

Investigating the Impact of Text-to-Speech (TTS) Tools on Improving Iraqi Fifth Primary EFL Pupils' Pronunciation and Listening Skills: A study in Babylon

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Abstract

This research focuses on the effect of Text-to-Speech (TTS) technology on improving listening comprehension and pronunciation skills of fifth-grade English as a Foreign Language (EFL) learners in Iraq. Many primary school EFL classrooms in Iraq face challenges in developing pupils' auditory skills due to the absence of native speakers and genuine audio materials. A total of forty fifth-grade pupils taught using TTS methods participated in a quasi-experimental single-group pre-test/post-test design for a specified duration. TTS technologies provided veritable, consistent, and readily accessible English audio enabling pupils to enhance self-paced comprehension and pronunciation practice. Results showed that pronunciation accuracy improved significantly, including the clear articulation of difficult consonants and more natural intonation patterns. An enhancement in the ability to recognize spoken words, understand directions, and respond to questions was observed in listening comprehension. Furthermore, during the lessons, pupils looked forward to the lessons with TTS and were more engaged. TTS technologies, therefore, offer a solution to the challenges of resource-poor Iraqi primary EFL classrooms.

Keywords: text-to-speech (TTS), motivation, pronunciation, fifth primary grade pupils, listening skills

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الملخص:

تتناول هذه الدراسة تأثير استخدام تقنية تحويل النص إلى كلام (TTS) في تعزيز مهارتي الاستماع والنطق لدى تلاميذ الصف الخامس ممن يدرسون اللغة الإنجليزية كلغة أجنبية في المدارس الابتدائية العراقية. غالبًا ما تواجه دروس اللغة الإنجليزية في العراق صعوبة في مساعدة التلاميذ على تحسين قدراتهم السمعية بسبب قلة الوصول إلى المتحدثين الأصليين للغة الإنجليزية ونقص الموارد الصوتية الحقيقية. شارك في الدراسة 40 تلميذًا من الصف الخامس تلقوا تعليمهم من خلال أنشطة مدعومة بتقنية TTS ، وذلك ضمن تصميم شبه تجريبي باستخدام اختبار قبلي وبعدي لمجموعة واحدة خلال فترة زمنية محددة. وقد وفرت تقنيات TTS مدخلات صوتية باللغة الإنجليزية واضحة وموثوقة وقابلة للتكرار، مما مكن المتعلمين من تحسين فهمهم السمعي وممارسة النطق الصحيح للكلمات بأنفسهم. وأظهرت النتائج تحسناً ملحوظاً في دقة النطق، حيث تم نطق الحروف الصامتة الصعبة بشكل أكثر وضوحاً وأصبحت أنماط التنغيم أكثر طبيعية. أظهرت القدرة على تمييز الكلمات المنطوقة، واتباع التعليمات المعطاة، والإجابة عن الأسئلة تحسناً في مهارة الفهم السمعي. بالإضافة إلى ذلك، أبدى التلاميذ خلال الدروس المدمجة بتقنية TTS حماسة وتفاعلاً أكبر. وتشير النتائج إلى أن تقنية TTS توفر بديلاً عملياً وميسور التكلفة وقابلاً للتوسيع لدروس اللغة الإنجليزية في المدارس الابتدائية العراقية ذات الموارد المحدودة. وقد تكون TTS أداة تعليمية مفيدة لدعم متعلمي اللغة في المراحل المبكرة، من خلال سد الفجوة بين محتوى الكتب الدراسية واللغة الإنجليزية المنطوقة في الواقع. ويوصى بإدراج برامج TTS المتاحة مجاًناً في المنهاج العراقي للمرحلة الابتدائية لتحسين مهارتي الاستماع والنطق، وبالتالي رفع الكفاءة اللغوية العامة.

الكلمات المفتاحية: تحويل النص إلى كلام (TTS) ، الدافعية، النطق، تلاميذ الصف الخامس الابتدائي، مهارات الاستماع.

1. Introduction

The primary schools in Iraq have started teaching English as a compulsory subject and they are making an effort to help the pupils develop their speaking and listening skills at a younger age. These skills serve as the building blocks for effective communication and overall language proficiency. However, mastering the skills of listening and efficient pronunciation poses an unending challenge for a number of Iraqi EFL students. The absence of authentic audio resources, the presence of large and overcrowded classes, and limited interaction with native English speakers are the primary reasons for these problems.

