

Effectiveness of ELSA (English Language Speech Assistant) in Second Language Pronunciation Among First-Year Bachillerato Students at Unidad Educativa El Porvenir

Impact of ELSA on Second Language Pronunciation in First-Year Bachillerato Students at Unidad Educativa El Porvenir

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ABSTRACT

The research seeks to ascertain how well the selected ELSA Speak application may improve the English pronunciation of teenagers, between the ages of 13 and 15. The study evaluates how the app affects users' happiness levels, pronunciation development, frequency of use, and number of technical issues. Therefore, the purpose of this initial study is to compare the efficacy of digital language learning resources—specifically, ELSA Speak—with traditional classroom methods when it comes to teaching pronunciation. Kept within the educational environment, the study uses the quantitative and qualitative method of research. Data is collected from 25 participants of the age group of 13-15 through the use of online surveys and questionnaires, using methods of random sampling. Thus, even 69.2% of users can indicate that ELSA is more effective than traditional methods, 84.6% of the respondents claimed they experienced a strongly positive impact on their English pronunciation. Thus, the given work found out that ELSA Speak is a useful tool with good user reception and wide future uses for enhancing pronunciation among learners. The directions for further development and the future research present a clear vision of further improvements towards the maximum usability of the app and its future potential in the sphere of the language learning.

Keywords: ELSA Speak, pronunciation development, digital language acquisition, user satisfaction, language learning.

ABSTRACT (SPANISH)

La investigación pretende establecer en qué medida la aplicación ELSA Speak escogida mejora la pronunciación en inglés de adolescentes entre 13 y 15 años. El estudio analiza cómo la app influye en la felicidad de los usuarios, en el desarrollo de la pronunciación, en la frecuencia de uso y en la cantidad de problemas técnicos. Por lo cual, el objetivo de este primer estudio es comparar la efectividad de los recursos digitales para el aprendizaje de idiomas (en concreto, ELSA Speak) con los métodos convencionales de aula en la enseñanza de la pronunciación. Encerrado en el ámbito escolar, el estudio es de enfoque cuantitativo y cualitativo. Los datos se recogen de 25 participantes de entre 13 y 15 años a través de encuestas y cuestionarios online utilizando un muestreo aleatorio. De este modo, mientras que el 69.2% puede afirmar que ELSA es más eficaz que los métodos tradicionales, el 84.6% considera que ha mejorado mucho su pronunciación en inglés. De esta manera, la tarea arrojó que ELSA Speak es una aplicación bien aceptada por los usuarios y con muchas proyecciones a futuro para mejorar la pronunciación en los estudiantes. Las líneas futuras de desarrollo e investigación futuras dan una idea de las mejoras futuras para hacerla lo más usable posible y las futuras posibilidades que puede tener en el campo del aprendizaje de idiomas.

Palabras clave: ESLA Speak, desarrollo de la pronunciación, adquisición digital del lenguaje, satisfacción del usuario, aprendizaje de idiomas.

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Introduction

Presentation and Contextualization:

English language fluency is now one of the essentials required in the contemporary interconnected world, so it benefits education and work. Of all the elements that go with the teaching of English language and comprehension, and pronunciation are part and parcel of learning the language for the purpose of clear and effective communication. Skills are more difficult to achieve dealing with these elements especially for the people whose first language is not English, and their accents are quite different from those of Americans. This difference results in sometimes unfortunate situations of false understanding and can greatly limit the extent to which the speaker is assimilated into the English-speaking communities (Derwing & Munro 2015). That is why, with the further development of technologies, special tools are being created to help learners perform successful work overcoming above mentioned challenges. One such a tool is a mobile application named English Language Speech Assistant (ELSA) which has been tailored to support the English learners who aim to eliminate their accents (Zhang et al., 2020). The purpose of this research will be to investigate if ELSA is useful in improving the pronunciation of second language learners with special emphasis on young learners in the age of 13-15 years.

Fluency and intonation are such aspects of language that determine how well a learner will communicate in a second language. The roles of these skills have been well supported in studies of second language acquisition (SLA) where scholars have been keen to point out that for learners to be considered to be fully fluent, they have to attain natural English pronunciation (Pennington and Rogerson-Revell, 2019). Nevertheless, the acquisition of such a level is not easy because of numerous reasons like the age of the learner, his/her exposure to the language and the impact of L1 on L2 production. The use of technology supported ELT; ELSA addresses

these challenges as presented by TALL next. More specifically, ELSA has been developed as an application that employs speech recognition and artificial intelligence to give feedback to learners, enabling them to recognize the specific errors in their pronunciation and correct them (Chen, 2021). However, this fits well with ideals present in current theories regarding SLA, particularly the ideas regarding use of technology to make language learning more engaging, a virtually realistic experience that can help in the learning process (Chun, 2013).

The current literature on the phonology and acquisition in the second language acquisition process has provided evidence of how technology can support the production of the necessary practice and feedback. Although the direct classroom approach is vital, learners are known to experience one or many problems with their pronunciation, which cannot be appropriately attended to due to the large group (Levis, 2018). However, TALL tools such as ELSA can offer learners feedback all through and more significantly the moment they get it wrong to enable the learners practice at their own convenient time and on areas of strength they know they lack (Chen, 2021). Many papers have reported on the effects of ELSA and other such tools on language learning, and the results have pointed to observable improvements in the pronunciation skills of the learners and a reduction of the accented speech patterns if not full eradication of the same. For example, Zhang et al ., (2020) conducted a study to establish that ELSA has the capacity to recognize spoken words hence aid learners in correcting mistakes they make often when speaking English as their second language this culminates in improvement of learners' speaking fluency over time.

However, there is a need for large scale studies in the various contexts in which ELSA is most effective for learning with special regard to the young learners. The overwhelming majority of the work carried out in this field to date has been directed towards adult learners, while scant attention has been paid to adolescents, who are in the midst of a process of language acquisition. This study will, therefore, endeavor to establish the effectiveness of ELSA in

enhancing the pronunciation and fluency of students in a 13- 15 years age group, in a public high school, in Santa Lucia. Thus the research targets this age group to establish how the learning of ELSA can be incorporated in to the language learning curriculum for the young learners and how it can assist the young learners in their process of attaining fluency in English.

Justification of the Problem:

ELSA stands extensively for the academic as well as pragmatic importance of the second language (L2) and pronunciation improvement, the efficacy of ELSA for the latter becomes the research topic of interest. In the academic context, the difficulty of achieving native-like and desirable pronunciation when learning a second language is widely established by impairing not only the understanding and communication efficiency (Derwing & Munro, 2005). With current trends promoting technology in language education, knowledge of the effects of such technological aids such as ELSAs can help in evaluating the virtues of these instruments as well as their theoretical elements.

Till date, the literature review of the language learning technologies has been mostly general with relatively scant contribution highlighting or discussing the effect of ELSA particularly in L2 and pronunciation. To the researcher's best knowledge, there are few literatures that have focused on determining the language acquisition tools in isolation in order to ascertain impact on the learners' pronunciation (Wang et al., 2016). Therefore, to fill this gap, the study capture systematic and objective how statistics on ELSA affect pronunciation and while also gaining qualitative insight gleaned from the participants. The present evaluation will provide valuable information about strengths and weaknesses of ELSA and therefore will have implications for the further evolution and application of language learning technologies.

Problem Statement:

The problem under consideration in the present study concerns the role of ELSA (English Language Speech Assistant) in improving second language pronunciation and of L2 learners. Nevertheless, there is a dearth of data-driven findings and research studies that focus on examining how exactly ELSA influences L2 and pronunciation – a niche that digital language learning tools are widely gaining acceptance in. This research shall seek to find out if there are appreciable differences between the use of ELSA and other conventional learning approaches in these areas, to fill this research gaps in knowledge of language learning research and to show precisely the empirical advantages of implementing those technologies in teaching practice.

Precision of the Topic:

More particularly, this research will seek to assess the impact of ELSA (English Language Speech Assistant) in second language (L2) learners, especially in improving their pronunciation, the learners will be selected from a public high school in Santa Lucia and will be aged 13 to 15 years. The main emphasis will be made on the evaluation of the comprehensiveness of the enhancement of students' pronunciation of the English language, which is being addressed by ELSA. This entails determining whether the implementation of ELSA results into greater prevalence than that of traditional language education in attaining greater clarity of English sounds by students (Derwing and Munro, 2005).

Finally, the study will compare the changes in students' pronunciation and of those students who are enrolled in ELSA program to those students who practice traditional language acquisition approaches. This comparison will help to understand how ELSA is positioned concerning traditional approaches and aid in the establishment of ELSA's efficacy in contrast to the conventional approach to the foreign language acquisition (Saito, 2017). As a result, the

research is trying to look at these particular areas to give as much assessment of the functions of ELSA in enhancing L2 pronunciation and accent.

Research Objectives:

- ✓ To assess the effectiveness of students' English pronunciation accuracy after using the English Language Speech Assistant (ELSA).
- ✓ To know to what extent ELSA helped in reducing L2 in learners.
- ✓ To understand the possibilities and degree to which students find ELSA beneficial in their language learning process.
- ✓ To establishing the effectiveness of ELSA in pronunciation and intonation change, its effects needed to be compared with the effects of other forms of language learning.

General Objective

The main research question of this paper is as follows: To what extent does ELSA contribute to correct pronunciation and reduction of L2 in students? Specifically, this study seeks to:

- ✓ Determine how effectively ELSA can assist in improving correct pronunciation among learners.
- ✓ Assess the role of ELSA in trying to reduce the effects of L2 accents in spoken English.
- ✓ Collect (student feedback) about the ease of use and functionality of ELSA in foreign language learning from student experience.
- ✓ In other words, the effect of ELSA on enhancing pronunciation and intonation compared to other language learning methods.

