



The Effect of Shadowing Technique on Iraqi EFL University Female Students' Speech Intelligibility

Mina Laith Yonus noori¹, Shaima Mahdi Saalh²

Department of English Language at the College of Education for Women, University of Baghdad

ABSTRACT

This study investigates the effect of the shadowing technique on the speech intelligibility of Iraqi EFL female university students. Forty second-year students from the University of Baghdad were randomly divided into an experimental group and a control group. Using three sentences as an instrument for measuring the intelligibility before and after treatment with specialized software, the study found statistically significant improvements in the experimental group. The results revealed linear, quadratic, and cubic trends, indicating progressive gains in intelligibility over time. The null hypothesis was rejected, confirming that shadowing has a positive impact on speech intelligibility. The study concludes with recommendations and suggestions for future research.

*Correspondence:

mina.laith2303@coeduw.uobaghdad.edu.iq
Shaimaa.mehdi@coeduw.uobaghdad.edu.iq

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تنمية وضوح الكلام لدى طالبات الجامعات العراقية الدّارسات اللغة الإنجليزية لغة أجنبية باستعمال تقنية الظل: دراسة مختلطة الأساليب

مينا ليث يونس نوري¹ ، أ.د. شيماء مهدي صالح²
قسم اللغة الإنجليزية في كلية التربية للبنات جامعة بغداد

المُستخلص

تبحث هذه الدراسة في فعالية تقنية التظليل في تعزيز وضوح الكلام لدى طالبات الجامعة العراقية في اللغة الإنجليزية كلغة أجنبية. وتم تقسيم أربعين طالبا في السنة الثانية من جامعة بغداد بشكل عشوائي إلى مجموعة تجريبية ومجموعة ضابطة. باستخدام ثلاث جمل منطوقة تم قياسها قبل العلاج وبعده ببرنامح متخصص ، وجدت الدراسة تحسينات ذات دلالة إحصائية في المجموعة التجريبية. وكشفت النتائج عن اتجاهات خطية وترتيبية ومكعبة؛ مما يشير إلى مكاسب تدريجية في الوضوح بمرور الوقت. تم رفض الفرضية الصفرية؛ مما يؤكد أن التظليل يؤثر بشكل إيجابي على وضوح الكلام. وختمت الدراسة بتوصيات وتوجيهات للبحوث المستقبلية.

الكلمات المفتاحية: تقنية التظليل ، وضوح الكلام، التكلم ، الاصغاء

1.1. Introduction

Nowadays, English is vital for human interaction, as people speak this international language in different parts of the world. English is a global language used worldwide, and it has attained the status of a global language, making it easy for people from different countries to communicate with each other (Rao, 2019). As a medium of international communication, with the ever-increasing popularity of the English language, most foreign language learners strive to master it (Underwood & Glasgow, 2018). Words with the same sound can be difficult for students to understand, as they often have multiple meanings, which can lead to misunderstandings and differing interpretations. Predicting the intended meaning in particular circumstances is clearly difficult (Fermadi, Kurniawan, & Lubis, 2024). Because of a lack of exposure to English as a foreign language, Iraqi EFL learners frequently mispronounce the two affricate sounds in English: the voiced affricate /dʒ/ and the unvoiced affricate /tʃ/ (Al Hilou, 2023).

In the field of English as a Foreign Language (EFL), it is argued that the goal is the development of intelligible speech. Intelligibility is the degree to which a listener can make out what a speaker is saying in terms of word recognition instead of complete message comprehension or native-like pronunciation (Munro & Derwing, 1995). Achieving this level of intelligibility is crucial in academic and professional settings, as English is essential, and communication breaks down without it. Furthermore, striving for accuracy is a habit of mind that needs to be satisfied (Saalh & Salim, 2020).

Traditional pronunciation instruction often focuses on accent reduction and achieving native-like pronunciation. However, recent research advocates for a shift in focus towards intelligibility, which is more achievable and pedagogically sound than native-like accuracy (Jenkins, 2000). This perspective

aligns with the concept of English as an International Language (EIL), which aims to foster mutual understanding among speakers from diverse linguistic backgrounds.

The Internet's ability to deliver immediate and varied samples of language to a wide audience has led many teachers to look to the Internet for content to use in the language classroom (Saalh & Srayisah, 2017). Moreover, Modelling and routine are important cultural of thinking that support the use of shadowing for developing intelligibility (Saalh & Esmaeel, 2022).

