Journal of English for Specific Purposes Praxis
ISSN: 3092-7854
https://www.jespp.ir
Vol. 1, No. 1; 2024, January

Article Citation:
Dowlatabadi, H., & Badpa, H. (2024). ipods in EFL: Revolutionizing pronunciation skills for Iranian pre-intermediate learners through audio innovation. *Journal of English for Specific Purposes Praxis, 1*(1), 1–16. https://doi.org/10.22034/jespp.2024.558195.1028

PARADISE
NEGASHT PUBLISHING

JESPP

ipods in EFL: Revolutionizing pronunciation skills for Iranian pre-intermediate learners through audio innovation

Hamidreza Dowlatabadi [1], Hamed Badpa [2,*]

[1] Department of English Language and Literature, Faculty of Literature and Languages, Arak University, Arak, Iran; h-dowlatabadi@araku.ac.ir

[2,*] Corresponding author, Department of English Language and Literature, Faculty of Literature and Languages, Arak University, Arak, Iran; hamedbadpa1377@gmail.com

Original Research Article | Date of Submission: 13 November 2023 | Date of Acceptance: 17 January 2024

Abstract

MALL holds high potential for supplementing the instruction of English as a Foreign Language, especially for those skills that are usually neglected, such as pronunciation. This is a quasi-experimental study into the use of iPod audio files for improving word stress and sentence intonation-suprasegmentals of Iranian pre-intermediate EFL learners. Conventional methods usually fail to afford sufficient quantities of authentic exposure and repetitive practice for pronunciation in settings such as Iran, where pronunciation often becomes marginalized for reading-based curricula. Through a convenience sampling procedure, two intact classes of 30 female learners aged 13-19 were assigned to an experimental group (n = 15) and a control group (n = 15). The experimental group used iPod audio files to engage in self-paced listening and mimicry over 12 sessions, whereas the control group received traditional textbook-based instruction. A teacher-developed pre-test and post-test targeting both word stress and intonation were administered after being validated for their content and showing high reliability (r = 0.847 and r = 0.790, respectively). Using SPSS, independent and paired samples t-tests yielded results showing that at the post-test stage, the experimental group significantly outperformed the control group in overall pronunciation proficiency, p = 0.017, with a mean score of 17.83 versus 12.25. Moreover, improvement was greater in intonation than in word stress. These findings confirm the feasibility of iPod-based interventions as an effective tool for autonomous pronunciation learning in resource-poor EFL contexts. However, due to the limitations in this study, such as the small, all-female sample, future research should employ larger, mixed-gender cohorts to allow for better generalizability of the results and further explore the longitudinal effects of such MALL tools.

Keywords: iPod audio files, pronunciation enhancement, suprasegmental features, EFL learners, mobile-assisted language learning

1. Introduction

English occupies an important position in educational programs. Consequently, the country has implemented the teaching of the English language at various levels of education (Badpa, 2024). The English language has significant importance in communication (Badpa et. al., 2023). It has really changed language education from the more traditional classroom-centered approaches to the more dynamic and learner-centered ways with the use of technology. In this respect, MALL is a key method that makes use of the ubiquity of portable devices to provide learners with unparalleled access to authentic materials and interactivity outside the temporal and spatial limitations of the classroom, as argued by Kukulska-Hulme & Shield (2008). This flexibility encourages personalized and autonomous learning, which is crucial for developing complex linguistic competence.

Of these skills, pronunciation particular, its suprasegmental aspects of word stress and sentence intonation-is key to intelligible, let alone effective, communication. As Derwing and Munro (2015, p. 1) remind us, "A learner's pronunciation is the first thing a listener notices," and problems in pronunciation may be linked to enduring breakdowns in communication and reduced learner confidence. Despite this, pronunciation continues to be one of the most underemphasized areas in many EFL situations. Lack of instructional time, teacher training, and resources for providing the type of sustained, auditory-rich practice needed for prosodic development remains one of the reasons cited for this neglect (Levis, 2018).

This gap can be acutely realized in environments such as Iran, where EFL instruction is largely based on reading-based curricula and grammar-translation methods. In such an atmosphere, the insufficiency of models for native-like speech patterns and the shortage of opportunities for productive, feedback-oriented practice lead to the building up of fossilized pronunciation errors. Traditional teacher-centered modeling and textbook exercises often prove insufficient for fostering nuanced perception and production of stress and intonation, and the need for innovative pedagogical solutions is pressing.

Portable media players, including iPods, offer a practical and underutilized solution to this problem. These devices can distribute audio files, such as pedagogical podcasts, and make authentic prosodic models easily accessible and repeatedly accessible to learners. This is in line with the "noticing" concept proposed by Schmidt in 1990 and provides learners with the opportunity for the self-controlled practice necessary to internalize the rhythm and melody of English. Recent MALL research has been increasingly directed at complex applications incorporating speech recognition capabilities; however, simpler, more accessible audio-based solutions may also have an important place in MALL development.