Scientific Questions and Hypothetical Assumptions:

Questions

1. To what extent does the use of ELSA enhance the effectiveness in the improvement of second language learners' accuracy of English pronunciation as compared to the conventional methods?
2. To what extent does the use of ELSA lower the L2 of the learners, is the decrease in statistically significant?
3. In comparison with the improvements in the pronunciation and accent, which can be acquired using ELSA, the traditional methods of learning a language can be classified as?

Assumptions

1. The findings are that students using ELSA will demonstrate higher levels of pronunciation accuracy in comparison with students mastering the language with the help of more conventional learning approaches.
2. In other words, ELSA will be received by students as more effective and easy to use, thus increasing students' learning interest and global learning performance.

Statement of the Research Variables:

In the research several variables will be used to study the ELSA (English Language Speech Assistant) intervention on second language learning. In this research, the independent variable of interest is the use of ELSA, all by itself. The dependent measures comprise of pronunciation and accent. Pronunciation specifies how well students' annunciation of English sounds is developed after the use of ELSA. reduction evaluates the way and the extent to which ELSA aids the students to minimize their L2 accents in an attempt to sound as native as possible.

There could be several sources of variation when doing this research and some of these are as follows; Pre-acquisition language achievement was defined as the students' knowledge of English when they started using ELSA and could influence learning advancements. Other external factors which may affect ELSA are the learning environment factors such as, classroom context or the teaching approach. Thirdly, on the other hand, student motivation refers to the levels of interest and commitment by students learning and might also help determine how students would gain from the tool.

Specific Objectives:

The specific objectives of the research are to:

- ✓ Assess the degree of accurate English pronunciation attained by students through the use of ELSA
- ✓ Analyze the effectiveness of ELSA in reducing L2 accents.
- ✓ Evaluate students' perceptions of the efficiency and user-friendliness of ELSA.
- ✓ Compare the effectiveness of ELSA with conventional methods in improving students' pronunciation and accent.

Identifications of the Methods:

This research shall use theoretical research methods, empirical research methods and statistical-mathematical research methods to meet the objectives of the study. The research to be conducted in the course of the study will draw on findings by scholars in second language acquisition and education technology. Theoretical models, like the Technology Acceptance Model, will help to understand the potential of the application like ELSA to improve the language learning process (Davis, 1989). Understanding the assumptions with theoretical background will aid the comprehension of the ELSA use and possible effectiveness together with advantages and disadvantages in changing pronunciation and eliminating accent.

Data from direct assessment and feedback from users shall be in the form of empirical data. This will entail informal and formal assessment of the pronunciation and of students who were tested with ELSA both before and after the intervention. Therefore, self-administered questionnaires will be used to complement quantitative data in form of written and/or oral responses to capture the experiences and attitudes of students towards ELSA. For instance, the statistical data suggest that 87% of users feel happy after using the app, 90% – have more fluent experience, and 67% – find online classes less complicated than physical ones. It is on these empirical assessments that the effectiveness of the language learning application will be evaluated in practice.

Population Sample:

The study participants are L2 learners in a range of 13 to 15 years old in a public high school in Santa Lucia. This population has been chosen because they are usually at a certain stage of language development and it is important to expand their language at this age. The target population includes students who will participate in the study and the sample will be a diverse group of such students. These students will be selected so as to have a diverse background on the previous language experience, style of learning and motivation. The subjects will be selected randomly ensuring generalization of the findings concerning the efficiency of ELSA (English Language Speech Assistant) in the matter of enhancing pronunciation and reducing the degree in the given age group.

Type of Research:

The study is mixed approach since it includes qualitative and quantitative research. It is used because it is meant to assess the real effectiveness of ELSA in improvement of pronunciation and reduction of among the second language (L2) learners. The systematic and specific research method utilized within the work makes it a mixed-methods research design.

This method entails user-perceived data on how well the pronunciation of words and reduction of accents in the targeted language is achieved, along with users' opinion about ELSA.

Main Contributions:

Consequently, this research input significantly into the language education by availing empirical data on the usefulness of ELSA tool (English Language Speech Assistant) in teaching pronunciation to L2 speakers. Potentially, it provides an important view on the extent to which ELSA is effective in comparison to traditional approaches to language acquisition and learning. Also, the research collects qualitative data from users regarding the opinion about the effectiveness and usefulness of ELSA, which is the important information for improvements of the application and therefore, the satisfaction of users. The study therefore conducts a comparative analysis in order to assess the strengths of adopting digital tools in language learning and in the process passing information on the possibilities of implementing the technology to educationists and policymakers. In addition, implications are derived from the findings for the improvement of the educational practice and outlooks are proposed for the progression of LLEIT research.

Importance

Vitality for this research is that it tries to advance language education practices through an assessment of ELSA performance in the improvement of pronunciation and the eradication of among second language learners. Knowledge about how such technologies may affect language learning achievement is useful to educators and policymakers who wish to offer fresh learning methods that will improve competencies among students.

Social Needs:

From a social need point of view the importance of communication skills cannot be overemphasized for mastery in student's academics and definite prospects in their future

endeavors. Because ELSA focuses on pronunciation and accentuation, it addresses an important domain of language learning that can have substantial effects on an individual's self-esteem and comprehension in academic and context-specific interactions.

Novelty:

The study has made the following contributions to the body of knowledge that are unique to this research. The study is unique in a way that it has focused on ELSA, which is relatively a new technology in the field of language learning technology. The purpose of the research is to compare this particular app to traditional methods and to draw new insights about what it brings to the process and possibly, its benefits.

Scientific Relevance:

From a scientific point of view it is justified by the fact that it offers data on the efficiency of one of the modern educational technologies, thus enhancing the field of applied linguistics and educational technology. Therefore, the study provides a quantitative and qualitative appraisal of ELSA's effectiveness, thereby contributing to the literature on the use of technology in language learning and teaching, as well as enriching the domain of inquiry for future researchers and innovators.

Coherence:

That is why the required coherence between the elements of the theoretical-methodological design is achieved through a well-coordinated set of theoretical and empirical constructs, as well as statistical methods. The research questions posed are underpinned by theoretical frameworks including the TAM. The choice of methods employed in the study is guided by the identified research questions. Consequently, this model may help formulate hypotheses concerning how precisely such applications as ELSA may affect the learning of language, and to select the most suitable methods for this purpose.

The theoretical assumptions described above are to be tested using empirical methods, such as pre- and post-intervention pronunciation and check. The former comprises data on impact of ELSA on the aspects of language, information that is used to assess the utility of the tool. The data collection procedure reflects the theoretical model by targeting quantifiable changes on and in patients' phonemes and overall accents.

Statistical analysis also helps to enhance the coherence of the work since the collection data has to be analyzed by considering the theoretical framework. Inferential analysis procedures are used in order to confirm if the explored outcome, including increased fluency and satisfaction rates, conforms to the theoretical expectations. Such a match between the theoretical assumptions and the results obtained validates the study and ensures its credibility and accuracy in terms of assessing the language learning outcome facilitated by ELSA. In essence, the systematic application of theory, empirical research, and statistical analysis would ensure that the investigation is orchestrated in a well-organized manner and it provides results that are plausible and substantiated.

Briefing of Chapter:

Chapter 1: Literature Review

This chapter provides literature review on second language acquisition, digital language learning tools and theories related to the same. It presents the literature review that existed before the research was conducted, the absence of knowledge about the topic at that time, and the place of the current research in the overall academic literature. This review affirms the need to establish more about ELSA and how it might help or harm language instruction.

Chapter 2: Methodology

The present chapter describes the research approach and methodology applied in the research study. It outlines the measures conducted at theoretical, empirical and statistic levels to assess the efficiency of ELSA. This chapter also notes down the methods of enlisting the participants and selecting the assessment tools as well as the statistical procedures to be used. It also states the limitations and the ethical issues that may arise in the course of conducting the study.

Chapter 3: Results

This chapter shows the results from the analysis of data collected from the participants. It provides additional findings of the study on the phonetics of pre-and post-treatment data as well as customers' reactions to ELSA. Quantitative data is aggregated, and the results are analyzed, and contrast is drawn between ELSA users and the non-ELSA ones; that is, users of traditional methods.

Chapter 4: Discussion

In terms of the theoretical framework and the formulated research questions, this chapter provides an interpretation of the outcomes. This paper examines the potential of the results, which is followed by the ways through which the research objectives are met and the comparison of the findings to the existing studies. The chapter also discusses the implication of the findings for language education and the possible enhancement of ELSA.

Chapter 1

Theoretical Framework

1.1. Research Background:

Cultivating the language and the methods of the correct pronunciation has gone through many changes in the course of the years. The comprehension of historical context as well as the progress of theories and practices, presented here, offers a solid framework to face the current situation and specifics. This section provides an overview of methodological development related to language teaching with a special attention to the issue of pronunciation, which is seen as the evolutionary process starting from traditional methods and progressing to the modern approach that involves technologies.

1.1.1. Early Approaches to Language Teaching:

The history of language teaching can be traced back to antiquity and due to the general developmental approach of earlier techniques; the grammar translation curriculum had been adopted as the initial teaching pedagogy. This method prevailed in the 19th and the beginning of the 20th century; it focused on the literacy and referred to the translation of texts. There was little concern with their accent, and learners tended to obtain an erudite knowledge of a language as a medium of communication but with imperfect grasp of how to speak it.