In the Iraqi EFL context, challenges in speech intelligibility have been observed. Faculty members report that many students, despite having adequate vocabulary and grammatical knowledge, struggle to produce speech that listeners easily understand. This issue is compounded by the influence of the native Arabic language, which differs significantly from English in phonological aspects, leading to difficulties in pronunciation and, consequently, intelligibility (Younus, 2020). He added that Iraqi EFL learners frequently have difficulties attaining intelligible speech due to the phonemic disparities between Arabic and English, as well as limited exposure to native English pronunciation exemplars. These challenges underscore the need for effective instructional strategies tailored to improve intelligibility among this learner population.

One of these techniques is shadowing, which simultaneously repeats spoken language as it is presented and imitates the target language's rhythm, stress, and intonation. This technique has been shown to improve pronunciation and listening skills (Hamada, 2014). Therefore, the researcher suggests the shadowing technique to enhance the speech intelligibility of the EFL female students. Furthermore, the study will address the following question: Is the shadowing technique effective in improving the intelligibility of university EFL students?

1.2. The Aim

The study aims to enhance the speech intelligibility of Iraqi EFL university female students using the shadowing technique.

1.3. The Hypothesis

There are no statistically significant differences at the 0.05 significance level between the mean scores of the experimental group students who used the shadowing technique and the control group students who used listening to audio in their test series (pre1-p2-p3-post1-post2-post3) for intelligibility.

1.4. The Limits of the Study

The study is limited to:

1. Second-stage students
2. Department of English / College of Education for Women /University of Baghdad

3. The Academic Year 2024-2025

1.5. Definitions of Basic Terms

1.5.1. The Shadowing Technique

Lambert (1992) described shadowing as: "a paced, auditory tracking task which involves the immediate vocalization of auditory presented stimuli, i.e., word-for-word repetition, in the same language, parrot-style, of a message presented through headphones" (p. 265).

Hamada and Suzuki (2024) defined shadowing as: "The act of vocalizing the speech one is listening to as simultaneously as possible" (p.225).

The operational definition of the shadowing technique is a structured language learning activity in which a student tries to imitate the speech of the native speaker with minimal delay, matching pronunciation, intonation, rhythm, and pacing as closely as possible.

1.5.2. Intelligibility

Intelligibility is defined by Derwing and Munro (2005, p. 385) as "the extent to which a listener actually understands an utterance".

Smith and Nelson (1985, p. 334) defined intelligibility as "word/utterance recognition".

The operational definition of intelligibility is the ability of a listener to understand the speaker's speech without the need for repetition or clarification.

2. Theoretical Background

2.1. The Shadowing Technique

The shadowing approach was used in language learning by the American linguist Professor Alexander Arguelles, who was regarded as a pioneer in this regard. His primary study focused on refining this method to make it a tool for learning other languages. One of the most well-known polyglots in the world today is Professor Arguelles. The process of immediately mimicking what one hears orally is known as shadowing. It simultaneously utilizes two distinct abilities: speaking and listening.

Since this method relies on students' oral performance, several academics, including Rost and Wilson (2013), Hatasa et al. (2011), and Nicholson (1994), have concurred that it primarily emphasizes speaking abilities. Because the speech is not spontaneous, the method enables learners to speak the target language fluently with little effort. However, learners may adjust to the rhythm, intonation, and emphasis of the target language with consistent practice and sufficient repetition time.

Many academics have emphasized the advantages of the shadowing method. Snell-Hornby et al. (1994) said shadowing enhances reading and listening proficiency. Hamada (2018) suggested that "learners appear to improve prosody, gain more concentration, and become used to natural speed as well" (p. 4);

this is another advantage. Furthermore, Wiltshier (2007) clarified that shadowing offers students a priceless opportunity to practice speaking the target language, thereby greatly improving their oral fluency.

Santosh (2017, p.3) described shadowing as "an auditory tracking task at the rhythm of a parrot, performed with headphones as clearly as possible while listening simultaneously." Fouladi and Rahimy (2018) reported that the shadowing technique is technically a rhythmic auditory tracking job that entails the instantaneous vocalization of audio, or word-by-word repeat, in which the listener mimics the speaker's words simultaneously.