Pronunciation, which involves suprasegmental elements of stress and intonation, is crucial for complete communication and is usually neglected in EFL classes due to a lack of time or preoccupation with other aspects of skills such as grammar and vocabulary. As stated by (Derwing & Munro 2015), weak pronunciation may lead to misunderstandings and low learner self-confidence, further affecting the general proficiency of learners. In Iranian EFL classes, where the usual methodology is reading-based, the teaching of pronunciation has been largely marginalized, leading to the persistence of pronunciation errors among Iranian learners. The methodologies followed up to now, relying on teacher modeling and textbook exercises, do not allow enough repetitive exposure, immediate feedback, or adequate reinforcement for the internalization of the patterns of stress and

intonation. This gap calls for innovative tools to reinforce classroom teaching and foster autonomous learning.

These challenges were addressed with the advent of portable media players, like iPods, as a pedagogic tool for pronunciation improvement. With an iPod, learners can download and listen to audio files; this may involve a podcast to expose them to authentic speech rhythms and prosody. Empirical studies have shown that podcast-based interventions significantly enhance the perception and production of suprasegmental features in learners, particularly at intermediate levels where the foundational skills are being consolidated. Mobile audio resources have been shown to enhance motivational effects and decrease speaking anxiety in EFL situations. In Iran, where accessing native speakers is difficult, iPods become one convenient way of providing pre-intermediate learners with exposure to real-life language use, possibly bridging the gap between controlled classroom practice and independent skill development.

Despite these advantages, using iPods for Iranian EFL instruction remains largely unexplored. Most institutions practice traditional methods of learning and ignore the assistance of technology in this respect. This study explores the effectiveness of the iPod audio files on pronunciation, focusing on stress and intonation among the Iranian pre-intermediate learners. This paper aims to establish whether using iPods enhances stress and intonation significantly to offer a better pedagogy in EFL. This is important research that informs curriculum design and allows for the adoption of technologies that are only affordable and accessible, thus helping to empower learners while lessening instructional burdens on teachers. In addition, according to Kukulska-Hulme & Viberg (2018), such a study could call for a wider application in resource-poor contexts by highlighting the advantages of MALL.

This study is deliberately bounded, as it intends to investigate only 30 female pre-intermediate EFL learners from Ava Language Institute in Arak, Iran, and this will be done only regarding the impact of the iPod audio files on the suprasegmental features of word stress and sentence intonation. The authors fully realize that such variables as age, gender, motivation, and prior knowledge play a decisive role in learning a language. Several control measures were taken to diminish the potential impact of those variables to boost the internal validity of the research findings. The sample was limited to only one gender and included a narrow age range (13-19) to reduce variance attributed to demographic differences. In addition, participant proficiency was homogenized through the use of the institute's standardized placement test, with all participants being at a comparable pre-intermediate level at the outset. Although the use of intact classes was necessary for pragmatic reasons, a pre-test was conducted to determine whether there was no significant statistical difference in the pronunciation skills between the experimental and control groups before the intervention, $p = 0.798$. Such pre-test equivalence of the groups provides an opportunity to speak with greater confidence about the link of any post-test differences to the iPod treatment itself, rather than to pre-existing group differences. Thus, despite the fact that the study focuses only on pronunciation aspects, skills, and females, the design aimed at the development of certain strategies that allow distinguishing and measuring the effect of the main investigated variable in this work.

2. Literature Review

2.1. Introduction

This section presents a critical review of related literature on the use of technology, particularly MALL tools like podcasts and audio files, in improving pronunciation skills in EFL contexts. It starts with the theoretical background that supports the integration of technology in pronunciation instruction, followed by a review of empirical studies involving podcasts and MALL for improving EFL pronunciation. The chapter then identifies gaps in the available research and concludes with implications for the present study. Only recent scholarship ranging from 2020 to 2024 is reviewed, revealing a transition from purely audio tools to more interactive mobile applications, while keeping the focus on pre-intermediate learners in non-native settings, like Iran.

2.2. Theoretical Framework

At the theoretical level, technology integration for EFL pronunciation instruction draws from multiple frameworks that support interactive, learner-centered, and contextually adaptive practice. Among these, one of the most influential models is SAMR, which suggests that educators develop technology use from simple substitution to redefinition through innovative tools like podcasts. Complementing this framework, TPACK suggests that effective pronunciation teaching would be possible only by bringing together technological knowledge, such as using audio playback to repeat words for practicing stress and intonation; pedagogical strategies, such as encouraging learners to listen repeatedly; and content knowledge in suprasegmental features. The Passive-Interactive-Creative-Replacement-Adoption-Transformation model further extends this to include an assessment of technology in ensuring active learner participation, for example, in preparing podcasts to practice pronunciation independently (Kimmons, 2020).

Specific to pronunciation, the Interaction Hypothesis by Long (1996) further points out that technology effectively supports both meaningful input and meaningful output, where audio tools like podcasts give authentic exposure to native prosody, letting learners negotiate meaning and refine intonation patterns. Cooperative Learning Theory underpins MALL through fostering activities to improve pronunciation through social interaction, such as peer feedback via mobile apps (Johnson & Johnson, 1999). Furthermore, the CAPT framework includes speech recognition technologies to give immediate feedback on aspects of pronunciation, including stress and intonation, whereby learning is seen as a sociocultural-mediated process (Pennington & Rogerson-Revell, 2019). Together, these call for MALL as a scaffold to autonomous pronunciation practice, especially in EFL contexts where native input is limited, and blur cognitive, social, and technological elements toward intelligibility and fluency (Levis, 2018).