Pupils tend to depend almost exclusively on their teachers with regard to the spoken language input. Even though a good number of teachers are competent, their pronunciation may still be influenced by an area's accent or by not being taught the use of speech sounds, which leads to inconsistent or non-native models. Furthermore, the pupils' ability to enhance their auditory discrimination ability regarding the auditory stimuli is limited by the absence of resources to practice listening like audio recordings, films, or modern interactive software. In addition, pupils are less likely to encounter the natural speech patterns, intonation, and rhythm which are critical for mastering more advanced fluency and comprehension due to this lack of variety. Consequently, pupils often struggle with hearing words and instructions, and with producing speech that is natural and easy to understand.

2. Problem Statement

The difficulties with comprehension and pronunciation are particularly difficult for Iraqi fifth-grade pupils of English. These challenges are mainly due to the absence of consistent interaction with real spoken English and native speakers within their environment. In many Iraqi schools, the traditional teaching approaches focus more on reading, writing, and grammar than on speaking and listening. auditory pupils, are also deprived of the individual attention and interesting practice they require due to the absence of interactive audio tools and technology. As a result, pupils often experience multiple challenges with identifying and reproducing correct pronunciation, which adversely affects their overall communicative competence, self-confidence, and willingness to use English.

3. Purpose of the Study

The purpose of this research is to explore the impact of using accessible text-to-speech (TTS) and TTS based technology in English language learning among Iraqi fifth-grade Primary EFL pupils. Its primary purpose is to determine whether TTS technology can provide realistic, consistent auditory input that leads to pupils to improve capability to produce English words accurately and to understand what they hear. TTS helps complement conventional course material by offering individualized and interactive practice resources that effectively captivate pupils with auditory preferences, at the same time bridging existing gaps due to the shortage of native input and limited classroom resources. The study results could have significant implications for future

4. Research Questions

1. To what extent do fifth-grade EFL students' pronunciations improve while using TTS tools?
2. How do TTS tools impact EFL pupils' listening comprehension skills?

5. Significance of the Study

This study offers a useful, affordable way to improve English teaching in Iraqi schools by utilizing AI-based TTS platforms. If the approach works, it can be extensively used in schools with limited resources.

6. Literature Review

6.1. Pronunciation

The way that words and sounds are articulated and pronounced is known as pronunciation. It involves a language's proper intonation patterns, stress, rhythm, and individual sound (phoneme) production. Effective communication requires accurate pronunciation because it makes it easier for learners to comprehend others and be understood themselves. Tools such as TTS are useful for modeling correct pronunciation since pronunciation problems occur when learners' native language sound systems diverge from English's (Celce-Murcia, Brinton, & Goodwin, 2010).

6.2. Listening Comprehension

Listening comprehension refers to the ability to interpret and comprehend spoken words. It entails not just listening to sounds but also processing vocabulary, syntax, and meaning in real time. Strong listening abilities are essential for language development since they facilitate speaking, reading, and entire communication. In EFL schools, listening comprehension can be challenging owing to limited exposure to natural English speech, making TTS systems useful for delivering clear, accessible listening exercise. (Vandergrift, 2007; Rost, 2016).

6.3 Text-to-Speech (TTS) Technology

Text-to-Speech (TTS) is a type of assistive software that transforms written text into synthesized spoken language is called text-to-speech (TTS) technology. TTS is an acknowledged effective approach to developing the listening skills and enhancing the pronunciation of learners in language education, mainly in EFL teaching. TTS provides learners a approachable model for correct pronunciation by supplying clear and consistent audio input that can be used without teacher guidance or native speaker interaction (Handley, 2009; Al-Jarf, 2022).

One of the main benefits of TTS technology is its ability to normalize spoken language input. As output of TTS provides a consistent and reproducible auditory model, real speech can vary in accent, intonation, and pace. Such constancy allows learners, especially those at the elementary level who are repeating listening practice which is important for development of phonological awareness, accurate pronunciation, and listening comprehension to listen to the audio repeatedly (Alqahtani, 2021; Elgort et al., 2018). Besides that, most TTS systems have

features like playback repetition and word highlighting along with adjustable voice speeds that support reading fluency and auditory processing. (Navarrete et al., 2019).

The capacity of text-to-speech (TTS) technology to provide learners with fluent and coherent spoken input has resulted in its increased application in language teaching. As per studies, TTS can assist in the matter of pronunciation, reading as well as listening skills more significantly for young learners (Handley, 2009; Wang & Hsu, 2008). Liakin, Cardoso & Liakina (2015) state that it helps learners develop phonological awareness through frequent exposure to correct pronunciation. Imitation and listening play an important role in the acquisition of the second language at early primary school; TTS gives a clear repeating model which pupils can follow and internalize.