2.2. The Intelligibility

As pointed out by Munro (2011), "Intelligibility is the most important aspect of all communication" (p. 521). Browne (2016) noted that intelligibility remains ambiguous and misinterpreted, despite being essential to effective communication. Isaacs and Trofimovichch (2016) indicated that "intelligibility is an evasive concept that we know little about" (p. 557). Jenkins (2000) mentioned that "the term 'intelligibility' can mean different things to different people, and there is yet no broad agreement on a definition of it" (p. 70). Furthermore, intelligibility was regarded by Deterding and Kirkpatrick (2006) as "somewhat elusive" (p. 392). There are two competing definitions proposed in the literature on intelligibility. According to the first, intelligibility is defined as the ability to produce and recognize the phonetic aspects of speech signals, meaning evaluation is left to higher levels of speech analysis. For instance, Smith and Nelson (1985, p. 334) defined intelligibility as "word/utterance recognition." Similarly, Field (2005, p. 401) defined intelligibility as "the extent to which the acoustic-phonetic content of the message is recognizable by a listener." Browne (2016) emphasized that intelligibility is the production and recognition of the formal aspects of speech. These researchers, among others, were mainly concerned with the formal aspects of intelligibility indicated by the types of speech data they collected and tested in their research. In most of their investigations, these researchers used decontextualized stimuli because their research findings should be purely phonological. Mohammed (2024) stated that one aspect of phonology that aids in speech intelligibility is intonation.

Intelligibility is defined in the second meaning in terms of listeners' comprehension. Intelligibility, for instance, is the degree to which a listener can comprehend an utterance as determined by an orthographic word transcription job (Derwing & Munro, 2005). This implies that a speech is more comprehensible the more words the listener can write properly. Similarly, intelligibility was described by Abercrombie (1949) as "the extent to which the speaker's utterance is understood by a listener with little effort" (p. 120). Additionally, intelligibility was described by James (2014) as "the accessibility of the basic literal meaning, the propositional content, encoded in an utterance" (p. 212). Because the

connection between pronunciation and meaning was acknowledged, Saito, Trofimovich, and Isaacs (2016) investigated the concept of intelligibility in contextualised discourses. James (2014) stressed that understanding should be restricted to the literal meanings of words and utterances. Compared to Bamgbose (1998, p. 11), who defined intelligibility as "a complex of factors comprising recognizing an expression, knowing its meaning, and knowing what that meaning signifies in the socio-cultural context," this definition is more limited. Different methods for gathering, characterizing, and analyzing non-native English-accented speech have resulted from the two divergent views of intelligibility, as was previously shown. Research materials are often out of context when intelligibility is limited to the ability to recognize the formal characteristics of speech sounds. On the other hand, when intelligibility is considered in terms of meaning, researchers favor contextualized resources.

Fluency is often linked to overall proficiency or the smoothness of speech (Fillmore, 1979). Word mispronunciation impairs translators' fluency and might lead to hesitancy (Mohammed, 2017). Being proficient in speaking like a native speaker is one of the primary goals of second language (L2) learners (Rezqallah, 2021). Fluency is defined as the smoothness of speech. Judgments of fluency are closely associated with various discrete elements of speech, such as the frequency of silent and filled pauses, grammatical coherence of junctures in spoken phrases, mean length of run, speech repetitions, and additional factors. Furthermore, they relate to the level of automaticity in speaking, phonological memory, and attention control (Lennon, 1990). Remedial focus on pronunciation tends to be more effective when learners exhibit a degree of comfort in speaking and listening in the second language, indicating adequate fluency. The development of fluency is a significant aspect of L2 speaking development and instruction. Comfortable fluency contributes to the overall structure of spoken language elements; however, fluency alone does not constitute L2 pronunciation (Firth, 1992). Its influence on comprehensibility and significance in communicative language teaching indicates that similar to pronunciation, it should be prioritized in speaking and listening instruction (Rossiter, Derwing, Manimtim, & Thomson, 2010).

3. Related Previous Studies

3.1. Lear (2014)

The study examines the effectiveness of guided reflective journals in improving intelligibility within a Japanese higher education context.

This study involved 22 intermediate-level Japanese EFL learners. The instruments employed in this study comprise reflective journals (4 tasks) that encompass the documentation and contemplation of progress toward objectives, speech samples, interviews, and a questionnaire. According to the study,

1. The experimental group's intelligibility significantly improved, particularly in terms of word stress, intonation, and pausing.
2. Segmental features were still difficult to use, but there was considerable progress.
3. There was little to no improvement in the control group.
4. Reflective diaries encouraged students to work on their pronunciation on their own, helped those set goals, and increased awareness.

