**An Investigation into the Role of Pronunciation Apps in Speaking Improvement: A Comprehensive Analysis**

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**Abstract**
This article examines the issue of the effectiveness of pronunciation applications for second language learning in terms of improvement in speaking proficiency. The issue of pronunciation is one of the cause of the most of the challenge to some language learners as a result of those linguistic and cultural factors. Because of the wide use of pronunciation apps in the contemporary digital world, their effectiveness in speech improvement needs to be examined. Data collection will be done through mixed-methods approach where quantitative analysis of apps usage data will be conducted along with qualitative interviews and assessments that will give a total picture of effect of pronunciation apps on the skill development. These apps can help to improve language learners' pronunciation more deeply, which then leads to increased confidence and a more fluent use of the target language. It is technology that makes this type of apps important tools during the process of second language acquisition. In conclusion, the research paper about the language education, the technology integration, and second language learning serves to improve the language learning for learners worldwide.
**Keywords:** Pronunciation, Pronunciation Apps, Speaking Improvement, Second Language Learning

## 1. Introduction

Pronunciation plays an important role in the communicative competence, emphasized more in learning the second language. Apart from a better understanding a obvious and well-pronounced speech is a very important factor of communication. Speaking properly in the second language is a critical factor for the language students to be fluent and fearless speakers. When considering the role of speech apps, they cannot be stressed more because they afford the learners convenient interactive and personalized opportunities of practice and correction at the beginning.

The correct pronunciation is a vital factor in understanding of voice communication. The learner is able to pronounce words correctly so that he can make himself understood by native speakers and fellow learners alike. The correct pronunciation is another factor that determines the accessibility of a language. People will understand spoken language better if speech is clear. Elucidation of consonants, intonation and stress patterns aid in the development of word cognition and sentence structure in context. The quality of clear pronunciation helps in the integration process by the learners actively participating in discussion, social interactions, and conversations without reservations due to their ability to freely express themselves. Clear pronunciation provides a sense of belonging and fosters connectivity in the multi-lingual society. In academic or professional groups, proper pronunciation is important for delivering presentations, attending meetings and communicating with your colleagues. Proficiency in the native accent is thus capable of creating credibility and professionalism that, eventually, give way to academic breakthroughs and employment opportunities.

Pronunciation apps, which allow a learner to practice speaking anytime and anywhere, provide enough opportunities for learning. Students have an opportunity of doing targeted pronunciation exercises, drills, and activities at their own time and pace. Prone to the pronunciation apps, the students use the interactive features which are the voice recognition, instant feedback, and audio playback that aid in the learning process. Students receive a real-time correction and they can re-produce the right pronunciation right away.

A lot of apps, that deal witt pronunciation, provide personalized suggestions, based on the students progress and needs. Through assessing learners' pronunciation patterns and faults, these apps let give individualized feedback and tasks which focus on erasing specific weaknesses. Pronunciation apps usually includes a set of resources which include apps, video tutorial, and interactive exercises. They see not only a wide range of articulation techniques models which range from basic phonetic drills to complex communication tasks. The proliferation of pronunciation apps equip language learners to be action-takers at their language-learning journey. With the help of tips like self-directed practice with pronunciation apps, learners are able to set targets, track their progresses and boost their confidence in conversation.

The possibility to express yourself in a second language relies mostly on correct pronunciation proficiency. Yet, language learners still have huge challenges to acquire the correct pronunciation due to the traditional ways of pronunciation instruction that does not meet their diverse needs. Pronunciation apps offer an ideal solution by making use of interactive tools that enable learners to self-practice pronunciation in the convenience of their personal space. Even though they are widely used, we have just a few pieces of research on the power of the apps in validating speaking skill development. The research aims to plug this knowledge gap and observe the effectiveness of the pronunciation apps from both the quantitative as well as the qualitative point of view.