According to Al-Hasan (2020), TTS can be quite useful to reduce the difference in conditions such as Iraq when real resources or indigenous people's English speakers have very little access. Iraqi primary school teachers often lack digital resources and depend on oral teaching and printed textbooks, which cannot meet the auditory requirements of pupils.

Few studies have tested the practical application of TTS in Iraqi EFL instructions, in spite of its incredible capability. This study will fill that gap by means of investigating a classroom-friendly approach with freely available TTS resources.

6.4 Importance of TTS in EFL Classrooms

English as a foreign language (EFL) environment provides very little contact for native speakers or high-quality listening resources, especially in development areas such as Iraq. Teachers at Iraqi primary school often use teacher-centered education and printed textbooks, as noted by Al-Hasan (2020), without access to digital resources that facilitate hearing learning. The growth of pupils in basic domains such as pronunciation and listening can be hindered.

TTS offers a useful option for pupils who regularly listen to and imitate the correct English pronunciation. TTS provides constant, understandable information to pupils who help them internalize the sound patterns (Handler, 2009). Similar findings were made by Liakin, Cardoso, and Liakina (2015), who discovered that learners' phonological awareness and pronunciation accuracy increase with repeated exposure to TTS-supported materials. Imitation and listening are essential in classrooms with young learners. Wang and Hsu (2008) showed that TTS-integrated activities increased student engagement and improved EFL pupils' spoken language performance and reading fluency.

6.5. Theoretical Impact on TTS Application in EFL Learning

TTS use in language instruction is consistent with a number of well-established theories of language learning:

1. Krashen's Input Hypothesis (Krashen, 1982)

Krashen's Input Hypothesis highlights the significance of understandable input. By providing a consistent flow of spoken English that is just slightly above learners' present proficiency, TTS enhances language learning by repeated exposure. Through repeated listening, TTS technology gives students consistent, comprehensible, and clear spoken language input. This frequent exposure helps in the efficient processing of new words, sounds, and structures by learners.

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Because TTS voices preserve standard pronunciation and clarity, they provide an ideal input environment for learners to naturally acquire listening and pronunciation skills without pressure or stress.

2. **Vygotsky's Sociocultural Theory (1978)** .The scaffolding of proximal development supports the concept area. By behaving like a technical scaffolding, TTS enables students mimic and hear appropriate pronunciation without the need for immediate teacher help. Vygotsky emphasizes how important the resources for learning social interaction and mediation are for cognitive development. The TTS technology acts as an intermediate tool that scaffolding the development of the language by offering a "virtual supervisor" that shows accurate tones and accents. In addition, TTS allows learners to practice personal and collaborative, encouraging social learning through imitation and frequent hearing.
3. **Dual Coding Theory (Paivio, 1986)** Shows how presenting information improves learners both visually and auditorium. By combining spoken and written materials, TTS supports this approach and improves understanding and memory. This multimodal presentation increases understanding and storage by helping students create strong mental language models. Connecting the sounds with written words is made simultaneously from visual and listening stimulation, which is essential for the development of pronunciation and hearing skills.
4. **Behaviorist Theory (Skinner, 1957) and TTS Application** implies that imitation and repetition serve to foster language acquisition. By enabling students to hear and repeat target language structures, TTS tools support the formation of pronunciation habits. B.F. Skinner created behavioral principle, which emphasizes learning as a stimulus-response response process which shapes feedback and repetition and reinforces behaviors. In order to develop automaticity and flow in language acquisition, it is translated into frequent practice, imitation and reinforcing the correct forms.

7. Previous Related Studies

With an emphasis on speech quality, intelligibility, and its potential to support language acquisition, **Bione et al.** (2016) evaluated a modern English TTS system in an EFL setting in Brazil. With the quality of speech, understanding and ability to support language collection , fifteen Brazilian EFL students heard TTS and speech tests produced by humans. In order to collect information about the participants' opinion, a semi-structured interview was used. The results showed that the TTS system can be effective for language collection, the students provide benefits in terms of engagement and quality of speech.

A significant study by **Van Duong (2022)** investigated how on-line TTS equipment affected the pronunciation learning and perceptions of high school EFL students about the technology. The study found that students who used TTS technology had substantive enhancements in their pronunciation accuracy using of a combination of pre/post tests and qualitative interviews. The students reported that they are extremely confident and motivated after they practiced their English. The study highlights the importance of TTS in providing repeatable, easily accessible auditory information that is particularly useful for students who have difficulties with particular English sounds.