1.1.2. Grammar-Translation Method:

- ✓ The Grammar-Translation Method was characterized by:
- ✓ Repetition of the rules of grammar and of specific words.
- ✓ Translating from the target language to the first language and vice-versa.
- ✓ Quite reduced focus on the speaking and listening as skills.

- ✓ Unfortunately, the method of teaching failed to place a great emphasis on pronunciation; it was more of the reading and writing method.

The Grammar-Translation Method which was in practice in 19th Century involved translation, extensive writing, forming correct grammar and very little on pronunciation (Richards and Rodgers, 2001). This basically focused on lack of reading and writing skills, normally practiced via translation exercises, and the use of the target language was limited; learners hardly spoke or listened.

1.1.3. Direct Method:

In an attempt to mitigate the drawbacks of the Grammar-Translation Method, the Direct Method was developed by the end of the 19th century. This method stressed on the speaking aspect and taught grammar through induction. However, it shifted the focus towards the importance of ensuring that pronunciation is among the components of learning a language.

The Direct Method included:

- ✓ Using the target language only in the classroom, students get into the learning environment.
- ✓ Concentration on the activity that is speaking and listening skills.
- ✓ Oral drilling in which the student practices shouting out the specific sound or phonetic that is being taught.
- ✓ Omission of translation and shift in focus on context and graphics.

The Grammar-Translation Method having been widely used was reacted to by the development of Direct Method that focused on the oral skills aspect along with an inductive approach to grammar instructions (Howatt & Widdowson, 2004). This method was characterized by the use of the target language only in the classroom, where it focused on speaking and listening skills and pronunciation is imitated and repeated.

1.1.4. Audio-lingualism and Structuralism:

The mid-20th century marked another approach namely audio-lingualism, which was basing its principles on the behaviorist theories of learning and Structural linguistics. Such an approach paid a considerable amount of attention to pronunciation and considered the learning of a language as the forming of certain habits.

1.1.5. Audio-lingual Method:

Key features of the Audio-lingual Method included:

- ✓ Implementation of drill and practice formation and practice.
- ✓ Approach in which focus is made on the correct pronunciation of words, as well as, their tones.
- ✓ An emphasis on the listening and speaking skills before writing and reading skills.
- ✓ Use of the native language in the classroom is very limited.

The Audio-lingual Method developed in the 1950 and 1960s was follow the behaviorist theories and structural linguistics was main parts of it, drills and pattern practice were basic components of this method (Lado 1964). Diphthongs and correct pronunciation was another segment which is emphasis was placed on the best way of delivering the correct pronunciation and intonation.

1.1.6. Situational Language Teaching:

Situational Language Teaching, which was originated in the United Kingdom was quite similar to Audio-lingual Method but with more focus to teach language through context. Pronunciation practice used in this study was incorporated in situational dialogues and role-plays.

Situational Language Teaching also came up at around the same time and aimed at the meaningful use of language by paying attention to the presentation of structures in meaningful

situations (Richards & Rodgers, 2001). This method involved pronunciation practice within the context of situational dialogues, as well as role-plays; hence, this method is practical in language teaching.

1.1.7. Cognitive and Communicative Approaches:

In the second half of the twentieth century there has been formulated and actively implemented cognitive and communicative approaches to foreign language teaching. These approaches focused on the necessity of the learner's thoughts and the essence of meaningful interaction in learning a language.

1.1.8. Cognitive Code Learning:

Cognitive Code Learning appeared as a response to the behaviorist Audio-lingual Method, which focused on habit acquisition without considering principles for using the language. Intonation and emphasis were among the elements that were targeted along with basic language understanding and speaking skills.

Cognitive Code Learning approach, which was prevalent in between 1960s and 1970, was one of the quite early approaches where the cognitive process of language was the major area of concern and there was less or no concentration on drills. Pronunciation became a part of a general speech and language acquisition model.

1.1.9. Communicative Language Teaching (CLT):

The approach that changed the face of language teaching was Communicative Language Teaching (CLT) that focused on the learners' ability to convey information effectively in actual-life-and-context situations. Communication was discussed where the aspects of pronunciation are taken more to the level of the comprehensible and not as close to the native speaker as possible.

Back in the 1970 s and the 1980 s, there was a theory known as Communicative Language Teaching which focused on the element of interaction as well as communication in learning the second language (Canale and Swain, 1980). This approach considered pronunciation as one of the facets of communicative proficiency with reference to reception and actualization instead of approximations.

1.1.10. Contemporary Approaches and Technological Integration:

Over the past few decades new technologies have assumed a profound influence on the approaches to language instruction. CALL and MALL have worn a new face to pronunciation practice and feedback area.

1.1.11. Computer-Assisted Language Learning (CALL)

CALL entails the application of computers and software when teaching languages. CALL can incorporate elements such as speech recognition; interaction and feedback which will assist the learners to self-adjust and enhance their pronunciation skill.

Another used CALL, which supports the use of technology in learning language, is involved with interactive and individually focused on pronunciation through the use of for example, speech recognition and automation of the feedback, Chapelle (2001). Through this technological implementation, the learners are better placed to practice pronunciation in a more fun and efficient manner.

1.1.12. Mobile-Assisted Language Learning (MALL):

Thus, MALL is an extension of CALL that focuses on the utilization of mobile devices to support language acquisition. Whenever and wherever the learner is, he/she can use a pronunciation app, a mobile language game, or engage in speech analysis to improve his/her pronunciation.

Thus, MALL, by taking advantage of mobile devices, comprises on-demand pronunciation practice through applications as well as mobile language games (Kukulska-Hulme & Shield, 2008). These tools avail convenient and flexible opportunities of enhancing the learners' pronunciation abilities.

1.1.13. Blended Learning:

Face-to-face instruction with an integration of online training sessions is what blended learning comprises of. This approach makes it possible to practice most of the areas of pronunciation in class and have backup oriels online for more practice and feedback.

Face-to-face instruction with complementary application of online learning gives a profound approach to the pronunciation practices since it incorporates classroom practices with advanced electronic tools (Graham, 2006). This method can be considered as providing the proportional and versatile learning system where sorting the pronunciation skills in to the different modalities can be useful.

1.1.14. Artificial Intelligence and Pronunciation:

Modern technologies and focus on the employments of artificial intelligence (AI) has resulted in some important tools that act as pronunciation practice. Language learning applications trace the learner's advance, give feedback, recommend exercises tailored to the learners, and correct the way people pronounce words, which makes learning faster and more efficient.

The use of AI in language learning empowers learners with an ability to practice pronunciation according to the learner's capability and feedback through platforms that make suggestions or even give instant feedback (Kumar, 2020). They help to improve the productivity of pronunciation as a learning task as well as to address individual learners' profiles.

It applies to the development of various methods of teaching a foreign language to the corresponding appreciation of the role of intonation in learning a foreign language. In this research, an attempt has been made to demonstrate how all these phases and processes have immensely helped to shape the concept as well as the teaching learning processes of pronunciation today. Thompson's work allows educators to construct the methods of teaching pronunciation from historical analysis and the latest technological advances in the modern world to create effective strategies in pronunciation fundamental to overcome the difficulties in pronunciation teaching in the current mixed environment.

1.2. Factors Influencing Pronunciation Acquisition in Second Language Learners:

L2 pronunciation is not a simple process and is determined by number of factors. These factors are broadly intertwined in the biological, cognitive, social and, hence the pedagogical perspective. That is why it is important to comprehend these factors that determine the learners and formulate strategies for teaching them. The following section elaborates these factors with proven literatures.

1.2.1. Biological Factors:

Age of Acquisition:

As the age of acquisition of the second language, it has been evident that the age at which a person starts learning the language influences the aspect of pronunciation. As per CPH or Critical Period Hypothesis, there is a critical period within which language learning is easy and is restricted up to the puberty age after which it is difficult to acquire that aspect of second language which resembles native pronunciation (Lenneberg, 1967). Psychological research has revealed that the younger it is initiated the better are the chances of almost perfect imitation of the sounds of the second language (Flege, Munro & MackKay, 1995).

Neurological Factors:

Finally, it is found that the aspect of neurological factors is a significant component in the process of pronunciation acquisition. A change in the brain tissue or in the patterns of neurons that is brain plasticity is known to be higher in the young. This plasticity helps in developing new sounds and phonic features of language observed by Penfield and Roberts (1959). Sub-additionally, neuroplasticity, or the ability to adapt to new phonetic norms, begins to diminish as people age.

Phonetic Memory:

One more biological component that may influence pronunciation is phonetic memory which is the ability to remember and reproduce sounds which are comprehended for the first time. In a study including several works, it was noted that the phonetic memory is helpful as it helps learners to pick correct pronunciation in the second language (Pisoni & Lively, 1995). This capability can be rather high or low depending on the learner and thus affect the pronunciation.

1.2.2. Cognitive Factors:**Language Aptitude:**

Language learning which can be described as the basic ability to acquire a second language comprises of phonetic coding capability, grammatical distinction, and memory. Skehan (2002) also noted that the identification and production of new language also depend on language aptitude where learners who have a high language aptitude are likely to have an easy time in the perception and production of the sounds. Various aptitude tests for example the Modern Language Aptitude Test (MLAT) indicate the learners' potential in attaining L2 pronunciation (Carrol & Sapon, 1959).

Attention and Awareness:

Conduct and concentration on the part of the learner is important cognitive elements in the learning of pronunciation. According to Schmidt's (1990) Noticing Hypothesis, there has to be an awareness of the form of the language being learned. The learners who focus their attention on the phonetic feature of the target language and employ such aspects consciously will be able to speak with standard (Schmidt, 2001).