Finally, the purpose of this research will be to assess the efficacy of pronunciation apps to upgrade a learner's speaking skills, thereby contributing to the increasing number of works about technology-augmented language learning. Through research, educators, mobile app developers and language learners will be informed on the best practices that will enable pronunciation apps to more effectively complement language instruction in the effort to improve speaking skills. Eventually, the objective is to provide language learners with high quality tools and resources so that they will be able to strengthen their skills in spoken communication in their target language.

### 1.1. Significance of Research

The paper here has made a lasting impact on teaching, development of technological integration, and second language acquisition. This study would furnish instructors of languages with the knowledge of whether or not these pronunciation apps work as they should for students to attain speaking proficiency. Language teachers can reduce the pronunciation obstacles by enabling interactive apps in their teaching methods. As a result, students acquire language better with an improved learning

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campaign. In today' broader context of e-learning, knowing how technology mediates language mastery is a top-priority. This research will supplement the dialogue on technology integration, especially pronunciation apps, into language education systems to maximize learners' mastery stemming from the operation of competent and innovative tools. Learning languages, locals looking for teaching-themselves strategies mostly like to increase their skills beside of classes. Therefore, this study will permit the students to be guided not only by their intuitive guesses but also substantially based on evidence, the effects of using pronunciation apps in the speaking practice therefore being able to have the desired consequences on their proficiency levels in the target language.

The research presented in this paper investigates the efficiency of pronunciation applications as a promising instrument in the field of second-language speaking enhancement. This in turn, contributes to the existing body of knowledge about technology-assisted foreign language learning. Such a work is meaningful in that it provides the cutting edge of technological vocabulary and descriptive precision necessary for further exploration in this niche area. Language learners comprise a group that have to overcome various obstacles since the linguistic spheres and cultural specificities of all of them are different. The current research paper acknowledges the diversity of this population. The matters addressed in it are also adapted to a diverse group of learners who speak different languages and proficiency levels.

### 1.2. Research Questions
- What usage patterns and frequency of the pronunciation app adoption by second language learners?
- Is the utilization of pronunciation apps by learners positively or negatively correlated with their confidence in speaking?
- What aspects determine the efficacy of pronunciation apps as tools for speaking improvement?

### 1.3. Objectives of Research
- To focus the survey on the frequency and patterns of pronunciation app usage among second language learners by using survey and app usage data collection.
- To get to the bottom of the correlation between pronunciation apps usage and the realization of improvements in speaking proficiency by means of qualitative analysis of the survey results.
- To determine the factors impacting the efficiency of pronunciation apps in pronunciation improvement through qualitative interviews and survey data.

## 2. Literature Review

As for pronunciation, it has many functions in second language acquisition, which make learners' communicative competence and speaking proficiency drastically worse. This research has confirmed the importance of correct pronunciation in enhancing verbal interaction and overcoming the barrier of understanding faster and better (Derwing & Munro, 2015). Besides that, the technology like the pronunciation apps which help to pronounce words properly and attractively has changed the language learning approaches thus providing learners with convenient and interesting tools to improve their pronunciation abilities (Burston, 2014). Sound reproduction is the main factor that determines a person is intelligible, as Derwing and Munro (2015) pointed out. They try to bring up the issue that perhaps not native pronunciation is the key for effective communication; but intelligible pronunciation does facilitate the flow of thought and understanding in second-language exchange. Furthermore, there is now a number of pronunciation apps that enable the learner to practice his/her pronunciation in a self-paced fashion. Different mobile applications provide the users with beneficial features, including audio feedback, interactive tasks and speech recognition through which they can practice spoken words and receive real time feedback (Derwing & Rossiter, 2003).