In a related studies, **Al-Jarf (2022)** tested how TTS software helped EFL first-year college students improve their pronunciation and interpreting skills. Over a period of twelve weeks, the study used the Natural Reader software to allow college students read and listen to sections from their textbooks. When compared to their counterparts within the control group, the outcomes confirmed that students who used the TTS software program drastically stepped forward their reading fluency, word recognition, and pronunciation. The use of TTS technology to improve speaking, analyzing, and listening skills concurrently in EFL contexts is supported by means of this study.

To improve students' speech skills, **Asratie et al. (2023)** examined the benefits of using educational speech technology resources such as TTS applications. Eighty first-year students who studied information communication and technology participated in a quasi-experimental design. The results showed that compared to the students who learnt using traditional means, those who obtained speaking skills through educational technology tools, leading to a significant improvement in flow, consistent, accuracy and pronunciation.

Eman Abdel-Rehem Amin (2024) examined the effectiveness of AI- powered Text-to-Speech (TTS) applications to improve the pronunciation skills of EFL students. The aspects of both segmental (individual sounds) and suprasegmental (intonation, stress) aspects were the focus of mixed-methods study, which included surveys and interviews. The results showed that the students clearly improved their pronunciation skills and had a positive attitude to use the AI-TTS system. The study reached the conclusion that TTS application is a useful tool for pronunciation teaching, especially when routine classroom activities are involved.

Finally, **Akmal et al. (2024)** investigated how the TTS-based e-learning module affected the listening skills of EFL Indonesian seventh grade students. A control group and an experimental group that uses the E-module equipped with TTS technology were divided by researchers using a quasi-experimental approach. According to the results, the experimental group performed much better at listening comprehension tests. The study illustrated the potential of TTS to help younger learners acquire the fundamentals of listening and showed how well it supports auditory learning.

TTS's use in Iraqi primary schools is still little understood, despite the fact that it has been well examined in a number of foreign EFL contexts. The majority of earlier research has been on secondary schools, older learners, or technologically sophisticated settings. Thus, by investigating how freely available TTS technologies might be utilized in Iraqi EFL fifth-grade classes to enhance pronunciation and listening comprehension, this study closes a significant gap. The objective is to provide a low-cost, teacher-friendly intervention that takes into account local classroom demands as well as theoretical insights.

8. Methodology

8.1 Research Design

Using a one-group model and a **pre- and post-test**, this study uses a **quasi-experimental approach** to evaluate how effectively **Text-to-Speech (TTS)** technologies improve pupils' listening comprehension and pronunciation. During the duration of a four-week study, TTS-based activities were included into Standard English instructions.

8.2 Participants

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The participants were 40 fifth-grade pupils (ages 10 to 11) from a public primary school in Babylon Governorate, Iraq. All pupils had learned English as part of their education, but they had little exposure to actual audio recordings. The class teacher (who was also the researcher) had received training in digital technologies.

8.3. Limits of the Study

This study is limited to:

1. Iraqi EFL 5th-grade primary pupils in Babylon Governorate
2. The academic year 2024/2025.

8.4 Tools and Materials

a. TTS Tools Used

1. Use **Google Translate TTS** (both offline and online) to play model phrases.
2. **Natural Readers (Free Version)** converts textbooks into intelligible spoken English.
3. Use **the teacher's smartphone and speakers** to project audio clearly within the classroom

b. Learning Materials

1. Dialogues, vocabulary lists, and brief descriptive texts were extracted straight from the 5th-grade English textbook to guarantee relevancy and curricular conformity. These materials provide authentic language input and context for learners to improve their listening and pronunciation skills.
2. Printed worksheets for a variety of activities, including matching exercises, fill-in-the-blank tasks, and focused pronunciation practice. These worksheets promote active learning by emphasizing vocabulary and sentence structures while also providing pupils with an organized opportunity to practice correct pronunciation.

c. Assessment Tools

- Pronunciation Rubric : The teacher-designed Pronunciation Rubric rates four criteria (clarity, emphasis, intonation, and fluency) from 1 to 4.
- Listening Comprehension Test : The Listening Comprehension Test includes 10 multiple-choice and matching items based on short audio recordings made with TTS technologies.
- Teacher Observation Checklist: Use the Teacher Observation Checklist to track pupil interest, involvement, and error correction.
- Pupils Refection Sheets: Use a basic form with smiley/frowny faces and yes/no questions to measure pupil reactions.