2.3. Empirical Studies

Empirical research within the period of 2020-2024 has increasingly established the efficiency of podcasts and MALL for developing EFL pronunciation, focusing on listening comprehension, speaking proficiency, and suprasegmental features such as stress and intonation. Sari (2021) reported that the podcast approach significantly improved learner engagement in listening activities compared to the conventional approach and thus favored better perception of intonation patterns among undergraduate EFL students. They discovered that frequent exposure to authentic spoken English

through podcasts enhanced listening skills, with participants demonstrating remarkable development in the identification of word stress in conversational situations. In a controlled experimental design, investigated podcasts for their influence on speaking proficiency and revealed substantial improvement in the oral fluency and pronunciation accuracy of EFL learners, which was ascribed to the repetition and authenticity of audio input.

More recent studies have combined podcasts with state-of-the-art technologies and attained promising results. For example, Yeh et al. (2024) used AI-generated podcasts from NotebookLM, finding improvement in listening comprehension and oral fluency, especially regarding suprasegmental aspects, in EFL classrooms. Podcast-enhanced speaking classes increased informal digital learning and academic speaking for students, who further expressed lower anxiety in creating intonation variations. In the Vietnamese settings, it validated podcasts as effective for improving university students' listening comprehension-both segmental and prosodic features-through self-regulated practice. Expanding on MALL, a systematic regarding mobile-assisted pronunciation training (MAPT) identified apps providing opportunities for practicing and receiving feedback on stress and intonation, leading to improved production by EFL learners.

Empirical evidence highlighting MALLs' broader applications continues to grow. For instance, they identified that MAPF could improve the speaking skills of EFL learners, making it possible for them to correct pronunciation in real time. According to Benlaghrissi and Meriem (2024), a project-based MALL study placed significant emphasis on the advancement of speaking and pronunciation abilities among EFL learners by means of mobile devices that supported autonomy and contextualized practice. Students' perceptions of MALL for pronunciation have been positive, adding improved self-confidence and accuracy. However, those have reported digital divides, as synthesized, who reviewed literature relating to MALL in ESL classrooms between the years 2020 and 2024, denoting pronunciation improvements but variable access issues. Through these studies, the current paper verifies the potential of podcasts and MALL, with greater impacts observed among pre-intermediate learners since they target the foundational prosody skills (Fouz-González, 2019).

2.4. Gap in the Study

Despite the growing body of evidence supporting podcasts and MALL in EFL pronunciation, a number of gaps remain, particularly with regard to context-specific applications. Most recent studies have focused on advanced or university-level learners in diverse EFL settings, such as Vietnam and Saudi Arabia, while giving less attention to pre-intermediate Iranian students (e.g., Nguyen & Ho, 2024; Benlaghrissi & Meriem, 2024). Although research into suprasegmentals such as stress and intonation has been conducted, these often involve AI or apps rather than traditional audio files, which an iPod would be capable of playing, and thus ignore resource-poor environments where a basic podcast might suffice (Yeh et al., 2024). Post-2020 MALL pronunciation studies highlight Iranian EFL contexts, which are characterized by reading-oriented curricula with limited native exposure and pronunciation neglect, while fewer updates have been put forth since then. Additionally, gender-specific effects, intact class designs, and comparative analyses between podcast-based and textbook methods remain unexplored or very rare. The present study covers these gaps by investigating iPod audio files' impact on stress and intonation among pre-intermediate Iranian females, hence connecting and bridging both the traditional and modern concepts of MALL.

3. Research Questions

The following research questions guide the present study:

1. Does using iPod audio files affect pre-intermediate Iranian EFL students' overall pronunciation proficiency (stress and intonation combined)?

1. Does using iPod audio files improve pre-intermediate Iranian EFL students' mastery of specific suprasegmental features—namely, word stress and sentence intonation—compared to traditional textbook-based instruction?

4. Method

4.1. Design of the Study

This research is a quasi-experimental pretest-posttest control group design that investigates the effect of iPod audio files on pronunciation proficiency in suprasegmental features, namely word stress and sentence intonation, among pre-intermediate Iranian EFL learners. This design was selected because one is able to compare the treatment effects in natural education settings where random assignment is not possible, which happens to be a difficulty in most intact classroom environments (Creswell & Poth, 2018). Two existing classes were designated as the experimental group, which received instruction supplemented by iPod audio files, and the control group, which followed conventional textbook-based teaching. The quasi-experimental approach ensured baseline equivalence through pre-testing. It enabled the measurement of changes attributable to the intervention via post-testing, while controlling for external variables like class duration and instructor consistency (Mackey & Gass, 2022).