Pronunciation skills are not just for effective communication but they also enhance social self-confidence and social integration in the language community (Levis, 2005). The study of learners with a good pronunciation suggests that they are more likely to feel more comfortable speaking and contributes to their involvement in the language activities (Yuan & Ellis, 2003). Moreover, pronunciation apps afford learners a customized and individualized learning experience which is tailored to their own requirements and taste (Wang & Han 2020). These apps usually engage adaptive algorithms which are used to change the level of the difficulty of your exercise, aiming to maximize your learning success (Chun & Plass, 1996). Moreover, these applications can tackle specific pronunciation aspects that are perhaps difficult for learners from varying linguistic backgrounds (Graham, 2016). Through individual practice of segmental and suprasegmental elements within pronunciation, these apps assist the learners with the problems of pronouncing in a more effective manner. The last few years have witnessed an appreciable shift in the approach to pronunciation and its influence in the area of second language speaking among various settings. For example, a number of studies incorporated evaluation of the impact of pronunciation instruction on learners' acceptable speech that is not only relevant for academics but also for day-to-day situations (Kang, Rubin, Pickering 2010). Results show that learners, who were specifically taught pronunciation, accomplish significantly more of correct pronunciation as well as fluency in their speaking, which positively adds to their speaking proficiency.

Additionally, the introduction of pronunciation apps to learning content has been widely discussed by many researches as well as educators. This way, pronunciation practice becomes much more convenient and flexible. Unlike in traditional classes where you repeat different words, in pronunciation, learners can practice being pronunciation perfectionist. They can do so at their own pace and according to their convenience (Neri, Cucchiarini & Strik, 2002). Furthermore, the attributes of the games that often come with pronunciation apps tend to influence their memorization and interaction in the way learners would like to be involved in thus prolonging learning (Hsu, 2017). On the one hand, there is an additional line of research that assessed the pronunciation feedback of those apps just as to denote the connection between the feedback timing and accuracy of such feedback to the pronunciation improvement (Zheng, 2018). With the rapid feedback feature and the direct reading of audio waveforms, the learner can identify and correct pronunciation errors more quickly accordingly, thus subsequently making the learner to be self-directed education and acquire a certain of metacognitive awareness (Wittwer, 2010).

This research on the convergence of instruction on speech pronunciation and speech apps, in the end, highlights the significance of pronunciation for the second language speaking training. Humanize the given sentence. Nevertheless,

instructor possess the ability to use the advantages of technology to enable students to master the art of producing good articulation as well, which is likely to enhance their communicative skills.

## 3. Research Methodology

This study will apply mixed-methods approach to collect comprehensive data on the role of pronunciation apps while improving the speaking skills. The quantitative phase will involve giving out a survey to a group of second language learners of diverse background to gather the facts regarding their use of the apps, their frequency of practice and their perceived speaking proficiency. Moreover, the app usage data that will be collected anonymously to discover the usage patterns and participant engagement levels will be done. The qualitative phase will involve semi-structured interviews of the participants which will be selected from the questionnaire respondents. The interviews will focus on participant's adventures with pronunciation apps, efficacy rating, and the issues associated with using those apps. In addition, another assessment of speaking will be conducted taking place both before and after gaining some pronunciation app experience to see if any apparent improvements in pronunciation proficiency have been observed. This study is expected to provide relevant data on the function of pronunciation programs in the process of the pronunciation improvement of the foreign language learners. The data derived from the app usage will present patterns in usages and levels of engagement, and the qualitative interviews will give a spectacular story on learners' narratives and perceptions. Besides, the speaking assessments will also objectively measure any pronunciation proficiency improvements after the app was used.

## 4. Discussion & Analysis

The users' pattern and frequency of pronunciation apps usage among second language learners depend on numerous factors which are motivation, level of proficiency or the learners' goals for learning. These applications are frequently utilized on a daily or weekly basis by learners, during which they may practice the pronunciation, listen to native speakers, receive feedback, and monitor their progress. On the contrary, it should be noted that an individual's likes and learning styles affect the application of these apps and how frequently they are utilized.

### 4.1. Usage Patterns and Frequency of Pronunciation App Utilization

The apps for pronunciation have become the most important tools for the foreign language learners that want to work on the oral language skills. These apps cover the whole spectrum of the existence of plentiful tools and functions created for improving the level of pronunciation, fluency, and appearance of user's self-esteem. Compreheending how and how often the pronunciation app usage is among the second language learners is heavily dependent on investigating the number of factors that can be seen as the modifiers of adoption, engagement, and effectiveness.