8.4 Procedure

Step 1: Pre-Test

On the first day, pupils were given a **listening comprehension test** and instructed to read a **short text aloud**. Their voices were captured on the teacher's phone for later pronunciation analysis.

Step 2: TTS-Based Instruction (Over 4 Weeks)

- **Three 40-minute lessons per week** integrated TTS tools.

Each lesson has the following structure:

1. **Warm-up with Vocabulary Pronunciation:** The teacher played TTS for target vocabulary, which pupils heard and repeated.
2. **Model Sentence Practice:** Sentences were entered into a TTS system and played for pupils to repeat.
3. **Interactive Activities:**
 - *Listen and Match:* Pupils listened and matched a text to an image.
 - *Echo Speaking:* pupils repeated TTS sentences in pairs.
 - *Dictation Challenge:* Pupils dictated short TTS paragraphs after listening
 - *Record and compare:* Pupils recorded themselves repeating TTS utterances for self-assessment.

Step 3: Post-Test

- At the end of the fourth week, pupils were given the same listening test and reading aloud task.
- Both pre- and post-recordings were scored using the same pronunciation rubric.

Step 4: Data Collection and Analysis

- **Quantitative data:** Pre- and post-test scores were analyzed using descriptive statistics (mean, improvement percentage).
- **Qualitative data:** Analyzing qualitative data from observation notes and pupil reflection sheets to identify patterns of involvement, motivation, and confidence.

9. Results

The aim of the study is to examine the effect of text-to-speech (TTS) technologies on the pronunciation and listening comprehension of EFL primary fifth grade pupils in Iraq. Pre and post test results, pronunciation recordings, observation checklist and pupils response sheets were all used to collect data.

9.1 Quantitative Results

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a. Pronunciation Scores

Clarity, word stress, intonation, and fluency have been all used to assess the pronunciation of pupils. The average scores before and after the TTS-based instruction are shown below:

Table 1: Pretest and Posttest Pronunciation Scores (Max = 4)

Criteria	Pre-Test Avg. (Max 4)	Post-Test Avg. (Max 4)	% Improvement
Clarity	2.1	3.2	52%
Word Stress	1.9	3.1	63%
Intonation	1.7	2.9	71%
Fluency	2.3	3.3	43%
Overall Average	2.0	3.1	55%

There was significant development in all the four categories, in particular intonation and word pressure, which might be normally difficult for EFL inexperienced pupils. This suggests that repeated and unambiguous input from TTS tools had a good effect on pupils' speech patterns. These findings display an enormous development in all speech standards, with substantially a high advance in intonation and word stress— two areas which can be frequently difficult for EFL pupils. The TTS tools' repeated, unambiguous input most likely led to this improvement.

b. Listening Comprehension Test

The pre- and post-tests had ten items. The average number of accurate responses grew significantly. The average number of accurate replies increased from 4.6 to 7.9, as indicated in Table 2.

Table2: Pretest and Posttest Listening Comprehension Results

Test	Average Score (out of 10)
Pre-Test	4.6
Post-Test	7.9
Improvement	+3.3 points

After utilizing TTS technologies on a regular base, pupils showed a significant improvement in their ability to interpret spoken English. Recognizing familiar vocabulary and phrase patterns showed common improvements.

c. Pronunciation and Listening Comprehension Analysis

Table 3 below shows that the mean pronunciation score increased from 62.5 (SD = 8.3) in the pretest to 78.9 (SD = 7.1) in the posttest, suggesting significant improvement. The difference was statistically significant, $t(39) = 9.42$, $p < 0.001$, and had a substantial effect size (Cohen's $d = 1.45$). This shows that pupils improved their ability to articulate sounds clearly, improve stress patterns, and create more natural intonation after participating in TTS-supported activities.

Similarly, listening comprehension scores increased considerably, with a pretest mean of 58.7 (SD = 10.2) increasing to 75.3 (SD = 9.5) at posttest, $t(39) = 8.65$, $p < 0.001$. The impact size was likewise substantial (Cohen's $d = 1.30$), indicating pupils were better able to comprehend spoken English, follow oral instructions, and respond properly to listening tasks.