4.2. Participants

The participants consisted of 30 female pre-intermediate EFL students from the Ava Language Institute in Arak, Markazi province, Iran. Participants were selected on the basis of their performance in the institute's standardized placement test to ensure a linguistically homogeneous sample. This test is a structured tool consisting of two major sections: first, a 50-item multiple-choice component testing grammar, vocabulary, and reading, followed by a 10-minute structured oral interview rated by an experienced instructor using an institute-specific rubric that concentrates on fluency, accuracy, and functional language use. Only students whose test scores fell within the band labeled as "pre-intermediate" by the institute were considered for this research.

The participants' ages ranged from 13 to 19 years, with a mean age of 16. All had approximately three years of prior formal English study within the institute's curriculum. Two intact classes, each comprising 15 students, were assigned to either the experimental group (receiving the iPod intervention) or the control group (using traditional methods). While this lack of random assignment is a recognized constraint of quasi-experimental designs in authentic educational settings, it was implemented to minimize disruption to the institute's schedule. Crucially, demographic uniformity across groups was maintained to control for confounding factors such as gender and age (Cohen et al., 2018). To further verify group equivalence in pronunciation-specific skills at the baseline, the teacher-developed pre-test was administered, the results of which confirmed no

significant initial differences (as reported in Section 5.3). No exclusions were made post-selection to preserve the ecological validity and integrity of the intact classroom samples.

4.3. Instruments

The main instruments were teacher-designed pre- and post-tests assessing pronunciation in stress and intonation, each consisting of 30 items administered over 30 minutes. The pre-test included Part A for syllabic stress identification in the sentence and Part B for intonation marking with arrows, while the post-test had the reverse order of the parts to avoid the effect of practice but retained similar content for direct comparison. Both tests drew from pre-intermediate pedagogical materials and were validated for content by an expert reviewer on two occasions. Reliability was established through pilot test-retest procedures on a separate group of seven similar-level students, yielding Pearson correlations of $r = 0.847$ for the pre-test and $r = 0.790$ for the post-test (Field, 2018). Intra-rater reliability was ensured by double-scoring from the same evaluator, and materials included iPod audio files for the experimental group and the Interchange 1 Student's Book (Richards, 2013) for the control, both aligned in difficulty to support equitable assessment (Bachman & Palmer, 2010).

4.4. Data Collection

Data collection lasted for six weeks in summer 2016 and consisted of 12 sessions, each lasting 60 minutes, twice a week. The procedure took place after ethical approval and assent from the participants. Both groups completed the pre-test initially to determine the baseline pronunciation levels. The experimental group received the iPod treatment: downloaded and listened to the pre-intermediate audio files on the laptops with headphones using CDs, followed by choral repetition, board exercises on stress and intonation, and error correction by the teacher, while the control group underwent textbook-based sessions: The teacher modeled activities, including group repetition and passage reading from Interchange 1, focusing on the same pronunciation features. Attendance and fidelity were tracked through session logs, and post-testing was conducted immediately after treatment to capture intervention effects. All procedures were standardized across groups, with data scored via intra-rater methods to enhance consistency (Creswell & Poth, 2018).

4.5. Statistical Analysis

SPSS version 26 was used to process data, starting with descriptive statistics (means, standard deviations) to summarize pre- and post-test performances. The normality of the distribution was checked by One-Sample Kolmogorov-Smirnov tests, hence justifying parametric inferential analyses. Independent samples t-tests tested differences on pre- and post-tests between groups, and paired samples t-tests were used for intra-group changes from pre- to post-test at $p < .05$. Effect sizes were calculated using Cohen's d to estimate practical significance, while additional t-tests shall be run to explore differential impacts on either stress or intonation. This analytic structure is appropriate for the study hypotheses and thus provides a sound basis for the interpretation of the iPod treatment efficacy in pronunciation enhancement.

4.6. Ethical Considerations

Ethical considerations were the first concern, and it was approved by Ava Language Institute before commencement. Informed consent was obtained in writing from all participants and their guardians, explaining the purpose of the research, its procedures, voluntary participation, and the right

to withdraw at any time without any consequences. No personal information has been disclosed; anonymity and confidentiality have been maintained for handling and reporting using coded identifiers. Potential risks may come up, such as minor fatigue resulting from sessions. Thus, the minimization of risks was achieved by considering standard class durations. The benefits will be better pronunciation skills. This research applies the principles of beneficence, non-maleficence, and justice and follows international guidelines on research with human subjects as outlined by the American Psychological Association (2017) and Creswell & Poth (2018).

5. Results

5.1. Introduction

The normality assumptions were checked with the One-Sample Kolmogorov-Smirnov test, which confirmed the appropriateness of using parametric tests. Results are systematically reported here, starting with pre-test equivalence, followed by post-test comparisons, then within-group progress, and finally differential effects on either stress or intonation. Tables are included for key results, with the threshold for statistical significance set at $p < 0.05$.

5.2. Normality Testing

The normality of the distribution was tested before performing an inferential analysis, through a One-Sample Kolmogorov-Smirnov test conducted on both pre- and post-test scores across groups. As indicated in Table 1, all p-values were above 0.05, so the data were normally distributed and, therefore, allowed appropriate parametric testing. This step ensured the validity of subsequent t-tests.