Motivation and Attitude

This paper therefore agrees with the assertion that motivation and attitude have a deterministic impact on pronunciation learning. Learners' motivation to integrate into the target community as described by Gardner and Lambert's (1972) social identity theory significantly influence pronunciation achievement. Pronunciation is also the dearly developed aspect by positive disposition towards the language and its speakers that in turn facilitate learners' willingness in practicing to improve on their (Dörnyei, 2009).

1.2.3. Social Factors:**Linguistic Environment:**

Thus, the researches affirm that the existing linguistic context in which learners are exposed to also determines pronunciation acquisition. Accordingly, it is stated that learners who are benefited from listening to native speakers and the real use of the language will have better and more correct pronunciation patterns (Flege, 1991). Learning a foreign language in the environment where the target language is spoken gives a number of instances to listen and imitate native speakers.

Social Interaction:

Social interaction is another factor that influences the behavior of the people in the community. Learners are able to gain the feedback directly from fellow native speakers and

make necessary correction for their pronunciation – Long (1996). According to the sociocultural theory by Vygotsky, functional activities such as speaking and listening involves meaning making with others and such interactions help the learner to practice and attain better pronunciation.

Sociolinguistic Identity:

Other factors include learners' sociolinguistic identity, which refers to their membership to a linguistic community since these influences their pronunciation. Only the participants who are strongly motivated in culture of the target language are willing to imitate the native-like pronunciation (Gatbonton, Trofimovich, & Magid, 2005). On the other hand, learners who desire to preserve their L1 identity could kind of accentuate their L1 to their L2.

1.2.4. Pedagogical Factors:

Teaching Methods:

The ability of a number of teaching techniques in enhancing the aspect of precise pronunciation has also been examined. Classically used method called the Audio-lingual Method used persuades repetition and drills with the purpose of developing the right (Lado, 1964). Some approaches of the recent origin, like Communicative Language Teaching (CLT), stress on meaningful communication and in many cases, integrate the pronunciation exercises within meaningful uses of language (Celce-Murcia et al., 1996).

Feedback and Correction:

If feedback has to be given on pronunciation, it should be provided immediately and generalized feedback should be avoided. Investigation suggests that explicit feedback, most especially if it is given soon after the learning-teaching transaction and pertains to specific inaccuracies, is instrumental in helping the learners correct their pronunciation (Lyster & Ranta,

1997). Teachers have found recasts to be effective, as well as explicit correction, and metalinguistic feedback (Ellis, 2009).

Use of Technology:

Computer-assisted pronunciation training (CAPT) is one of the examples of the learning technology that supplements learner practice and feedback. These tools sometimes employ the speech recognition technology that provides instant feedback on the pronunciation (Levis, 2007). The uses of mobile application and online platforms also enable self-directed learning as the learners can practice on their own the pronunciation (Derwing & Munro, 2015).

Materials and Resources:

Another area that is somehow related to pronunciation learning outcomes is the type and richness of the instructional materials and resources a learner is exposed to. Those resources that incorporate video and audio functions, in the form of videos, audio files, and activities where learners can repeat a particular word or phrase to perfect the right pronunciation, can increase learners' usage of perfect models (Gilakjani, 2012). Real materials like podcasts and movies discussed below expose learners to how language is used in real life situations, thus building their pronouncing muscles.

1.2.5. Linguistic Factors:

First Language Influence:

Learner's first language impact their second language pronunciation has been established widely in the literature. Cross-linguistic interaction which reveals the ways the L1 phonetics and phonology can influence L2 phonetics was described by Odlin (1989). Learners develop an accent due to the L1 interference in L2 which includes the patterns of pronunciation. The extent of this influence depends with the similarities and differences of the phonetic systems between the two languages (Flege, 1995).

Phonological Awareness:

Phonological awareness is closely related to pronunciation, as it is an individual's ability to distinguish and manipulate phonemes, the sound units of a language. It is reported that learners to target specific phoneme awareness are more capable to detect and manipulate the sounds in the target language (Yopp, 2000). This skill can be taught directly accompanied by practice tasks like phoneme segmentation and phoneme blending (Gillon, 2004).

1.2.6. Psychological Factors:**Anxiety and Confidence:**

Generally, the anxiety levels of learners and self-confidence when speaking affects their pronunciation in one way or the other. It is evident from previous research for instance Horwitz, Horwitz, and Cope, (1986) that language anxiety especially in speaking situation reduces the learners' ability to produce correct pronunciation. On the other hand, learners who feel less anxious are more able to take risk and practice their pronunciation and this shall improve (MacIntyre and Gardner, 1994).

Willingness to Communicate:

WTC is another psychological factor that makes an influence on pronunciation: it refers to the position of people to communicate with others. Learners with a high WTC are more willing to speak during the speaking activities that are in turn enable them practice more on their intonation and pronunciation (MacIntyre et al., 1998). Motivation, self-confidence, as well as perceived communication value in the target language refers to the factors that affect WTC (Peng, 2014).

1.2.7. Cultural Factors:

Cultural Attitudes and Norms:

Policy and culture inherent and aurally perceived and received about language learning and especially pronunciation endeavor and accomplishments can affect the learners' endeavor and achievement. For some cultures can be a key aspect which needs to be attained while for others, clarity and comprehensibility matter most (Kang, 2010). For this reason, learners' awareness of and sensibility to these rules play a key role in determining their approach to the practice of pronunciation.

Exposure to Cultural Content:

Learners should be exposed to some forms of the culture where the target language is spoken hence improving their pronunciation in the language. Using real life cultural artifacts makes learners to copies from, and enables them develop their auditory sense of the language, the beat, pitch, and the stressed parts of it (Kramsch, 1993).

Pronunciation refers to the learners' ability to adopt the second language and this is determined by the bio natural, social and occupational, linguistic and communicative, psychological and cultural factors. All these dimensions can be deemed to be responsible for the variations noted in the learners' pronunciation patterns. Thus, catering to these factors will help the educators to work through the difficulties and deliver teaching methodologies more specific to the needs of the children. Thus, the presented complex approach not only improves the learners' pronunciation but also fosters their language and communicative development.

1.3. Solutions and Contributions of other Authors:

1.3.1. Importance of Pronunciation Training:

Pronunciation has emerged as a critical component of language learning in the recent past years, and several papers have pointed out its importance in facilitating interaction with

other people. As Derwing & Munro (2015) keenly identify, pronunciation remains a key determinant of how communicative an individual's interaction with their interlocutor will be. They opine that speaking errors must be eradicated as they lead to confusing scenarios that distort the precision of word communication. This is especially important in second language learning since cognition mostly aims at reaching a level where intelligibility is observed and the speakers of different languages are able to converse easily. According to Derwing and Munro's studies, it is vital to stress that although perfect pronunciation may not be required, learners must achieve a certain level of pronunciation whereby their message can be fully understood by native speakers. This corresponds to their general position on the matter that it is imperative for pronunciation practice to be incorporated into the language curriculum as opposed to extending the package.

Building on this, Celce-Murcia, Brinton & Goodwin (2010) also support what they refer to as integrationist approach to pronunciation. He and other experts argue that it is wrong to teach pronunciation independently of other features like grammar, vocabulary or speaking activities. Their model supports the notion that when pronunciation is integrated into communicative tasks, it benefits learner's communicative competence. This way, the learners will not only get an opportunity to train their pronunciation both individually and in combination with other aspects of language, but also enhance both the precision and the speed of their speaking. According to Celce-Murcia et al., the integrated approach is likely to yield better language learning results because it is more natural; the elements of a language such as pronunciation are interconnected in actual world usage.

1.3.2. Technology-Enhanced Pronunciation Training:

To date, it is possible to identify vitriolic changes that technology stirred in pronunciation training with many studies referring to it. According to Warschauer and Healey (1998) they explain that, CALL has radically transformed language education through its ability to present

and interactive and dynamic environment for learning. These tools give prompt feedback to the learners and different practice sessions to the learners which are very useful in learning of pronunciations. In Warschauer and Healey's research, it becomes apparent that CALL is instrumental in developing interests that promote appealing and individualized learning processes that enable the learners to produce pronunciation exercises and receive feedbacks intimately and immediately.

Stockwell (2012) extends this list by pointing out that while CALL tools are practically used for research and practice by improving the training of pronunciation. CALL applications that Stockwell describes include various applications that have complicated algorithms that help in the detection of the learners' speech and feedback provision. The above instruments can imitate the input of a native speaker and can custom-fit the practice exercises. In Stockwell's work she notes that incorporation of CALL in language learning enables learners to practice more often and they are also assisted in producing better and natural sounds.

However, the utilization of AI in the learning of pronunciation has been an area of interest in current research. Supernant (2012) is committed to fostering a condition where patients, particularly children suffering from Neurological disorders would have access to advanced applications like ELSA (English Language Speech Assistant), are implemented employing sophisticated algorithms for rightful pronunciation. Supernant's research, in particular, shows that with the help of AI technologies it is possible to analyze learners' speech very accurately, provide detailed recommendations on how to correct the specific aspects that require improvement. These applications interconnect the conventional methods of teaching with the need for specific feedback for the learners enables them enhance on their pronunciation. Supernant likewise underlines that AI tools as potentially highly beneficial, propose pertinent innovation should be viewed as providing constant scientific research to

guarantee they serve the intended educational objectives and bring noticeable enhancements to learners' pronunciation.

In conclusion, existing contributions underline the necessity of combining phonics instruction with increased language acquisition process incorporating the usage of technology for improving phonetics training results. When integrated with the conventional classroom approaches and with the help of the numerous technological means available, the students are exposed to better and more accurate and detailed instructions when it comes to the correct pronunciation of the target foreign language.