Table3: Statistical Analysis of Pronunciation and Listening Scores

Skill	Pretest Mean (SD)	Posttest Mean (SD)	t-value	p-value	Effect Size (Cohen's d)
Pronunciation Score	62.5 (8.3)	78.9 (7.1)	9.42	<0.001	1.45
Listening Score	58.7 (10.2)	75.3 (9.5)	8.65	<0.001	1.30

These statistically significant results with substantial effect sizes demonstrate the considerable positive influence of the TTS-supported school program on the participants' auditory language skills. The results show that TTS technology may improve both pronunciation and listening comprehension in Iraqi primary EFL classes. Figures below show such improvement from pretest to posttest

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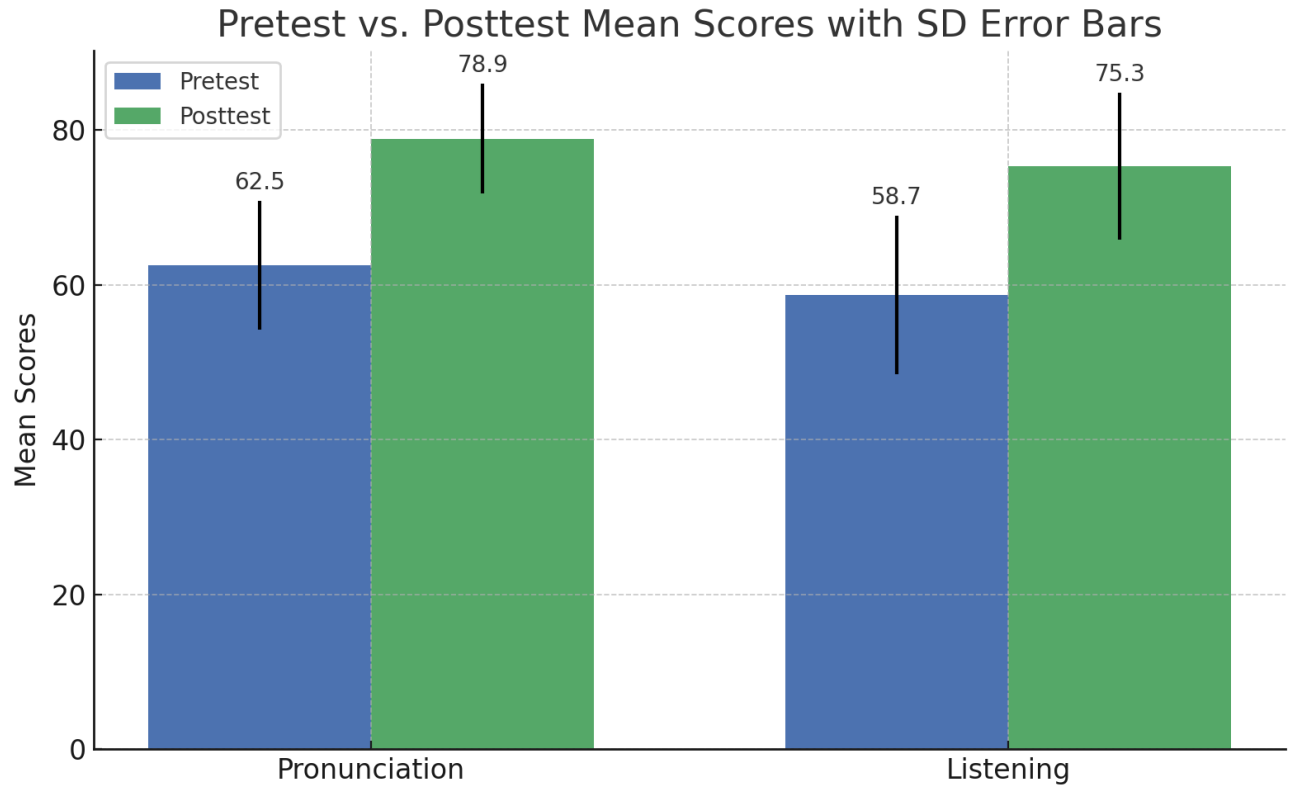