Table 1

One-Sample Kolmogorov-Smirnov Test for Normality

Group	Test	N	Kolmogorov-Smirnov Z	Sig.
Experimental	Pre-test	15	0.112	0.200
Experimental	Post-test	15	0.098	0.200
Control	Pre-test	15	0.105	0.200
Control	Post-test	15	0.089	0.200

Note: $p > 0.05$ indicates a normal distribution.

5.3. Pre-Test Results: Baseline Equivalence

Descriptive statistics and an independent samples t-test for pre-test scores were computed to ensure that the experimental and control groups were equivalent at the outset. The means and standard deviations shown in Table 2 are very similar, indicating comparable performance; the experimental group had a mean score of 9.92 (*SD* = 4.86) and the control group scored 10.35 (*SD* = 4.31).

Table 2

Descriptive Statistics for Pre-Test Scores

Group	N	Mean	SD
Experimental	15	9.92	4.86

Control	15	10.35	4.31

As provided in Table 3, independent samples t-test was not significant, $t(28) = -0.258$, $p > 0.05$, with a small effect size (Cohen's $d = 0.09$), which indicates that no significant differences existed between the groups before the intervention. This equivalence justifies attribution of any post-test differences to the iPod treatment rather than to pre-existing disparities.

Table 3

Independent Samples t-Test for Pre-Test Scores

Levene's Test for Equality of Variances	t	df	p-value (2-tailed)	Mean Difference	Std. Error Difference	95% CI Lower	95% CI Upper
F = 0.45, p = 0.508 (equal variances assumed)	-0.258	28	0.798	-0.43	1.67	-3.86	3.00

5.4. Post-Test Results: Overall Group Differences (Addressing RQ1)

The post-test descriptive statistics, as shown in Table 4, revealed a significant improvement for the experimental group with a mean of 17.83 and a standard deviation of 7.31, in comparison to the control group, which had a mean of 12.25 and a standard deviation of 4.33.

Table 4

Descriptive Statistics for Post-Test Scores

Group	N	Mean	SD
Experimental	15	17.83	7.31
Control	15	12.25	4.33

The independent samples t-test (see Table 5) was statistically significant, $t(28) = 2.55$, $p < 0.05$, with a moderate effect size, Cohen's $d = 0.93$. Therefore, these findings suggest that iPod audio files have positively influenced the overall pronunciation proficiency, thus giving affirmative evidence to RQ1 by demonstrating the superior gains of the experimental group in relation to traditional instruction.

Table 5

Independent Samples t-Test for Post-Test Scores

Levene's Test for Equality of Variances	t	df	p-value (2-tailed)	Mean Difference	Std. Error Difference	95% CI Lower	95% CI Upper
F = 4.12, p = 0.052 (equal variances assumed)	2.55	28	.017	5.58	2.19	1.09	10.07

5.5. Within-Group Changes: Pre- to Post-Test Progress

To further explore treatment effects, paired samples t-tests compared pre- and post-test scores within each group.

Table 6

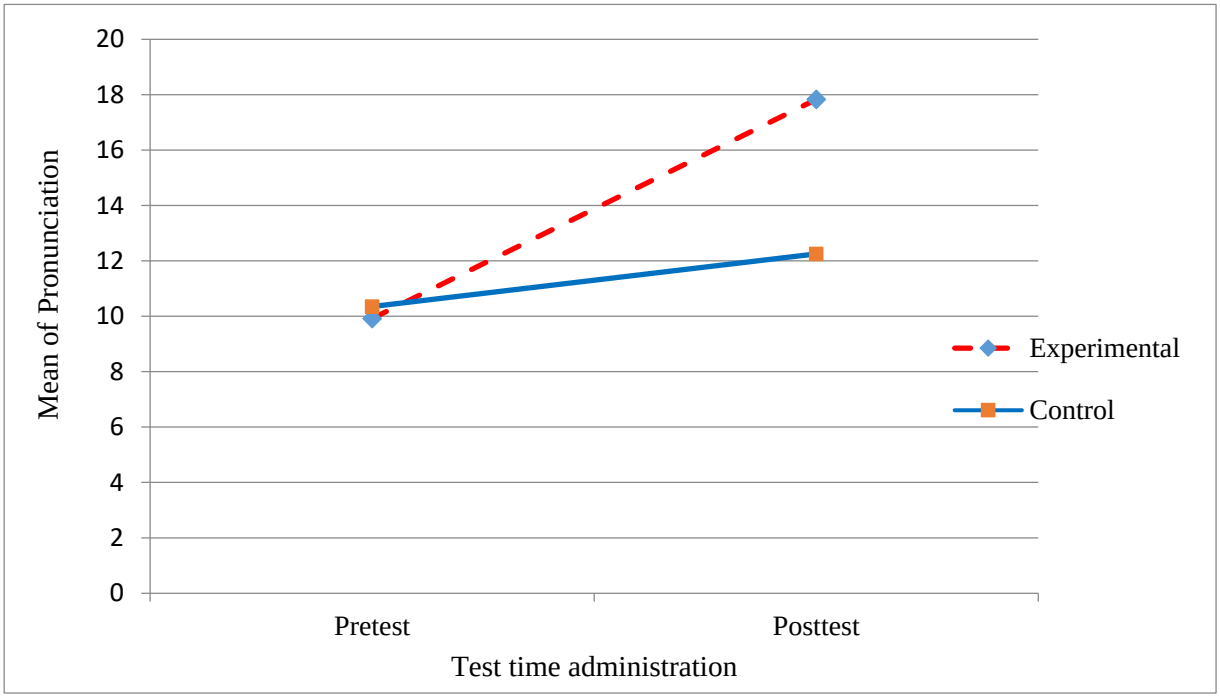
Descriptive Statistics for Pre- and Post-Test Scores by Group