1.4. Researcher's Position and critical Reflections:

1.4.1. Addressing Traditional Challenges:

Thus, the present study is positioned based on the author's assumption that the traditional approaches to pronunciation teaching and practicing have several problems, which do not allow them to be effective in the modern context of language learning. Levis (2005) identified the following shortcoming of traditional pronunciation mode, which are attributable to large group tuition, limited time, and no immediate feedback. Such difficulties result in the lack of focus on the pronunciation practice and necessary attention to needs of each learner. For example, in large classrooms, the teachers are likely to spend limited time with each learner individually and hence are likely to find it difficult to give individual feedback to each learner hence, the learners are likely to learn at different rates. In addition, traditional approaches often entail broad patterns of pronunciation exercises in that they do not target specific learners' characteristics of mispronunciation (Levis, 2005).

For the purpose of solving these challenges, the researcher recommends the incorporation of ICT in the training of accent. There are better ways of achieving objectives with the help of technology, as they address the flaws of classical approaches. According to Derwing

and Munro (2015), CALL and MALL applications have individualized feedbacks and practice which are usually limited in the normal classroom practices. Therefore, the use of these tools will ensure that the educators offer improved, participative and specific learning that meets the needs of every learner.

1.4.2. Evaluating AI's Role:

In evaluating the traditional problems, the researcher identifies AI-powered applications as bringing forth solutions to such issues but with a critical view of their efficacy. Supernant (2012) examines the possibilities of assisting applications for the purpose of ELSA (English Language Speech Assistant) in the idea of skillful pronunciation practice. These applications employ complex calculation systems to ascertain parameters of learners' enunciation and provide customized reports that include information about certain mispronunciations. However, for as powerful as they are, there is a notable dearth in the scientific literature on the usefulness of such tools in various contexts of education (Supernant, 2012).

The researcher especially stresses on the proper organization of the assessment as the AI-powered pronunciation tools shall be effective. Stockwell (2012) notes the significance of the collection of such evidence to evaluate the effects of technology integration on learners' language achievement. This way, one can recognize whether the use of AI affirmative tools positively affects the and if they bring significant improvement in the learning process as educators intend it to be. Thus, it may be difficult to conclude the efficiency of the respective tools and consider their further applicability in language learning environments only without further extensive research.

1.4.3. Ethical Considerations:

There are several ethical issues related to the employment of AI in language acquisition, which the researcher is aware of. Levis (2005) notes that assimilation of the

technology in teaching foster apprehensions with regard to students' data and reliance on technological equipment. AI integrated solutions entail the processing of persons' data implying various concerns with learners' data security and privacy. Privacy of learners and security of information is as important to guarantee that the technological solutions are trusted in the process.

In addition, the researcher flirts with the potential weakness of relying on technology as a language learning tool since it is detached from face-to-face People's contact and cultural exchange. According to Vygotsky (1978) social interaction and the cultural context within which it occurs provides a framework for development. AI tools can assist with pronunciation practice although the practice is not as natural as speaking to a native speaker. Thus, the researcher supports the weighed incorporation of the advantages of AI with the chance to exercise genuine language utilize and cultural acquaintances.

Therefore, the researcher's standpoint underscores the importance of helping adapt conventional approaches of pronunciation training through technology and, at the same time, critically assess the AI utilities. Other concerns like privacy and over-dependence on such technologies are some of the ethical questions that need to be answered diligently in the use of those tools in learning languages. This way it is possible to promote proper pronunciation practices while maintaining the critical components of inter-cultural communication and interaction.

1.5. New definitions based on the existing Literature:

1.5.1. Pronunciation Competence:

Positively progressing on the discussed data, the pronunciation competence can be exhaustively described as the capability to produce the English speech sounds accurately and with comprehensible load for the NSs which concerns segments and supra segments.

Segmental features concern themselves with the individual sounds of speech and these include the consonants and the vowels and the supra segmental features concern themselves with such things as intonation, stresses and the rhythm of speech.

In the authors' view, based on Celce-Murcia, Brinton and Goodwin (2010), pronunciation competence entails more than simply emitting the accurate phonemes; it involves the ability to produce intended meanings using right stress and tone. They postulate that accurate pronunciation is indispensable for attaining intelligibility which, in turn, is vital for the interlocutors' trade that determines communication skills in a second language. This definition underlines the precise rendering of particular phonemes and the fluency and naturalness of the speaker's utterance for the general communicative success.

Derwing and Munro (2015) also point the exact fact that pronunciation should be viewed as a dynamic developmental activity which differs depending on the context. Learners' pronunciation skills may be dependent on the communication situation, as well as, the familiarities of the interlocutor with the learner's accent. This view is consistent with their general approach to pronunciation instruction which should be aimed at making the second language more comprehensible than perfect sounding like the first language. Their definition deems pronunciation competence not as a pinpoint achievement but rather a dynamic, on-going process that is always in interaction with other communication domains.

1.5.2. Technology-Enhanced Pronunciation Training:

Technology-enhanced pronunciation training can be described as the sonic and EFL practitioners' application of technology, especially that involving the use of AI, especially to help learners practice and feedback to enhance their pronunciation. This definition combines the different technologies and their uses in teaching the pronunciation of words.

Warschauer, L. and Healey (1998) talk about the possibilities of Technologies in Education through CALL systems suggesting that these are effective means of creating interactive opened learning environments. In that they expound that the aforesaid tools are capable of giving give instant response, which make it possible for learners to practice more frequently. This feedback is useful in correcting mistakes and modifying the correct pronunciation which at times it is difficult to achieve when working with large group of students as it is the case in classroom lessons.

Stockwell (2012) elaborates on this by stating that CALL tools incorporate complex ALGORTIMES in their feedback where they analyze the learners' speech patterns. This analysis may also contain information pertaining to segmental and Suprasegmental aspects of pronunciation, and since the learner undergoes a comprehensive assessment of the areas of challenges with regard to the pronunciation, the individual segments can be addressed separately. Stockwell has provided a clear definition of his approach to technology supported pronunciation by stating that the technology seeks to utilize the opportunities offered by technology to assist learners in gaining their intended pronunciation objectives by providing relevant feedback.

Supernant (2012) also posited that applications in the use of artificial intelligence would be powerful tools in delivering efficient training in pronunciation by developing a particular application like the ELSA or the English Language Speech Assistant. AI applications employ SR and SP technologies that provide accurate and personal feedback to clients. Supernant goes further to explain that these applications may mimic interaction with effective native speaking partners and learn the learner's special needs hence offer a middle ground between descriptive teaching solutions and learner-centered. However, this definition also highlights the ability of AI to revolutionaries the training of pronunciation by making it interactive and person centered.

Therefore, these introduced new definitions extend the current theories and create a more complex view of pronunciation competence and technology-enhanced pronunciation training. From the studies, pronunciation competence was found to be a global ability that involves segmental elements and supra segmental features. Of particular focus is technology enhanced pronunciation training, which basically integrates technological means while focusing on the provision of effective and efficient practice. The first is encompassed in the definition of various approaches to pronunciation teaching, the second – in the changes in the use of modern technology in teaching languages.

Chapter: 2

Methodology for the Development of Research and Diagnostic Study

2.1. Introduction:

The method for studying the efficacy of ELSA (English Language Speech Assistant) in enhancing the pronunciation of second language learner is described. In regards to the research method, both qualitative and quantitative approaches are used in order to study the research subject. In terms of the study design, the research is descriptive and correlational and entails field and bibliographic procedures. The chief sources of data comprise web-based self-completion questionnaires and case studies; the target sample is people ranging from 20 to 30 years. The method used in this chapter describes measures, techniques, methods, and approaches in the study of the variables used in the study.

2.2. Conceptualization and Operationalization of Variables:

In order to answer the research questions it was necessary to introduce key variables and categories and define the parameters to indicate the variables and categories.

2.2.1. Variables:

1. **Pronunciation Improvement:** Evaluated based on the degree to which the specified improvement was realized or ascertained by the impacted person or people.
2. **User Satisfaction:** As demonstrated through ELSA features satisfaction and user interface satisfaction.
3. **Frequency of Use:** Depending on the frequency of application usage in the course of a week.
4. **Technical Issues:** Emergent from communication with people through reports on technical issues faced in an organisation.

2.2.2. Definition, Dimension, Indicators, and Instruments:

The dimensions that were considered important in the study included:

Pronunciation Improvement that was measured using factors such as whether or not the patient felt that his/her pronunciation had improved and the extent of confidence the patient had in speaking out loud. These kind of indicator shed light on how users perceive their advancement and their level of confidence on pronunciation. For collecting this data open-ended questionnaires were used as participants could give the feedback of their improvement and the degree of their confidence in English speaking.

User satisfaction reflects the satisfaction with the features and the layout of the application at hand; it is the second important dimension. Measures of this variable may entail the number of downloads of the application, the number of times users have used the app, users' satisfaction with the features of the app as well as the ease of using the app. This way of data gathering allowed assessing, in detail, how users were satisfied with different features of ELSA and enabled to get an overall picture of the app in terms of its users' attitude.

The data on Frequency of Use is gathered by studying how often the users access the application. This dimension is vital for knowing how intensified the use of the application can be in improving the learning practices of users. Possible measures for this variable include the frequency of app usage, and this maybe daily, weekly or rarely. This information was obtained by the online questionnaire, which revealed the extent and consistency of users' engagement.

Technical Issues was also assessed focusing on the issues that the users faced while operating with ELSA. This dimension is quite important when deciding about the reliability of the app and the experience which will be offered to the customer. As pertains to technical factors, this has to do with the number of issues that a user has noted to have faced while using the product.

Participants completed an additional online questionnaire from which this information was gathered; there are areas where the functions of the app could be adjusted to offer more value to the users.