Figure 1: Pretest VS. Posttest Mean Scores withSD Error Bars

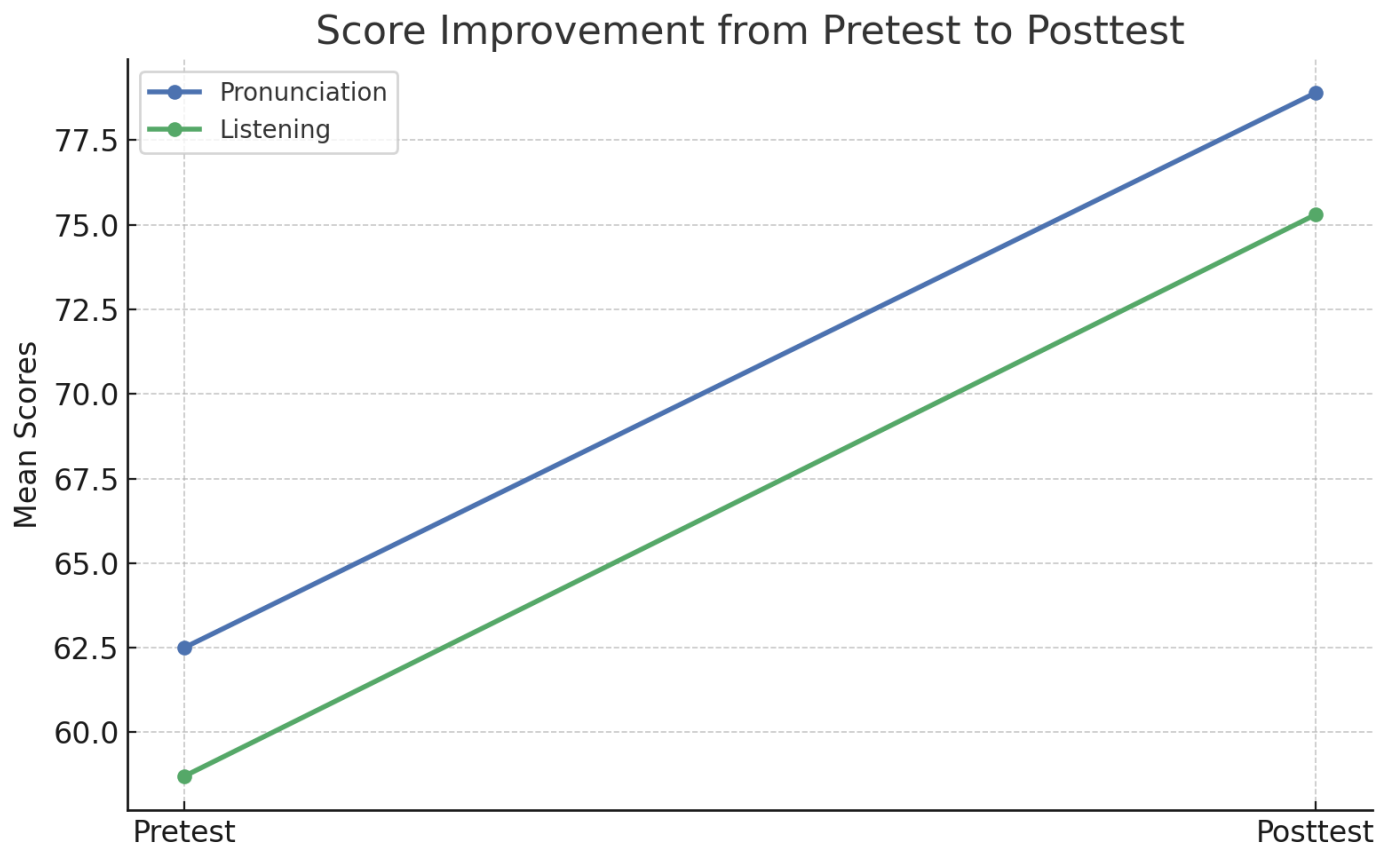


Figure 2: Score Improvement from Pretest to Posttest

9.2 Qualitative Results

a. Teacher Observations

- **Improved student engagement** by using TTS voices instead of just the teacher's voice.
- **Improved Pronunciation Awareness:** Pupils self-corrected after hearing TTS sentences.
- **Improved participation:** more pupils volunteered to read aloud and record their voices.

b. Student Feedback (Reflection Sheets)

- **92%** of pupils said they enjoyed listening to "robot voices."
- **84%** reported that TTS improved their ability to pronounce difficult words.
- Only **three** pupils experienced initial difficulty with fast language, which was resolved by reducing playback speed.

c. Sample Student Comments:

- "I like when the voice speaks. I can say like it."
- "It helps me to listen two or three times."
- "Now I say the word better."

10. Discussion

The objective of this study was to examine how Text-to-Speech (TTS) technologies can help fifth-grade EFL pupils improve their pronunciation and listening comprehension in an Iraqi public school context. This study's findings give persuasive evidence that the use of Text-to-Speech (TTS) technologies may dramatically improve pronunciation and listening comprehension among fifth-grade EFL pupils in Iraq. The findings are consistent with the theoretical underpinnings of **Krashen's input Hypothesis** (1982), **Vygotsky's Sociocultural Theory** (1978), and **Dual Coding Theory** (Paivio, 1986), which all highlight the need of accessible, multimodal, and scaffolded information for language learning.