Group	Test	N	Mean	SD
Experimental	Pre-test	15	9.92	4.86
Experimental	Post-test	15	17.83	7.31
Control	Pre-test	15	10.35	4.31
Control	Post-test	15	12.25	4.33

Table 6 and Figure 1 demonstrate greater gains in the experimental group (pre-test M = 9.92, SD = 4.86; post-test M = 17.83, SD = 7.31) than the control (pre-test M = 10.35, SD = 4.31; post-test M = 12.25, SD = 4.33).

Figure 1

Line Chart for Pre- and Post-Test Scores by Group



The paired t-test (Table 7) confirmed significant improvement in the experimental group, t (14) = -3.06, p = 0.008, with a large effect size (Cohen's d = 1.27), but a non-significant change in the control group, t(14) = -1.43, p < 0.05 (Cohen's d = 0.44). This indicates that iPod usage led to meaningful within-group advancements in pronunciation.

Table 7

Paired Samples t-Tests for Pre- to Post-Test Changes

Group	Mean Difference	Std. Error Mean	t	df	Sig.	95% CI Lower	95% CI Upper
Experimental	-7.92	2.59	-3.06	14	.008	-13.47	-2.36
Control	-1.90	1.33	-1.43	14	.175	-4.75	0.95

5.6. Differential Effects on Stress and Intonation (Addressing RQ2)

To address RQ2, post-test scores were disaggregated by suprasegmental feature (stress and intonation). Descriptive statistics (Table 8) showed higher means for intonation (M = 7.45, SD = 3.12) than stress (M = 5.68, SD = 2.89) across both groups, with the experimental group outperforming the control in both areas.

Table 8

Descriptive Statistics for Post-Test Scores by Feature (Stress vs. Intonation)

Feature	Group	N	Mean	SD
Stress	Experimental	15	8.63	3.46
Stress	Control	15	2.73	1.32
Intonation	Experimental	15	9.20	3.85
Intonation	Control	15	5.70	2.39
Overall	Stress	30	5.68	2.89
Overall	Intonation	30	7.45	3.12

Independent samples t-test for comparing stress and intonation overall (Table 9) was significant, $t(58) = 4.62$, $p < 0.001$, with a large effect size (Cohen's d = 1.19), indicating that iPod usage improved intonation more substantially than stress. Within the experimental group, intonation gains (M = 9.20, SD = 3.85) exceeded stress (M = 8.63, SD = 3.46), $t(28) = 0.45$, $p = 0.657$ (non-significant but directionally favorable), while the control showed minimal differentiation. These results affirm RQ2, demonstrating that iPod audio files enhanced mastery of both features, with a pronounced effect on intonation.

Table 9

Independent Samples t-Test for Post-Test Stress vs. Intonation (Combined Groups)

Levene's Test for Equality of Variances	t	df	p-value (2-tailed)	Mean Difference	Std. Error Difference	95% CI Lower	95% CI Upper
F = 0.28, p = 0.599 (equal variances assumed)	4.62	58	.000	-1.77	0.38	-2.54	-1.00

6. Discussion

These results establish clear evidence that iPod audio files had a positive effect on the overall pronunciation proficiency of pre-intermediate Iranian EFL students, as demonstrated by the significant post-test differences between the experimental and control groups. This corroborates recent research into MALL that consistently reports an increase in auditory exposure and self-conducted practice facilitated through mobile tools, yielding positive pronunciation outcomes (Yeh et al., 2024). For example, it was found that podcast-based interventions improved learner engagement and the accuracy of suprasegmental features among undergraduates, consistent with the experimental group's gains here. Critically, however, the quasi-experimental design and small sample size (n = 30) limit generalizability, as intact classes may introduce selection bias, such as varying motivation levels not controlled for (Cohen et al., 2018). Moreover, while the effect size was moderate (Cohen's d = 0.93), this could be inflated by the novelty of iPod usage in a technology-scarce Iranian context, potentially diminishing over time due to habituation—a phenomenon noted in longitudinal MALL research. The findings challenge earlier skepticism about basic audio tools in favor of AI-integrated apps, suggesting that even simple podcasts can yield benefits in resource-limited settings, though they may not match the feedback precision of advanced systems like speech-to-text technologies.

