disagree	6.00	6
Strongly Disagree	1.00	1

## FINDINGS

- The Highest Mean Score for Expressive Text-to-Speech is **79.2%** shows that **Facing Challenges in the variation of Pitch and Intonation.**
- The Highest Mean Score for Articulatory Synthesis is **77.2%** shows that they **face challenges in Clarity and Intelligibility.**
- The Highest Mean Score for Transportation Hubs is **75%** shows that they face challenges in **Different accents, languages, or speech styles used in public transportation announcements** and also **lack sufficient information or details, leading to confusion about transportation schedules or procedures.**
- The Highest Mean Score for Emergency Alerts is **77%** shows that they face challenges in **Noise levels in shopping environments, affecting your ability to hear and comprehend emergency announcements.**

## **CONCLUSION**

Education is often defined as the key that can help an individual deal with any issue or problem that one could face throughout his or her life. However, it has been observed that there has been a tremendous increase in terms of getting high-quality higher education. This has led to the popularity of other systems of education or learning. One such system of learning is Artificial Voices. It is an undeniable fact that there are many benefits that students can get by opting for Artificial Voices. However, different challenges are faced by students while listening to Artificial Voices.

The challenges faced by the students are Variation of Pitch and Intonation, Clarity and Intelligibility, Different accents, languages, or speech styles used in public transportation announcements, Lack of sufficient information or details that lead to confusion about transportation schedules or procedures, and Noise levels in shopping environments affect the ability to hear and comprehend emergency announcements. These are some of the biggest challenges that are faced by students when listening to Artificial Voices. Apart from these challenges, there are also other challenges that students would have to face. Some of those challenges are Pronunciation, Technical issues, Difficulties in Tone and Emotion, and many other challenges.

The impact of choosing Artificial Voice Learning for my study is to know the minds of students. From childhood to now, students have been using electronic gadgets for their personal and business use. But, in recent times, the terms Artificial Intelligence (AI) or Artificial Voices have developed and created a curiosity among people. From my study, I have come across many of the students who faced challenges in listening to Artificial Voices. Not only in computerised voices but also in open-air vocalisation. I can assure you that students are facing more trouble and hurdles while listening to Artificial Voices. Students are not able to follow the instructions during the announcements; they face challenges in pitch, intonation, and clarity. They also face challenges in pronunciation, accent, language, and speech style. They are stuck with their uncomfortable fear as well. They have problems using the Artificial Voices.

Students are expressing some opinions about this Artificial Voice Learning. They feel Artificial Voice is ineffective. Students find it difficult to learn the correct pronunciation of different languages and their styles. It leads to a lack of interest in learning the English language through Artificial Voices. To prove that, I have created a survey based on Challenges in learning English as a second language through Artificial Voice.

### **Results of My Study**

- The Highest Mean Score for Expressive Text-to-Speech is **79.2%**, showing that **Facing Challenges in the variation of Pitch and Intonation.**
- The Highest Mean Score for Articulatory Synthesis is **77.2%** shows that they **face challenges in Clarity and Intelligibility.**
- The Highest Mean Score for Transportation Hubs is **75%** shows that they face challenges in **Different accents, languages, or speech styles used in public transportation announcements** and also **lack sufficient information or details, leading to confusion about transportation schedules or procedures.**
- The Highest Mean Score for Emergency Alerts is **77%** shows that they face challenges

**in Noise levels in shopping environments, affecting your ability to hear and comprehend emergency announcements.**

“The only person who is educated is the one who has learned how to learn and change.”- Carl Rogers. From this study, listening to an artificial voice is completely challenging for the students. Hence, My Study proves it.

## **PRIMARY DATA**

### **QUESTIONS BASED ON EXPRESSIVE TEXT-TO-SPEECH (TTS)-SOUNDS LIKE HUMAN AND CONVEY EMOTIONS.**

**Examples: Audio Books and virtual assistants.**

- 1) Have you encountered synthetic voices from Expressive Text-to-Speech (TTS) during your language learning experiences?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 2) Does the variation in pitch, intonation, and pacing in expressive TTS impact your overall listening experience?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 3) When listening to expressive TTS, do you encounter difficulties in distinguishing between similar emotions or tones
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 4) Was the use of expressive TTS more challenging for your comprehension?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 5) Do you think the expressiveness of TTS voices influences your engagement with language learning materials or other educational content?
  - Agree
  - Strongly Agree
  - Neutral

- Disagree
- Strongly Disagree

**QUESTIONS BASED ON ARTICULATORY SYNTHESIS-It is a tool that gives physical movements of the speech articulators and high-quality results**

- 1) Are there specific challenges you encounter in terms of clarity and intelligibility when listening to articulatory synthesis, especially in comparison to other forms of synthetic speech?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 2) Does articulatory synthesis affect your ability to perceive the subtleties in pronunciation and articulation, such as consonant and vowel sounds?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 3) Does the use of articulatory synthesis influence your comprehension of spoken content in various contexts, such as educational materials, entertainment, or information dissemination?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 4) Does the speed at which articulatory synthesis delivers information affect your ability to comprehend spoken content?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 5) Have you ever come across artificially generated voices produced through articulatory synthesis during your language learning endeavours?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree

**QUESTIONS BASED ON TRANSPORTATION HUBS - Public Transportation**

- 1) Do you find the clarity and effectiveness of public transportation announcements in places like airports, railway stations, and bus stands? Are there challenges in understanding the information provided?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 2) Do you encounter difficulties in understanding announcements due to background noise, crowded environments, or other external factors?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 3) Do different accents, languages, or speech styles used in public transportation announcements pose challenges to your comprehension?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 4) Are there specific types of information, such as platform changes, delays, or boarding instructions, that you find more challenging to grasp in public transportation announcements?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 5) Have you experienced situations where announcements lack sufficient information or details, leading to confusion about transportation schedules or procedures?
  - Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree

**QUESTIONS BASED ON EMERGENCY ALERTS**

- 1) Do the noise levels in shopping environments affect your ability to hear and comprehend emergency announcements?

- Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 2) Do different accents, languages, or speech styles used in emergency announcements pose challenges to your understanding?
- Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 3) Are there specific types of emergency information, such as evacuation procedures, location of emergency exits, or the nature of the emergency, that you find challenging to grasp in retail store announcements?
- Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 4) Do you feel challenged by emergency alerts when the announcement is delivered at a rapid pace or lacks sufficient pauses for information absorption?
- Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree
- 5) Have you experienced situations where the language used in emergency alerts is too technical or complex, making it challenging for the general public to understand and follow instructions?
- Agree
  - Strongly Agree
  - Neutral
  - Disagree
  - Strongly Disagree



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