To begin with, it's important to realize that the purpose of staying linguistic motivation remains the same whatever language the learners are using. The most important target for many of these people is to get a perfect pronunciation and to improve their accent as much as possible, especially if they plan to use this language in business or in social activities where accent is very crucial. Some would come to have the same goal but focused more on functional communication evolving their pronunciation. The exercise is aimed at the elimination of communication errors and formation of a better relationship with native speakers. The most obvious advantage is that students may make use of these apps in conjunction with what they learn in language-specific classes or classes dealing with learning a foreign language.

Pronunciation apps usage frequency by learners is mainly determined from their motivation level to learn and whether the app in question serves from any perceptible purpose to them thus is useful. Students who have a strong internal passion and drive to enhance their fluency use these apps more frequently. They will usually use them as a part of their daily language practice. Such types of learners can be seen studying pronunciation app several times a day, developing a specific time block during the day dedicated entirety for focused sessions. While there are individuals with the higher motivation levels or those with the competing priorities on the one hand, learners that use pronunciation apps less frequently, relying on them only sporadically or during the periods of heightened language studying, are quite common. The functional features of the pronunciation virtual assistance systems and designs matter a lot when it comes to the patterns which they are likely to employ. Applications that are accompanied by exercises that can be performed actively, personal responses that accompany the feedback received, and tracking progress play a vital role in appealing to the learners as they provide immediate feedback coupled with a sense of achievement. As for gamification elements like points, badges, and leader boards, which can also establish a motivation for learners that pronunciation practice will be done consistently. Furthermore, those apps that have social features, peer-to-peer feedback and forums where learners can get support and encouragement as well as accountability from each person they are made to belong, create a sense of community in the aim of educational progression.

Furthermore, the apps' ease of use and convenience play a part in the continued usage of the apps among language learners, especially those whose main language is different from that of the target language. Nowadays most of the people have smartphones and tablets and they can use Pronunciation Apps anytime and anywhere. Therefore, students can learn the pronunciation while they are sitting at home, while travelling in the bus and in the subway station etc. This flexibility is a key feature that allows learners to practice pronunciation, any time they may be in idle moments like during commutes, breaks, or a time alone, which sum up to a lot of practice sessions and keep them in a constant practice routine. The reliability of pronunciation software with regards to raising the level of learner's pronunciation skills is an important issue which may affect user's behavior in applying them. Research has indicated that precisely-made pronunciation apps can be the key to achieving significant improvements in the pronunciation accuracy and fluency of learners who supplement this activity with other language practices such as speaking with native speakers or exchange activities. Students that see the measurable effects of their pronunciation improving when they use the pronunciation apps will more likely be using the apps more and more, as this will give them a positive feedback, which will continue the cycle of participation and improvement.

Nevertheless, several challenges and obstacles might become a rate-limiting step in the popularization of the pronunciation apps by second language speakers. Technical matters, like device compatibility, unstable internet connections, or pronunciation apps that do not work perfectly can discourage learning due to frustration and detunction. Also, learners may be

struggling with the comprehension of a specific app interface or locating the instructions for pronunciation exercises, especially if those guides are not in their native language. Moreover, it is worth mentioning that how real and applicable the exercises in speech pronunciation of apps are perceived will affect learners' motivation to continue use the apps daily. If learners see pronunciation exercises as being monotonous, irrelevant to their language ability improvement, and shallowness in simulating real-world communication context, they will be disengaged. Hence, the pronunciation apps must deliver the varied as well as the contextually relevant pronunciation practices materials that are the class that due to different requirements and individual differences of learners. Cultural views toward pronunciation practice are another factor that determine the extent of and the frequency at which the app is being utilized by second language learners. Certain cultures place more emphasis on and hold as high status markers of language proficiency and pronunciation accuracy. Therefore, learners in such cultures may feel excessively pressured to speak like natives and, as a result, tend to rely profoundly on pronunciation apps more often. In the scenario where diversity of language and spoken patterns are embraced rather than suppressed, learners might not take such an anxious or a persistent approach to practice their pronunciation. Also, their usage of pronunciation apps would not be as frequent and their motivation towards this would also be less.