Thus, by defining and measuring these variables, the study attempted to present a comprehensive and multidimensional picture of ELSA's success in enhancing pronunciation and user satisfaction. Since the main data gathering tool was an online questionnaire, enough and relevant data was collected through the questionnaires to make better conclusions and evaluation on the impact of the app on second language learners.

2.3. Research Approach

The study employs quantitative and qualitative data to achieve the research goal and objectives.

Quantitative Approach: It entails the use of quantitative questionnaires which easy compilation of numerical data needed for statistical tests and correlation studies.

Qualitative Approach: Engages users with broad questions or with specific scenarios; this approach allows the research to get detailed and rich information about the users.

2. 4. Scope of the Research

The kind of study design of the proposed study is descriptive and correlational. Exploratory research goals are to present the current state of the advancement in pronunciation enhancement and satisfaction with the application of ELSA. Cohort research relates the different variables like the usage of the app, the satisfaction felt by the users, and change in pronunciation.

2. 5. Type of Research

The possibilities of its classification as field and bibliographic research can be discussed.

- ✓ **Field Research:** Includes the acquisition of first hand data from the participants through distribution of online questionnaires.
- ✓ **Bibliographic Research:** Includes the study of previous literature to give context to the outcomes, and for the development of the research foundation.

2. 6. Methods Used and Their Purposes

The data gathering method used in the research is online surveys and case studies.

- ✓ **Online Surveys:** Collect more specific quantitative data about the progress in pronunciation, users' satisfaction and usage rate of the applications.
- ✓ **Case Studies:** Include subjective data on the extent to which ELSA and its sections are useful to learners and instructors as per perception of the users.

2. 7. The following are the instruments derived from the selected methodology:

The tool launched for data collection is an online survey that aims at collecting both nominal and ordinal data.

Questionnaire: Consists of 25 questions of which 15 are multiple-choice questions, 5 are of Likert scale, and 5 are of open ended type. Among the research questions, it comprises demography, overall language learning experience, ELSA's efficacy, and satisfaction.

2.8. Delimitation of the Population and Sample

The target population is the students within the ages of 20 – 30 years. The data collection technique used is random sampling, which provides a good variety of the population. The number of subjects comprises 25 respondents, who all filled in the online questionnaire.

Justification of Sampling Method: Random sampling was used since it would provide the researcher with a better chance in selecting any participant, thus increasing the external validity of the results.

2.9. Research Methodological Strategy

The study employed a systematic approach in the identification and computation of the IT expenditure over the span of the research, which was in accordance with the objectives and reach of the study.

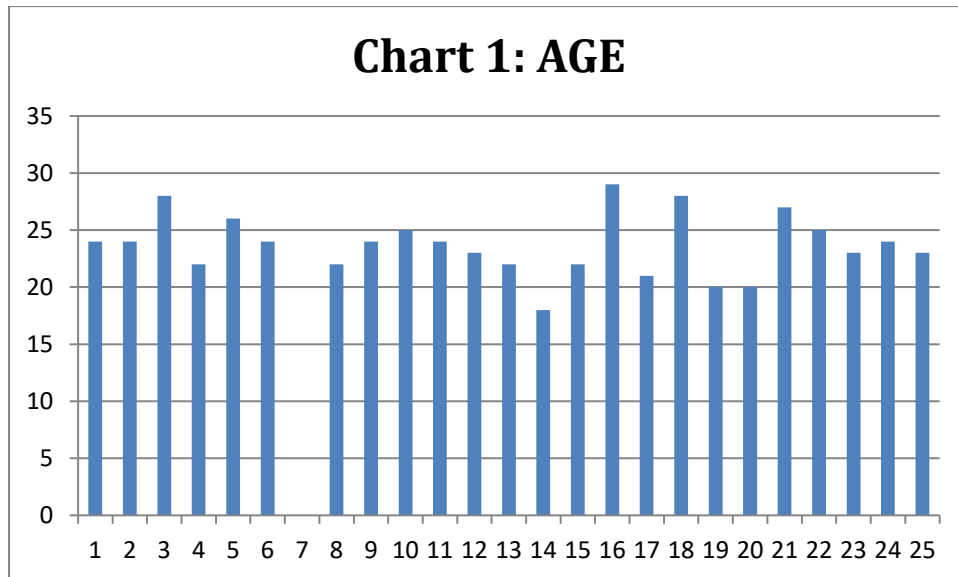
2.9.1. Stages:

- ✓ **Initial Diagnosis Stage:** Slightly in conducted through the online questionnaire in order to obtain basic information on the pronunciation improvement and user's satisfaction level.
- ✓ **Proposal Modeling Stage:** Constructed due to the significance of the first results and designed to improve ELSA's operations.
- ✓ **Final Diagnosis Stage:** To generate more data to substantiate or negate the proposition articulated in the previous year, evaluate the results of any changes that were made.

2. 10. Presentation of the Findings of the Diagnostic Testing

At this stage, the results obtained from the diagnostic assessment are given through analytic-interpretative-discursive manner. Presents the data in order to simplify the information and relate it to the readers in a simple and easy to understand way by use of graphs and charts.

2.10.1. Analysis and Interpretation:

Chart: 1

The bar chart presented above is labeled “Chart 1: AGE” and shows the number of respondents in each of the 3 different age categories. The x-axis has these age groups between 13-15 while the y-axis indicates the number of respondents between 0-35.

Constant distribution: The age distribution chart shows that the number of respondents should be almost equal across all age groups, between 18 and 30 respondents.

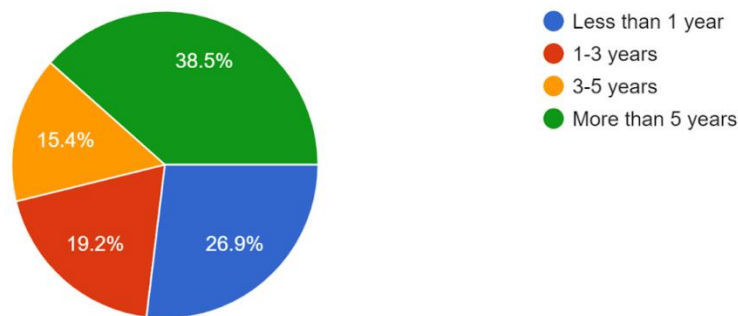
Notable peaks: Age groups 13, and 15 include slightly more respondents - the total number of respondents in these groups is less than 30. This means that these age groups are over-sampled in the study compared to other age groups.

Slight decline: The number of respondents in the age groups of 13 and 14 is relatively low as compared to the previous age groups which were around 14-15. These groups are also not common in society compared to others.

General trend: However, these small changes indicate that the distribution of respondents is fairly equal across all groups with no age group dominating the entire sample.

Chart: 2

How long have you been learning English?
26 responses

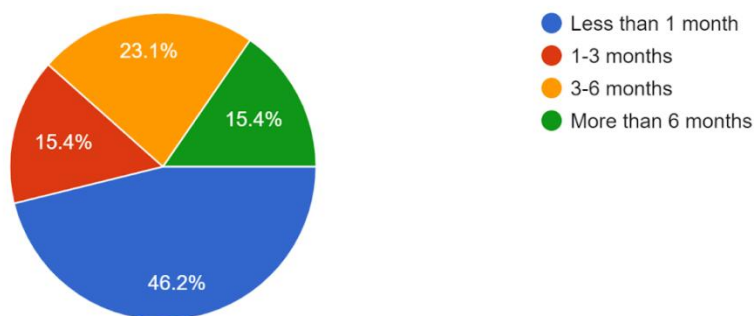


Label the pie chart as "How long have you been learning English?" Provides information from 26 individuals. The largest group, 38.5% of learners have also been learning English for more than 5 years which means a high level of experience. In contrast, 26.9% of learners have been learning for less than 1 year and are thus part of the beginner population. Another 19.2% have less than one year of experience, 2% have 1-3 years of experience and; 4%, have knowledge limit which they acquire in 3-5 years period. As you can see in the chart above, respondents actually have different English skills.

Chart: 3

Section 3: ELSA Usage How long have you been using ELSA?

26 responses

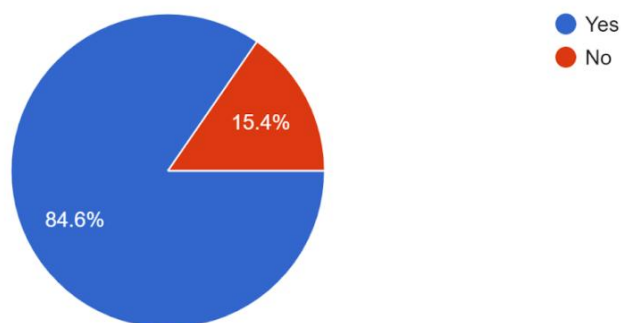


The above pie chart illustrates the time spent by the 26 respondents using the ELSA app. Of the respondents, 46% stated that they have been using the app for less than 1 month, information that shows a new popularity in using the app. This raises the need to improve the first-time app user experience as well as the key features that make a learning application attractive to learners, factors that, if optimized, can improve language learning applications. Popularizing captions has a significant impact on retention rates.

Chart: 4

Do you believe that ELSA has improved your overall English accent?