3.2. Elesery (2024)

This study aims to examine the impact of the shadowing technique on suprasegmental features to enhance listening comprehension and speech intelligibility.

This study involved 35 EFL learners enrolled in an intensive listening and speaking course at Qassim University, KSA. The instruments employed in this investigation were a listening comprehension exam and a shadowing listening test.

The research indicated that the shadowing cycle significantly enhanced listening comprehension, enabling learners to become better acquainted with suprasegmentals and to utilize them in speech.

4. Methodology

4.1. Experimental Design

To achieve the aim of the study and verify its hypothesis, two groups were selected: one represents the experimental group and the other the control group. The study is a quantitative experimental study employing a quasi-experimental, nonequivalent, no-treatment control group interrupted time series design. See Table 1.

Table (1)

The Experimental Design of the Study

Groups	3Pre-tests	Intervention	Posttest1	Intervention	Posttest2	Intervention	Posttest3
Exp.	Measuring the	Shadowing technique	Measuring the	Shadowing technique	Measuring the	Shadowing technique	Measuring the
Con.	intelligibility	No treatment	intelligibility	No treatment	intelligibility	No treatment	intelligibility

4.2. Population and Sample

The population of this research consisted of female Iraqi students, excluding those from the Kurdistan region, for the academic year 2024-2025. The sample for this study consists of 40 students from the College of Education for Women the University of Baghdad.

4.3 Students' Scores in Phonetics

The students are equalized in their phonetic scores for the same academic year. The mean scores are 37.25 for the experimental group and 38.15 for the control group. The standard deviations for the two groups are 5.87 and 5.94, respectively. Since the computed 0.482 t -value is lower than the critical t -value of 2, and the computed P-value of 0.752 is higher than 0.05, there is no difference between the two groups in phonetic scores, see Table 2.

Table (2)

Equalization in Phonetic Scores

groups	N	df	Mean	Std. Deviation	Computed t -value	Critical t -value	Sig. 0.05
Exp.	20	38	37.25	5.87	0.482	2	0.752 Not sig.
Cont.	20		38.15	5.94			

4.4. Students' Scores in Pre-tests

Table 3.3 shows that all three pretests revealed no statistically significant differences between the experimental and control groups before the treatment. This indicates that both groups were comparable in performance at the beginning of the study, which is ideal for experimental research. It suggests that any changes found later can be attributed to the shadowing technique with greater confidence.

Table (3)

Equalization in Pre-test

	groups	N	Mean	Std. Deviation	df	Computed t -value	Critical t -value	Sig. 0.05
Pre test1	Exp.	20	18.8000	12.25862	38	0.335	2	.078 Not sig.
	Cont.	20	17.7500	6.80460				
Pre test2	Exp.	20	15.6500	7.61767		0.260		.743 Not sig.
	Cont.	20	15.1000	5.59981				
Pre test3	Exp.	20	13.3000	9.26851		0.314		.314 Not sig.
	Cont.	20	12.3000	10.79522				

3.4. The Instrument of the Study

Three sentences were given to the students to read after treatment, and the students' intelligibility was assessed using Pronunciation Coach Software. The researcher chose these sentences because they were suitable for measuring the intelligibility of university students in the second stage of the study. The lowest score the students could gain is zero, and the highest one is 100.

3.5. The Test Scoring Scheme

The researcher has used software called Pronunciation Coach. To score the speech intelligibility of the students, enter one of the three sentences that the researcher has chosen, and then the student will read it aloud. As she speaks, the recognized words are scored from 0 to 100 and highlighted in green. Any unrecognized words are highlighted in red. As presented in the program instruction, the scoring scheme categorizes the speech intelligibility scores as in Table 4.

Table (4)

Scoring Scheme

Intelligibility Description	Intelligibility Scores
Unintelligible	0-9
Poor	10-30%
Fair	31- 50%
Good	51-75%
Excellent	76-100%

The link to the software is: <https://icspeech.com/pronunciation-coach.html>

4.6. Validity

4.6.1. Face Validity

In the current study, a letter was sent to specialists in teaching methods to validate the software, and the three sentences were used as three tests to evaluate the intended aims. The jury members suggested some amendments that the researcher followed.

4.6.2. Construct Validity

4.6.3.1. Pilot Study

Conducting a pilot test is strongly preferred for the current study. For this purpose, 10 students were selected from the second year of the Department of English at the College of Education for Women, University of Baghdad.