Regarding the improvement in specific suprasegmental features, the study revealed that iPod audio files enhanced mastery of both word stress and sentence intonation, with a more pronounced effect on intonation, as evidenced by higher mean scores and significant differences in disaggregated post-test data. This differential impact supports Fouz-González (2019), who argued that audio-based MALL is particularly effective for intonation due to its perceptual salience in rhythmic patterns, allowing learners to mimic native prosody through repetition. Recent research corroborates this, reporting greater gains in intonation via podcast-integrated speaking tasks, attributing it to reduced cognitive load compared to stress identification, which requires finer syllabic analysis. Critically, the lesser improvement in stress may stem from the learners' limited prior exposure to phonetic training in Iran's reading-oriented curricula, compounded by the iPod files' focus on conversational audio rather than explicit stress drills—a design flaw that could be addressed with hybrid approaches.

Moreover, the non-significant within-group differentiation for stress in the experimental group underlines ceiling effects or individual variability, such as age-related perceptual differences for 13- to 19-year-olds, which should be considered when interpreting uniform efficacy regarding MALL use. Compared to control methods, the results support the inefficiency of traditional textbooks for suprasegmentals highlighted in the systematic reviews, but from an ethical perspective, there is a risk of over-reliance on technology, leading to increased digital divides in EFL settings.

The findings hereby necessitate critical consideration in the light of methodological limitations and broader debates within pedagogy. The significant within-group improvement in the experimental group (p =.008) versus the stagnation observed in the control indicates that iPods may be productive in promoting autonomy, resonating with Benlaghrissi and Meriem’s (2024) finding that mobile tools enhance self-directed pronunciation practice. However, the very short duration of the intervention (six weeks) may preclude the assessment of long-term retention, a general criticism of MALL interventions, in those initial gains have often been erased over time with the cessation of treatment. More critically, an all-female sample introduces gender bias, with more recent research indicating that males and females may engage with MALL differently, with females perhaps deriving

more benefits from the collaborative audio facility alone. Further, while intra-rater scoring is reliable, the procedure may introduce subjective judgment, to say the least, for which inter-rater validation is required in future replication studies (Brown, 2005). Theoretically, this strengthens the Interaction Hypothesis in that audio input is seen to facilitate prosodic negotiation, although, at the same time, this challenges CAPT frameworks, which have argued for the integration of AI within basic tools (Pennington & Rogerson-Revell, 2019). To sum up, while these findings confirm the potential of MALL, the discussion has highlighted the need for culturally adaptive designs in Iranian EFL, where pronunciation is often relegated to second place in English classes.

6. Conclusions and Implications

As a result of this study, convincing evidence has been established that audio iPod files can help Iranian pre-intermediate EFL learners improve their pronunciation proficiency in the suprasegmental features of word stress and sentence intonation. The main findings relate to the fact that the overall pronunciation scores of the experimental group improved significantly, with a dramatically higher post-test mean than those of the control group, confirming the relative effectiveness of technology-assisted interventions over purely textbook dependency. Perhaps most importantly, experimental participants improved more on intonation recognition and production, arguably as a result of repetitive, authentic audio, which enhanced perception and the ability to imitate intonation more effectively. This finding further resonates with the rapidly changing audio mobile-assisted landscape of language learning and demonstrates how accessible tools, such as podcasting, can fill some of the gaps created by the scarcity of native input in EFL settings and eventually lead to more intelligible and confident communication. Having refuted both null hypotheses, the present study provides empirical support for incorporating simple digital audio resources into pronunciation classes and further underlines the usefulness of digital audio for increasing learner autonomy and engagement in resource-poor learning and teaching environments.

These findings have several implications for learners, educators, and institutional practices in EFL instruction. For the language learners-particularly those at a pre-intermediate level, use of iPod audio files creates self-directed practice opportunities that allow for repeated exposure to native prosody outside classroom hours, reducing pronunciation anxiety and improving long-term retention. Such autonomy also aligns with contemporary learner-centered approaches that may empower Iranian students who often suffer from a lack of speaking opportunities in reading-dominated curricula. For the educators, the findings suggest a move toward hybrid methodologies whereby audio tools supplement modeling and choral repetition to allow for personalized feedback and freeing of class time for interactive tasks. This may ease instructional burdens in overcrowded EFL settings toward more efficient resource use. Organizationally, such low-cost technologies could be blended into the curriculum by language institutes like Ava to ensure inclusive access, aligning them with global trends in digital pedagogy toward the improvement of general language proficiency. Generally, these implications call for policy reforms in Iranian EFL education to emphasize how technology can help address pronunciation neglect and better prepare learners for real-life communicative requirements.