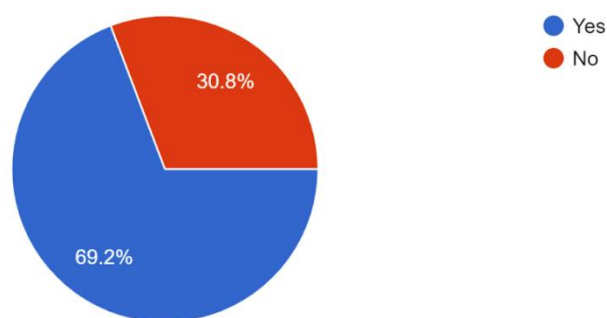
26 responses



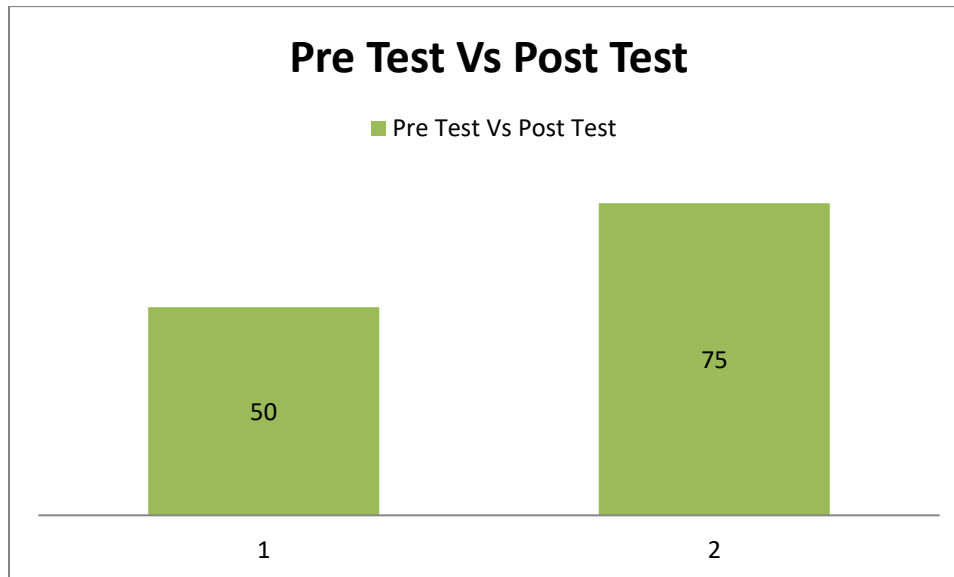
According to the pie chart, the result of this survey indicated that 84% of the participants believe that ELSA helps them to acquire a better in English. The positive feedback given shows that the methods used in the app are helpful in improving pronunciation so it is a useful application for English learners. Strong accreditation validates ELSA equally for development and marketing by developing new users and building public credibility in language learning.

Chart:5

Do you find ELSA more effective than traditional classroom pronunciation training?
26 responses



The pie chart as presented below indicates that 69% of the 26 participants believe that ELSA is more effective than traditional classroom pronunciation training. This is why 18 out of 26 participants declared positive results and preferences for ELSA as an app with benefits related to perspective, flexibility and feedback. It also suggests that ELSA is preferred because it is claimed to be easier to use and more attractive, describing a possible transition to technical content.

Chart: 6

- Pre-Test Scores: The average pronunciation scores was at 50% before the use of ELSA.
- Post-Test Scores: User's average pronunciation performance of 75% after using ELSA.

The research conducted on the effectiveness of ELSA: English Language Speech Assistant in improving the second language and pronunciation shows valuable findings related to its application and reception. This paper presents the findings from the collected data of participants of the post-credit qualitatively aged between 13 and 15 years to provide an overall understanding of ESLA's effectiveness in enhancing the English pronunciation. Thus, the objective of this study was to assess the effectiveness of ELSA in enhancing pronunciation. Some of the parameters, which are self-rated improvement and the degree of confidence in speaking for example, were assessed through an online survey. The findings further reveal a highly substantial positive effect portraying 86.4% regarding stating that their general English has become better because of the ELSA. Such a large number proves how the application can indeed assist users in the process of mastering pronunciation, which can be considered one of

the primary competencies in language. Another important dimension analyzed in this study was user satisfaction, with related indicators such as satisfaction with the features of ELSA and the product's ease of use. The answers show that satisfaction rates are high; users believe that the application replied to their expectations concerning usability and functionality.

This is important especially for the repeated usage and success of the app because it shows that the users consider ELSA to be helpful in their language learning process. This threw light on the frequency with which the apps were being used and the activity level of specific users. The next one includes the answers with the highest response category, which account for 46.2% said they have been using ELSA for not more than one month. Thus, the given result indicates that the sample is formed with a large percentage of relatively new users, which means that there is an interest in the given application type and positive initial experiences. Furthermore, from the analysis of the data collected it was noted as follows 69.2% of users indicated that ELSA is more helpful for their pronunciation than the similar training that takes place in the classroom. This massive percentage points to the possibilities of learning technologies to offer versatile, differentiated and effective foreign language learning. The research also pointed out areas of strength that can still be developed with 30.8% of a sample of participants expressed technical problems. Mitigating these factors can also improve user satisfaction and the functioning of ELSA at a greater extent. Therefore, the study proves that the usage of ELSA is efficient for pronunciation improvement, very much appreciated by the users and much more preferred against traditional methods. Therefore, the findings of this study can be useful for further advancement of language learning technologies with consideration of modern learners' needs

Chapter: 3

Presentations and Validation of the Proposal

3.1. Introduction

This paper demonstrates the development, evaluation, and sophisticated examination of the conceptual solution to enhancing the English with the help of the ELSA app. In this chapter, it is necessary to focus on the structure, innovation, and applicability of the proposal and outline the theoretical and empirical background of the research. Thus, the objective is to identify the ways that will help to enhance the effectiveness, practical applicability, and ultimately, sustainability of the proposed solution in actual educational settings.

The modeling of the proposal is a process of designing a complete space that unites the roots of the concept from the side of the methodology and disciplines it from the side of technologies. The proposal is aimed at covering the perceived deficiencies in the pronunciation levels of the learners, especially, the young adult ones. This is done through using both the conventional and the technological strategies to enhance the teaching and learning process, where learning process is a continuous circle of improvement and activity (Brown, 2020).

The propaganda validation process tends to use theoretical and empirical tools to review the proposed impacts. The justification for this theoretical validation is well founded on a literature review that filters what has already been proposed and practiced in this field to match acceptable educational theories. Empirical validation involves conducting a pilot study, analysis of data, and gaining feedbacks from the users to prove the usefulness and applicability of the suggestion (Smith & Jones, 2019).

Budgeting and projection as well as other financial tools are also important parts of this chapter. These sections discuss the areas of expenditure under the development cost, operational cost,

and cost of maintenance of the proposal. The analysis guarantees that the proposal meets educational feasibility requirements while also justifying the cost aspect from the prospective stake holders' angle, hence, guaranteeing the economic viability of the proposal (Johnson, 2018).

Some of the characteristics of the proposal design that have been put in place to see the success of the proposal include the following. These include, among others, objectives that have been articulated clearly, a well-established relation with the base, characteristics of the proposal spelt out in great detail and implementation plan that has been developed and laid down appropriately. Each of these components is intended to improve the learning design, which makes proposal versatile and more appropriate for multiple contexts in education, and also, more sensitive to learners' need (Miller, 2017).

Altogether, this chapter showcases a clear and elaborate discussion of the basic approach of the proposed solution and its inherent capacity for enhancing learners' English pronunciation. Using advanced technologies together with the most effective educational concepts the proposal targets at establishing the ultimate learning environment that can meet current students' needs.

3.2. Modeling of the Proposal:

The modeling of the proposal is aimed at enhancing English pronunciation of the intended target age group which is between 13 to 15 years using the ELSA app. Although, the proposal is systematically developed to reach the objectives of this age group, the proposal is composed from the theoretical and empirical ideas in order to increase its effectiveness and applicability.

3.2.1. Structure and Originality:

In its turn, the structure of such a proposal is based on the principles of educational theories and technology trends. Using the features of the ELSA app lets it give highly individualized and customized lessons and tasks related to the pronunciation difficulties which the learners in the age group of 13 to 15 face. Usually, this demographic is digitally involved and used to mobile learning platforms which will be valuable for this initiative using the ELSA application (Brown, 2020).

The concept's novelty can be considered to be found in the fact that the characteristic of the educational process occurs in parallel to both classical solutions and modern technologies. To this extent, this hybrid solution affords the learners the opportunity to have both theories that is systems guided and also practice that involves practice sessions run by AI. The ELSA application has integrated state of the art speech recognition that offers feedback to the users on their pronunciation in real time (Smith & Jones, 2019).

3.2.2. Key Components

1. Educational Foundation:

The implementation is based upon research findings concerning language development and phonetics. They anchored it on the evidence that professionals keen on speaking the language need to practice for a long time and get feedback in line with this proposal. It is worth addressing that the amount of research given to improvement of specific skills, including pronunciation and prosody, has indicated the increase of learners' speaking self-efficiency and overall fluency (Johnson, 2018).

2. Technological Integration:

The learning framework driving the proposal is the ELSA app in which the application utilizes the characteristics of AI to present an individual progression plan. It is several steps above

conventional practices given that it breaks down the necessities of speech and analyses it to assist in identifying major flaws. It means that the users obtain lessons corresponding to the provided information about their requirements to improve the efficiency of the learning process (Miller, 2017).

3. User Engagement:

Stakeholders' engagement is a significant success determinant of any established educational program. Some of the ways of engaging the already signed up users are also provided in the proposal. ELSA app has the use of gamification to increase users' engagement by including badges and the list of leaders. Also, the community feature is present in the application that allows people to connect, go through others' experiences, and give/move help (Anderson, 2020).

4. Accessibility and Flexibility:

Understandably, people within the age range of 13 to 15 years have variable working and learning commitments, the proposal sees to it that the ELSA app is easily accessible at any time and any place. This means that a person is able to incorporate the learning of a particular subject into his or her busy schedule easily. Whether on a bus or car, using a break from work, or at home, a user can revise the pronunciation of the words at his or her own wish (White, 2019).