4.6.3.2 Difficulty and Discrimination Power

Since the difficulty levels range from 0.30 to 0.70, all three sentences are within the accepted difficulty level.

The discrimination power is also tested for the three sentences, and the results indicate an acceptable discrimination power, as the values ranged from 0.25 to 1, indicating that all sentences are appropriate. See Table 5.

Table (5)

The Difficulty Level of the Sentences

Sentences	Groups	Poor 10-30	Fair 31-50	Good 51-75	Excellent 76-100	Difficulty Level 0.30-0.70	Discrimination Power 0.25-1
1	Upper	8	9	3	0	0.57	0.34
	Lower	0	0	0	0		
2	Upper	13	6	1	0	0.47	0.27
	Lower	0	0	0	0		
3	Upper	8	12	0	0	0.51	0.31
	Lower	0	0	0	0		

4.7. Reliability

Table 3.6 displays the Alpha Cronbach reliability coefficient for each sentence, demonstrating that all sentences are reliable.

Table (6)

The Reliability Level of the Sentences

Sentence	Alpha Cronbach coefficient
1.	0.94
2.	0.86
3.	0.91

4.8. The Experimental Work and the Administration of the Instrument

The experiment began on the 2nd of February, 2025, and ended on the 20th of February, 2025. One session measured each sentence for the experimental and control groups. Accordingly, each student gets the experiments three times, one experiment each week, for one session each. Only the researcher and the student were present in the quiet testing area. The experiment was conducted one student at a time, not all at once. The researcher used a laptop, an Excel table containing the names of the students and their grades after the test, a high-resolution microphone, and software called "Pronunciation Coach." The test sentences were printed out individually on a piece of paper.

The researcher adopted the following procedures:

1. The researcher was working with 10 students per day.
2. Each student from both the control and experimental groups reads the first sentence three times, after which the researcher records the student in the program as a pre-test.
3. The student from the control group listens five times and then reads, while the student from the experimental group does the shadowing technique five times. Then, the researcher recorded the student's sound while she read the sentence in the program.
4. The same procedure is carried out on the other two sentences for the next two weeks.

5.1. Results

The study aims to develop Iraqi EFL university female students' speech intelligibility using the shadowing technique.

The hypothesis stated that, “There are no statistically significant differences at the significance level of 0.05 between the mean scores of the experimental group using the shadowing technique and the control group listening to the audio in their test series (pre1-pre2-pre3-post1-post2-post3) of intelligibility.”

A repeated measures analysis of variance (ANOVA) was used to find out the effect of the shadowing technique on students' intelligibility over six test time stages (pretest1, pretest2, pretest3, posttest1, posttest2, and posttest3). The study integrated within-subjects factors (Table 7) and between-subjects factors (Table 8).

Table (7)

Within-Subjects Factors

test	Dependent Variable
1	pre1
2	pre2
3	pre3
4	post1
5	post2
6	Post3

Table (8)

Between-Subjects Factors

Groups	N
Con.	20
Exp.	20

The descriptive statistics in Table 9 indicate that the experimental group outperforms the control group in the test series. For the control group, mean scores ranged from 12.30 (pretest 3) to 22.05 (posttest 3), while the experimental group ranged from 13.30 (pretest 3) to 29.65 (posttest 3). The mean score of the total sample increased from the pretest (18.28) to the posttest (25.85), indicating general improvement over time.

Table (9)

Descriptive Statistics

	groups	Mean	Std. Deviation	N
pre1	Con.	17.75	6.805	20
	Exp.	18.80	12.259	20
	Total	18.28	9.801	40
pre2	Con.	15.10	605.	20
	Exp.	15.65	7.618	20
	Total	15.38	6.605	40
pre3	Con.	12.30	10.796	20
	Exp.	13.30	9.269	20

	Total	12.80	9.944	40
post1	Con.	20.30	8.504	20
	Exp.	22.30	11.890	20
	Total	21.30	10.254	40
post2	Con.	17.90	3.582	20
	Exp.	25.70	7.875	20
	Total	21.80	7.215	40
post3	Con.	22.05	9.752	20
	Exp.	29.65	8.75	20
	Total	25.85	9.922	40

Multivariate tests approved a statistically significant main effect of time (Wilks' Lambda = 0.208, $F(5, 34) = 25.888$, $p < .001$), showing changes in intelligibility scores through the six time stages. Furthermore, the interaction effect between time and group was also significant (Wilks' Lambda = 0.516, $F(5, 34) = 6.383$, $p < .001$), indicating that the change over time differed between the experimental and control groups. See Table 10