10.1 Impact on Pronunciation

Quantitative results showed that the use of TTS improved pupils' clarity, stress, intonation, and fluency. This corresponds to the previous studies, for example by **Lykin et al. (2015)**, who found that TTS could be an effective to improve the pronunciation in the foreign languages environment. Consistently, repeated sound input provided unambiguous pronunciation models for pupils, while activities such as echo-speaking and self-recording promoted active production. The most important result of the study was the improvement of the pupils' pronunciation accuracy. TTS improved articulation of often mispronounced English sounds, including /θ/, /ð/, and /v/, which are not present in the Arabic phonological system. This improvement can be attributed to the TTS tools' repetitive and consistent pronunciation models.. Unlike human teachers, the TTS application can repeat words and expressions without fluctuation and fatigue, so that pupils can obtain accurate phonetic forms at their own speed. It validates the findings from Liain et al. (2015), who said TTS provides students with the phonetic information required to improve speech skills.

These improvements are significant especially in Iraq, where native English exposure is limited. The findings imply that even basic and accessible applications such as Google Translate TTS can be used to replace native speaker models in classes when audio CDs or language labs are not available.

10.2 Impact on Listening Comprehension

Pupils' listening scores improved dramatically after the test, suggesting that TTS also helped them discover and understand spoken English. This corresponds to the conclusions of Wang and Hsus (2008) that TTS technologies help students develop their listening skills through frequent exposure to natural phrase patterns. The pupils also showed a better understanding of phrase and vocabulary. The adjustable playback speed of the TTS tool allowed the teacher to adapt customizing the listening level to the learners' needs, which is a function that is rarely found in traditional listening tasks. In addition to pronunciation, pupils demonstrated significant

improvements in their ability to understand the English speech. The findings with post tests showed that pupils improved the ability to identify keywords, understand basic instructions and answer questions of verbal understanding. These conclusions give credibility to the principle that repeated contacts for sensible information from synthetic voices can improve learning treatment and language decoding skills (Handley, 2009; Wang and Hasu, 2008). The organized and controlled nature of TTS sound is believed to help strengthen focus and understanding, especially among young pupils who are easily distracted by incompatible or unintelligible speech.

10.3 Engagement and Motivation

Younger learners found the novelty of hearing English from a "computer voice" amusing and motivating, and teacher observations and student feedback confirmed that TTS lessons were more engaging than traditional ones. This engagement is essential in language learning, particularly at the primary level, where attention spans are limited.

11. Conclusion

This study investigated the use of Text-to-Speech (TTS) technologies to enhance pronunciation and listening skills among fifth-grade EFL pupils in Iraq. The results showed that TTS had a substantial and positive impact on both skill areas **where Pronunciation improved** by over 50% on average. Pupils exhibited substantial improvements in pronunciation accuracy, including clearer articulation of difficult sounds and improved stress and intonation patterns. Many pupils were able to accurately imitate the TTS models, supporting previous claims that frequent, understandable input promotes phonological awareness (Liakin, Cardoso, & Liakina, 2015).

Listening comprehension increased by more than three points out of ten. Pupils were more capable to recognize spoken words, follow brief phrases, and respond appropriately to oral stimuli. This progress is most likely due to consistent exposure to understandable and natural-sounding input provided by TTS, which supports Krashen's Input Hypothesis (1982). Furthermore, use of TTS technologies seems to boost pupil interest and involvement during listening tasks. Informal observations and reflection sheets indicated that learners found the voices interesting and valued the opportunity to listen and repeat at their own speed.

These findings are particularly significant in the Iraqi EFL context, where access to real spoken English and skilled native-speaking teachers is limited. The use of free and easily available TTS software provides a cost-effective and practical alternative for improving auditory input in under-resourced schools. TTS systems, which provide a repeatable and accurate model of English speech, can assist bridge the gap between textbook content and real-world language use.

Overall, this study demonstrates that TTS technologies are not only pedagogically successful, but also appropriate for early-stage pupils in primary school settings. Their incorporation into regular classroom practice can provide significant help for enhancing core language skills, especially in situations when other audio resources are limited or unavailable.

12. Recommendations

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أ.م.د. منى محمد عباس الخطيب

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- Encourage Iraqi teachers to use TTS tools in their English lessons on regularly.
 - Schools should offer basic digital infrastructure, such as speakers, cellphones, and tablets.
 - Training workshops for EFL teachers should be given on how to utilize TTS successfully .

13. References

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