Despite the value contributed by this study, there are some limitations to the findings, thus requiring cautious interpretation. The generalizability of the findings is limited by the small sample size drawn from only one institute total of 30 female participants-which cannot be generalized to male learners, mixed-gender groups, or socioeconomically diverse groups in Iran. Moreover, a quasi-

experimental design that relies on intact classes may have introduced selection bias due to uncontrolled variables in the input, such as students' prior technology familiarity or motivation levels. The intervention period of six weeks means it is impossible to determine long-term retention or transfer to spontaneous speech problem common in much MALL research, where initial novelty effects may wear off. Furthermore, the use of basic iPod audio files and the lack of advanced features such as speech recognition preclude comparison with the efficacy of current AI devices. The intra-rater scoring of pronunciation could also involve subjective errors, although reliability measures were taken. Finally, all females and adolescents aged 13-19 years old it focused only on the aspects of stress and intonation, excluding other pronunciation aspects of proficiency levels.

These suggestions for future research are proposed as a means to overcome the limitations identified in this study and to further the present findings. Future studies may utilize larger, randomized samples of mixed genders and different age brackets to increase generalizability and examine demographic influences on MALL effectiveness in pronunciation training. Longitudinal designs of several months would provide the ability to assess sustained gains and real-world application, such as in conversational tasks or intelligibility tests with native speakers. Comparative analyses could be made between more advanced technologies, such as AI-driven apps with immediate feedback capability, and simple audio files to define optimal tools for suprasegmental features within EFL contexts. Further, the investigation of hybrid models using iPods in combination with either peer collaboration or gamification can provide insights into motivational factors. Contextual variables can be examined in different Iranian regions or cross-cultural settings. Qualitative components, such as learner interviews, would go deeper into understanding perceptual experiences. Lastly, expansion to other elements of pronunciation, such as segmental sounds or higher proficiency levels, would allow a complete view of the pedagogical potential of MALL.

Acknowledgment

We all thank the participants for their time, energy, and cooperation.

Authors' Contributions

All authors have conducted the study, collected data, analyzed and interpreted the data, and written up the manuscript.

Funding

The study did not receive any funding.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

American Psychological Association. (2017). Ethical principles of psychologists and code of conduct. https://www.apa.org/ethics/code

Bachman, L. F., & Palmer, A. S. (2010). *Language assessment in practice*. Oxford University Press.

Badpa, H. (2024). A New Perspective Towards Teaching Grammar: Inductive or Deductive? A Case Study of Iranian Elementary EFL Learners. *International Journal of Language and Translation Research*, *4*(2), pp.29–44.

Badpa, H., Zare Behtash, P., & Zare Behtash, E. (2023). The interrelationship between literature and language teaching: Drama and speaking. *Journal of New Trends in English Language Learning (JNTELL)*, *3*(1), 117–127.

Benlaghrissi, H., Meriem. L, (2024). The impact of mobile-assisted project-based learning on developing EFL students' speaking skills. *Smart Learning Environments*, *11*(1), article 18. https://doi.org/10.1186/s40561-024-00303-y

Brown, J. D. (2005). *Testing in language programs: A comprehensive guide to English language assessment*. McGraw-Hill Education.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge. https://doi.org/10.4324/9781315456539

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research*. John Benjamins Publishing Company. https://doi.org/10.1075/lllt.42

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE Publications.

Fouz-González, J. (2019). Podcast-based pronunciation training: Enhancing FL learners' perception and production of fossilised segmental features. *ReCALL*, *31*(2), 150–169. https://doi.org/10.1017/S0958344018000174

Johnson, D. W., & Johnson, R. T. (1999). Making cooperative learning work. *Theory Into Practice, 38*(2), 67–73. https://doi.org/10.1080/00405849909543834

Kimmons, R. (2020). The PICRAT model for technology integration in teacher preparation. *Contemporary Issues in Technology and Teacher Education*, *20*(1), 176–198.

Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile-assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, *20*(3), 271–289. https://doi.org/10.1017/S0958344008000335

Kukulska-Hulme, A., & Viberg, O. (2018). Mobile collaborative language learning: State of the art. *British Journal of Educational Technology*, *49*(2), 207–218. https://doi.org/10.1111/bjet.12580

Levis, J. M. (2018). *Intelligibility, oral communication, and the teaching of pronunciation*. Cambridge University Press. https://doi.org/10.1017/9781108241564

Long, M. H. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413-468). Academic Press. https://doi.org/10.1016/B978-012589042-7/50015-3

Mackey, A., & Gass, S. M. (2022). *Second language research: Methodology and design* (3rd ed.). Routledge. https://doi.org/10.4324/9780429503764

Nguyen, T. T., & Ho, T. T. (2024). Using podcasts to improve English listening skills: A case study at a Vietnamese university. *TNU Journal of Science and Technology*, *229*(05), 123–130.

Pennington, M. C., & Rogerson-Revell, P. (2019). *English pronunciation teaching and research: Contemporary perspectives*. Palgrave Macmillan. https://doi.org/10.1057/978-1-137-47677-7

Richards, J. C. (2013). *Interchange 1 Student's Book* (4th ed.). Cambridge University Press.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, *11*(2), 129–158. https://doi.org/10.1093/applin/11.2.129

Yeh, H. C., Chang, W. Y., Chen, J. C., & Heng, L. (2024). The impact of NotebookLM-generated podcasts on EFL news listening comprehension. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, *8*(3), Article 573. https://doi.org/10.1145/3746469.3746573