Table (10)

Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.
test	Pillai's Trace	.792	25.888	5.000	34.000	0.000
	Wilks' Lambda	.208				0.000
	Hotelling's Trace	3.807				0.000
	Roy's Largest Root	3.807				0.000
test * groups	Pillai's Trace	0.484	6.383	5.000	34.000	0.000
	Wilks' Lambda	0.516				0.000
	Hotelling's Trace	0.939				0.000
	Roy's Largest Root	0.939				0.000

Mauchly's test indicated a violation of the sphericity assumption ($W = 0.248$, $\chi^2(14) = 50.347$, $p < .001$). Therefore, Greenhouse-Geisser and Huynh-Feldt corrections were applied. The Greenhouse-Geisser adjusted results for the within-subjects tests showed a significant main effect of time (f -value = 24.574, $p < .001$) and a significant time by group interaction (f -value = 3.205, $p = .019$), indicating that the direction of score improvements varied by group. See Table 11.

Table (11)

Mauchly's Test of Sphericity

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon	
					Greenhouse-Geisser	Huynh-Feldt
test	0.248	50.347	14	0.000	0.709	0.812

Within-subjects contrast analysis revealed a strong linear trend ($F = 102.926$, $p < .001$), as well as significant quadratic ($F = 26.533$, $p < .001$) and cubic ($F = 11.227$, $p = .002$) components. These findings indicate that the improvements in scores over time were not purely linear but followed a complex direction with acceleration at different points. See Table 12.

Table (12)

Tests of Within-Subjects Contrasts

Source	test	Type III Sum of Squares	df	Mean Square	F	Sig.
test	Linear	2462.813	1	2462.813	102.926	0.000
	Quadratic	1054.144	1	1054.144	26.533	0.000
	Cubic	375.380	1	375.380	11.227	0.002
	Order 4	0.914	1	0.914	0.024	0.878
	Order 5	580.032	1	580.032	12.385	0.001

Though the between-subjects effect for the group was not statistically significant overall (F -value = 2.281, $p = 0.139$), indicating no significant differences in mean scores across the time stages, the significant time by group interaction showed that the experimental group benefited more from the intervention over time compared to the control group. See Table 13.

Table (13)

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	88781.067	1	88781.067	303.764	0.000
groups	666.667	1	666.667	2.281	0.139
Error	11106.267	38	292.270		

Pairwise comparisons across test points further supported this conclusion. Significant differences were found between multiple test pairs, especially from pretests to posttest3, such as between pre1 and posttest3 (mean difference = -7.575 , $p < .001$), and between pretest3 and posttest3 (mean difference = -13.050 , $p < .001$). These results indicate that the most significant gains in intelligibility occurred over time, particularly for those in the experimental group. See Table 14.

Table (14)

Pairwise Comparisons

(I) test	(J) test	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	2.900*	1.193	0.020	0.485	5.315
	3	5.475*	1.130	0.000	3.188	7.762
	4	-3.025*	1.301	0.025	-5.658	-0.392
	5	-3.525*	1.197	0.005	-5.948	-1.102
	6	-7.575*	1.183	0.000	-9.970	-5.180
2	1	-2.900*	1.193	0.020	-5.315	-0.485
	3	2.575*	1.186	0.036	0.173	4.977
	4	-5.925*	1.535	0.000	-9.033	-2.817
	5	-6.425*	.7480	0.000	-7.939	-4.911
	6	-10.475*	1.216	0.000	-12.937	-8.013
3	1	-5.475*	1.130	0.000	-7.762	-3.188
	2	-2.575*	1.186	0.036	-4.977	-0.173
	4	-8.500*	1.803	0.000	-12.150	-4.850
	5	-9.000*	1.360	0.000	-11.752	-6.248
	6	-13.050*	1.560	0.000	-16.208	-9.892
4	1	3.025*	1.301	0.025	0.392	5.658
	2	5.925*	1.535	0.000	2.817	9.033
	3	8.500*	1.803	0.000	4.850	12.150
	5	-0.500	1.391	0.721	-3.315	2.315
	6	-4.550*	1.778	0.015	-8.149	-0.951
5	1	3.525*	1.197	0.005	1.102	5.948
	2	6.425*	.7480	0.000	4.911	7.939
	3	9.000*	1.360	0.000	6.248	11.752
	4	0.500	1.391	0.721	-2.315	3.315
	6	-4.050*	1.285	0.003	-6.651	-1.449
6	1	7.575*	1.183	0.000	5.180	9.970
	2	10.475*	1.216	0.000	8.013	12.937
	3	13.050*	1.560	0.000	9.892	16.208
	4	4.550*	1.778	0.015	0.951	8.149
	5	4.050*	1.285	0.003	1.449	6.651