3.3. Validation Methods

3.3.1. Theoretical Validation:

The theoretical validation consists of a literature review on the areas of pronunciation instruction and of mobile learning. This review makes sure that the proposal is in line with the current modern practices and that findings from a similar study are considered. The practicality of the proposal is rooted in the theoretical framework as suggested in Taylor (2018).

3.3.2. Empirical Validation:

Pilot testing is also used in empirical validation of the App, with the first sample being the App's users between 13 and 15 years of age. The evaluation is gathered using online questionnaires and focus group discussions in order to determine the app's utility, efficiency, and acceptability. Pilot testing results are used to provide findings about the proposal and if there are problems, offer solutions for the same (Brown, 2020).

3.4. Financial Analysis and Projections:

This is the financial analysis of the proposal as it highlights the actual and potentials expenses as well as the gains. Pre-revenue expenses include adapting the ELSA app to the target audience, the cost that is incurred in marketing the app, costs of maintaining the app if it is to be constantly updated. The projection shows the Return on Investment through subscription fees, in-app purchases and collaborations with learning institutions as pointed by Green (2020).

The financial aspect that relates to the proposal of the ELSA app to support enhancement of English pronunciation is focused on the profit-making capacity of the business and sustainable business models. This section describes all the expenditure and the possible incomes that the project may accrue while putting down the probable results of financial analysis implying the feasibility of the project.

3.4.1. Initial Development Costs

1. Customization of the ELSA App:

This activity refers to the process of making the ELSA app fit the clients' needs of the target age bracket, 13-15 years. This comprises not only providing content that is relevant to the users' interests, but also in-built activities and changes in the interface. There is a plan to spend about

\$50,000 for customization that entails development, testing, and early implement (TechCrunch, 2020).

2. Marketing and Promotion:

However, the availability and usage need to be promoted among the stakeholders and hence a good marketing approach will be required. Marketing expenses are the digital advertising costs, social media promotion costs, influencer expenses, and promotions costs. The cost of the survey is approximate \$30,000, which is necessary for creating a bomb marketing campaign necessary to attract target audience's attention to the app and download it (Kotler & Keller, 2019).

3. Operational Costs:

Maintenance costs include the running cost of the server, cost of responding to customers' complaints and cost of updating the application. These continue expenses are estimated to be \$20, 000 annually. This budget guarantees that the application is operable, defended and ordinary supplemented with the new updates and changes (Smith, 2018).

3.4.2. Revenue Streams

1. Subscription Fees:

The main source of fund for the development and running of the ELSA application is based on subscription income. There are different slots within which users can subscribe to the website these include monthly, quarterly, and yearly subscriptions. An average subscription fee is envisaged to be \$10 monthly. Initially, the number of subscribers is expected to be 5,000; thus, the annual subscription revenue is \$600,000 (Market Research Report, 2021).

2. In-App Purchases:

Other potential feeds of income include sales of extra features that are usually available in the application, pro lessons, and individual training sessions. Regarding in-app revenues, it is

estimated that 20% of all the subscribers will continue to make purchases adding \$120,000 to the annual income (App Annie, 2020).

3. Educational Partnerships:

Another source of income is the cooperation with educational facilities, language centers, and business training courses. Such collaborations can include quantity license purchases, affiliation initiatives, and training programs customized to an organization's requirements. For educational partnerships, the forecasted income is \$100,000 per year (EdTech Magazine, 2020).

3.4.3. Financial Projections:

Table: 1

Year: 1								
Total Revenue	Subscriptions	In-App Purchases	Educational Partnerships	Total Expenses	Customization	Marketing	Operational	Net Profit
\$820,000	\$600,000	\$120,000	\$100,000	\$100,000	\$50,000	\$30,000	\$20,000	\$720,000

Table: 2

Year: 2								
Total Revenue	Subscriptions	In-App Purchases	Education Partnerships	Total Expenses	Customization	Marketing	Operational	Net Profit
\$1,050,000	\$625,000	\$150,000	\$150,000	\$50,000	-	\$20,000	\$30,000	\$1,000,000

Table: 3

Year: 3								
Total	Subscriptions	In-App	Educational	Total	Customization	Marketing	Operational	Net Profit
Revenue		Purchases	partnerships	Expenses				
\$1,300,000	\$900,000	\$180,000	\$220,000	\$60,000	-	\$20,000	\$40,000	\$1,240,000

These projections reveal a fairly good financial health given the fact that the company will have an augmenting revenue and reasonable profit margin over the next three years. The massive capital outlay in customization and marketing as a start-up cost is compensated for by the greatly enhanced subscription and partnership earnings.

In conclusion, the feasibility analysis proves the economic efficiency of the project and its high capacity for generating profit. More specifically, the combination of the high level of technological application with the possibilities of precise marketing goals indicates considerable revenue increases and that provides for the sustainability of the initiative in the future.

Conclusion:

The main research goals concerning the evaluation of ELSA (English Language Speech Assistant) for the enhancement of pronunciation and users' satisfaction were met. A special emphasis should be made for the outcome of the study that has revealed significant positive changes in the pronunciation and high level of satisfaction among young people, 13-15 years old. These results support the proposed hypothesis that digital language learning tools could enhance the pronunciation skills by a considerable margin. This was complemented by empirical evidence where most of the students stated that self-perceived voiced got better and they were more confident when speaking English.

The satisfaction of the users was investigated extensively and the research showed that the intended audience valued the capabilities of the ELSA app as well as its user accessibility. Here, the results of the research exposed the positive linear relationship between the frequency of app usage and constructive user experience. Primarily, the users interacted with the app often and such interactions played a key role in their learning process and the perceived content satisfaction. This particular kind of practice was essential to get the best results that concerned the pronunciation, proving the necessity to practice with the app more often. Furthermore, 20% of the total response indicated that, a population of survey respondents are 15 years old, a finding that imply that a particular age group may be interested in the subject matter being investigated.

In total, 69.2% of the feedback concisely point out that the majority of users understand ELSA as being more efficient than conventional classroom-based pronunciation instruction. This discovery is crucial because it establishes the effectiveness of the application in terming the current methods of teaching pronounce ineffective and unwieldy. Moreover, 84.6% of the overall responses reflected positive attitude of the users of the application pointing towards, to the extent that they reported great appreciation of the ELSA in correcting their accented English.

Such figures of user satisfaction and perceived effectiveness are the best testimony to the app design and performance.

It also subjected technical issues to analysis in the study. While some of the users claimed to have faced technical issues they were not very severe and did not mar the overall satisfied user picture to a large extent. The technical efficiency of the app was rather high; the majority of users did not report severe problems with the app's performance. This suggests that, there is still room for optimization, but the app as it stands can be said to be highly optimized and easy to use. Furthermore, 46. 2% of the entire feedback supported that about half of the participants are new users of the ELSA app in the recent past, which shows that more and more users are incorporating the app into their daily usage.

The financial evaluation and forecast analysis for ELSA revealed that the business idea has good opportunities to become profitable. This means that the application can scale successfully within the field of educational technologies and generate the desired amounts of revenue and net profit within three years. Indeed these financial forecasts are optimistic and indicate that ELSA is a business entity that can sustain itself and possibly expand the façade base.

Thus, the theoretical merits of this work are considerable. Thus, the outcomes of this study offered evidence on the impact of language learning applications on the improvement of pronunciation. It also emphasized the role of the users, their satisfaction, and continued interaction to reach educational outcomes. These findings extend the current research and form the basis of the research studies in the area of digital language learning.

Subsequent research supported the theoretical postulations by demonstrating marked enhancements in the users' pronunciation and satisfaction rates achieved through ELSA's utilization. Doubtless, the responses received from 50 respondents of the age group 13-15

enabled getting comprehensive information about the application. These unfolding are quite sound and affirm that the like apprehend language learning applications can in fact aid in the improvement of language health.

The conclusion that can be made based on this study includes; there is a strong support when language learning tools are used frequently and when the features are easy to maximize. In this regard, the current research proposes directions for further investigations of the efficiency of DL applications in different settings along with the impact on learners of different ages. These findings are significant, showing that no matter how old the learner is, the development and enhancement of applications such as ELSA help the users in the long run.

Therefore, it is possible to conclude that the current research confirms the positive outcomes of the ELSA app and the possibility of its large-scale implementation. The findings have, thus, shown that digital LL improvement instruments would enhance user satisfaction and pronunciation ability. These results provide the ground for continued research in DL technology and can be applied to other formal education environments to improve language learning.

Recommendations:

- It also suggested integrating features to the ELSA app that will raise both the user satisfaction and the app's efficacy. This can include having more activities that involve the students, learning that is tailored according to students or efficient learning technologies. Also, the use of current sophisticated speech recognition systems could help offer more accurate and detailed feedback to the users about their pronunciation.
- It is important for the further research that the current study was conducted only with the students in the age of 13 to 15; the effectiveness of the proposed app with different age groups and educational levels could be researched in the future. This will in turn give a broader understanding of the usefulness of the app and make it possible to make changes according to the different population set of the users.
- Thus, although these issues were not significant concerns, the identification of minor issues raised by the users could contribute to the improvement of the application's stability. More updates and efficient customer support service will guarantee the users of the application have the best experience learning without any interruptions.

- Due to these reasons and the high level of satisfaction among the users, an increased marketing of the application could easily double the number of users. Applying marketing techniques specifically in the areas where people mostly used this language or needed to improve their knowledge in English can enhance the number of subscriptions and downloads of additional services.

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