In other words, the utilization pattern and frequency of a pronunciation app employing among second language learners is on the whole a result of an interaction of various factors which are the learners' motivations, the design concept and features of a pronunciation app, the accessibility and convenience, the effectiveness as perceived, the encounter of challenges and the barriers and the cultural attitudes towards pronunciation practice. Even though the pronunciation apps provide learners very good chance to improve their pronunciation, educators and developers should implement higher standards and carefully select all relevant factors while designing the interactive learning programs so that the maximum student engagement and the effectiveness that can be achieved would belong to the first class. The pronunciation apps that cater for learners' needs and give prospective language-users the necessary practice with relevant speech scenarios will never fail the second language learners on their way to full linguistic attainment and valid communicative ability.

### 4.2. Usage of Pronunciation Apps Correlate with Perceived Improvements in Speaking Proficiency

The speaking proficiency relation between speech app usage and perception among language learners is multidimensional topic which is a mix of various factors like learner engagement, learning outcomes, and subjective perception of learners. Only by analyzing these components deeply can we understand this relationship that is present between speaks app usage and articulation proficiency.

Consistent Practice and Feedback Loop: Pronsunciation apps give learnes possibilities for long-lasting practice and immediate feedback, which are essential for achieving fluency in speaking. Repeated manipulation of pronunciation workouts to learn the sounds leads the learners to the muscle memory of the tongue giving the perfect and fluent sounds. The feedback that is given by the app via the mode of automated pronunciation assessment or comparison with native speaker models allows learners to instantly and continuously identify and correct their pronunciation mistakes with each subsequent repetition or rehearsal, resulting in long-term growth in their oral communication skills. The more frequently the students exercise pronunciation apps and reciprocate with feedback, the better improvements in their pronunciation they are most likely to gain.

Targeted Skill Development: Usually, pronunciation apps have a range of activities and tasks designed in a way to assist learners to develop their certain pronunciation elements such as individual letter sounds, stress patterns, intonation, and rhythm. By using diagnostic assessment tools like ICAs or learner's self-assessment, learners are able to concentrate their practice sessions on uniquely individual pronunciation targets they want to improve on. The selective focus on the acquisition of pronunciation skills aims at enabling learners to systematically advance from the mastery of the fundamental elements through to natural unstressed speech that fully conveys the intended messages in the target language. Also, people can find pronunciation apps which demonstrates adaptive learning algorithms and they can regulate the complexity of the exercises based on their teaching rate so that always the students are followed and the learning process is closely followed by them.

Increased Confidence and Self-Efficacy: As students use pronunciation application to hear their pronunciation improvement and observe the progress, usually it can be followed by an increased level of self-efficacy and gain confidence in their speaking. Alongside the positive reaction from the app and the obvious improvement regarding pronunciation accuracy and fluency, the learner subjective nature makes them more confident while speaking in the target language at the end of the module. This additional encouragement to achieve is what drives students to continue doing more and better-quality speaking activities like having dialogues with native speakers or giving a presentation which only amplifies their gains in the speaking ability. Developing learning applications with motivational features, including progress tracking, goal setting and awards, will improve users' motivation and commitment to effective pronunciation practice. This, in turn, leads to more noticeable improvements in the beginning and advanced skills in speaking proficiency.

Integration with Authentic Communication Contexts: Pronunciation apps that give learners an opportunity to apply what they have studied in authentic conversations, stories or role-playing situations help students to transfer pronunciation skills learned in the classroom to broader communication. These simulators of realistic interactions enable the trainees to not only reach a good standard of pronunciation, but also to use it effectively in order to transmit meaning and to reach their communicative purposes. The more learners practice by applying their pronunciation techniques in real life situations, the better they understand the tie between pronunciation and clear speech thus developing advanced abilities in speaking. Also, the apps which provides a chance for listening and speaking practice, specifically the ones that have conversations with virtual characters, and speech recognition technology, give the learners the ability to be corrected immediately and change their speaking ability according to their feedback, therefore increasing their speaking proficiency.

Individual Differences and Learning Styles: We must also understand that the use of the pronunciation apps could bring about the perceived improvement in the speaking ability by the differing learners because of the natural difference in learning styles, language backgrounds and experience. Learners who have a high level of motivation, self-directed and technologically fluent may have a higher chance to reap greater benefit from pronunciation apps, since they are more likely to involve themselves in consistent and careful practice. Similarly, those learners who have a strong phonetic foundation or who sometimes do language learning may be more rapidly spoken-language proficiency through the use of the apps for pronunciation, since they

can build on their existing knowledge to maximise the learning outcomes. On the contrary, the application of pronunciation apps which are comprised of an array of teaching modalities inclusive of visual, auditory, and kinesthetic learning options incorporates diversity of learning styles and preferences hence giving equal opportunity of pronunciation instruction to all learners regardless of their personal traits.

In brief, the link between the practice with the pronunciation app and the rates of self-evaluation of the students' speaking skills includes such factors as the amount of practicing and feedback loops, the targeting of particular skills development, the increasing of students' confidence and self-efficacy, the demonstration of the real situation speech communication and also the divergence of students' learning style and language backgrounds. By incorporating the affordances for pronunciation apps in providing learners with tailored and engaging pronunciation practice experiences, instructors and developers of the apps can motivate and give the tools to the learners so they can speak well and realize their goal as language learners.

### 4.3. Factors Influence the Effectiveness of Pronunciation Apps in Facilitating Speaking Improvement

The achievement of the pronunciation apps in learning better the speaking skills among language learners is under the threat of some various things which influence totally the whole learning environment. The comprehension of these factors in entire detail will help evidence the point that such apps could be optimized to enhance learners' speaking abilities.

Content Quality and Relevance: Perhaps vital of pronunciation app is what they content are and if it is the one you like. There are an array of pronunciation apps which cater for various pronunciation skills and one can use the same to focus on these skills. These may include individual sounds, stress patterns, intonation, and rhythm . This thus will see the learners get scope to exercise and sharpen their all components of their pronunciation skill. Furthermore, alongside to being contextually appropriate, the content needs to be structured in terms of its relevance to learners language goals and proficiency levels. Proration applications that provide real-world communicating scenes, dialogues, or role-playing activity for the learners to make possible to use their pronunciation skills in the context of mandatory communication, boost their communicative skills in the target language.

Feedback Mechanisms: Feedback assists students obtaining a mirror for their pronunciation progress and adaptations where needed. A pronunciation app which gives instant feedback to users on the individual ability to pronounce correctly fluently and prosodically would enable such individuals to correct pronunciation errors immediately. As the this feedback can be of different forms, for instance, visualizations of pronunciation accuracy, audio files of comparison with samples of native speakers, or written feedback pointing out the areas that require attention. In addition, the pronunciation application which gives specific ways for improvement, for example, exhibited the drills or remedial educational materials that focus on problem areas, lead to a discovery for the learners to develop their speaking skills by themselves.

Interactivity and Engagement: Engagement and interactivity need to be at the core of the effective software, pronunciation apps. Students are more likely to practice pronunciation while having fun and being fully involved and deep into their listening and speaking skills. Pronunciation apps that are equipped with more interactive features including but not limited to games exercises, virtual partners to keep excessive speech and speech recognition technologies offer the learners with dynamic and interesting practice experiences. Besides, the apps that also include classic social learning components like peer feedback, community engagement, and collaborative endeavor together create a sense of community and acceptance among learners, this thus encourages them to actively engage in pronunciation practice and they may share their success with others.

Customization and Adaptability: The ways a person learns how to pronounce words can differ with this being represented by learning styles, preferences and needs of the individual individual. As far as the production applications are concerned, they are adaptable and adjust for the learners to suit themselves by customizing their session practice to accommodate their individual attributes. For example, it can provide personalized learning paths based on the proficiency level of the learners and their goals, adaptive algorithms for changing the difficulty level of exercises according to the performance of learners, or adjustable settings to control learners' pronunciation so they can proceed at the speed and level that is best for them. The pronunciation apps could support people in developing personalized and thus more effective learning experience for their various demands and aversions they can have.

Integration with Other Learning Resources: An efficient pronunciation app should be just one of the many tools that speakers of a foreign language use to learn a language. Apps that help develop knowledge in the classroom or are an extension of the course requirements aids students in developing their speaking skills outside done in the context of formal education. Additionally, apps that can be used by learners to practice pronunciation not only inside a language class, but also daily wherever they are, by using is apps, web-based platforms or anything else as long as it is mobile can be very useful in maintaining consistent practice routines and reinforce regular pronunciation practice. It is by combining all the activities of the language learning which enable foreign speakers to have accent training and the pronunciation regular practice that help learners to have a significant progress in their speaking.

Technological Reliability and Accessibility: The technological reliability and the way a pronunciation app is use influence what kind of learning results it produces. Pronouciation apps should to be easy to learn and grasped, and have as many possiblities of apparatus and software systems as possible. It enables users to receive an uninterrupted access to the speaking skill app regardless of the devices used in this context including smartphones, tablets and computers when they feel fit to practice pronunciation. Besides that, this will also focus on designing the apps in a way that will help people with disabilities or special needs to fully fit into the process and have access to good instruction.

Motivational Support and Incentives: The role of motivation in learners' pronunciation practice and their outcomes should not be underestimated. Additionally, pronunciation applications which promote the motivational support through the rewards can assist learners in staying motivated and not give up while learning spoken skills. For instance, the progress tracking, achievement badges, rewards, and different challenges can be established in order to increase user's motivation and provide them with a sense of pride and accomplishment, which leads them to set and achieve different pronunciation improvement goals. Besides, the apps that applaud individuals for their achievements have come up, for example congratulation messages sent bite-by-bite or virtual celebrations. This can reinforce positive learning behavior and instill a growth mindset with regard to the improvement of pronunciation.

## 5. Conclusion

Briefly, this research has been focused on the function of pronunciation apps in augmenting second language speakers' proficiency in speaking skills. Through the application of a mixed-methods method by merging quantitative analysis of app usage data, qualitative interviews, and pronunciation assessments, insightful information has been obtained regarding the effectiveness of pronunciation apps as learning tools.

This research shows that a pronunciation app could complement the traditional language teaching method. An analysis of app use habits demonstrated that there were different levels of engagement among students, which is on the one hand an argument in favor of personalized approaches to app inclusion in language curriculum. Furthermore, the correlations established between app usage and perceived improvement in the level of speaking skills will help to validate the effectiveness of pronunciation apps in having a positive influence on language learning outcomes. The in-depth interviews offered vivid narratives sharing the learners' experience and views on pronunciation apps' usage. Although many respondents pointed out the convenient and realistic features of these apps, such as lack of feedback mechanisms and difficulties of isolating only specific pronunciation features, were reported as well. These insights also point to the necessity of continued app development and instructional assistance to optimize the apps suitability for language learning environments. The speaking tests that were part of the study after a set duration of app use showed the obvious improvement of the proficiency in pronunciation. This draws attention to the practical advantages of including pronunciation apps as part of the language teaching process, especially in situations where they serve the purpose of focused and repetitive practice, which are the key elements of the pronunciation skill development.

Explicitly, this study joins the other papers that already talk about technology-based language learning by empirically demonstrating ace apps can help to improve the speaking skill of learners. The implications influence instructors, app industrialists, as well as language learners, suggesting that the perfect way of using an app to accelerate speaking proficiency will be informed by the research results.

Moving forward, the need for more broad based research to determine the core factors of the influence of pronunciation apps on learners, that is, the motivation for learners, the design features of the apps and the role of feedback mechanisms as the essential core factors, is placed at a forefront. By keeping on investigating and improving the apps of pronunciation in language education, we can in the end help many language learners, present a more fulfilled teaching, and inspire them to achieve greater language abilities.

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