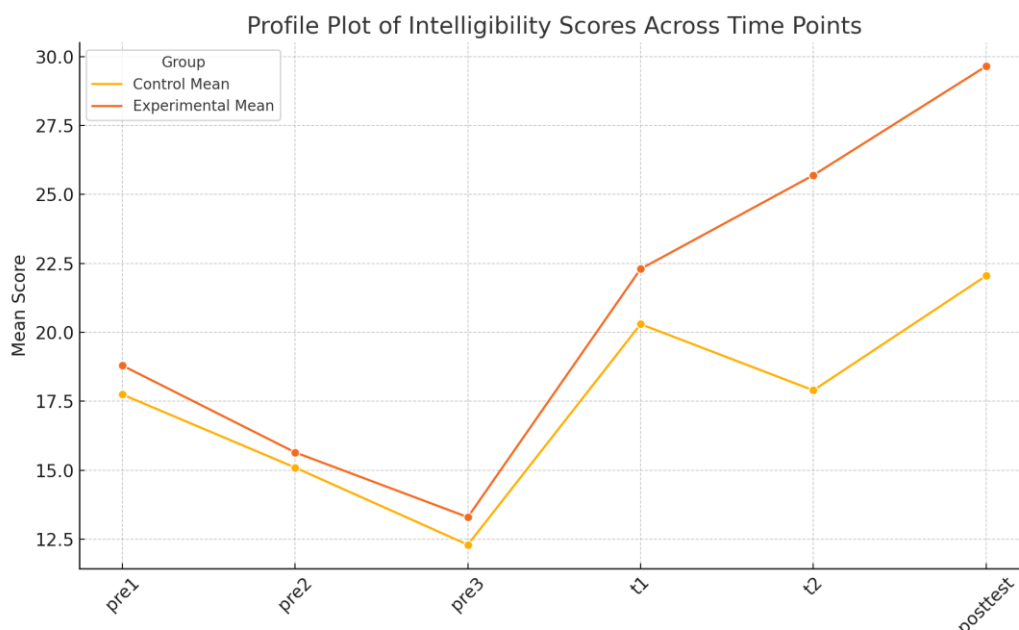
Accordingly, the null hypothesis is rejected; there are statistically significant differences across time between the experimental and control groups. The shadowing technique has positively influenced students' intelligibility development.

The results indicate that the experimental treatment, the shadowing technique, effectively enhanced students' intelligibility over time. Although there were no significant differences between groups at the overall level, there was a differential improvement direction in favor of the experimental group. The statistically significant linear, quadratic, and cubic trends also point to a dynamic improvement pattern

rather than a steady one. These findings support the notion that shadowing is an effective instructional method. Figure 1 illustrates the differences between the control and experimental groups over time.

Figure 1

The Intelligibility Scores across Time for Control and Experimental Groups



5.2. Result Discussions

The findings of the current study indicate that the shadowing strategy markedly enhanced the speech intelligibility of Iraqi female university students learning English as a foreign language over time. Although no statistically significant difference was observed between the experimental and control groups at the overall level, the experimental group exhibited a distinct pattern of improvement, corroborated by statistically significant linear, quadratic, and cubic trends. This dynamic pattern indicates that the shadowing technique not only facilitates consistent improvement but also promotes an evolving and accelerated advancement in intelligibility.

The results correspond with those of Elesery (2024), who evidenced that the shadowing technique markedly enhanced EFL learners' proficiency in utilizing suprasegmentals, including stress, rhythm, and intonation—essential factors for intelligibility. While Elesery also emphasized listening comprehension, the beneficial impact on speech output corresponds with the enhancements reported in the present study, reinforcing the overall efficacy of shadowing in EFL instruction.

Lear (2014) conducted a study utilizing guided reflective journals, which indicated notable enhancements in learners' intelligibility, especially regarding word stress, intonation, and pausing. The methods varied; however, the results align with those of the current study, as both indicated advancements in the prosodic features of speech that support intelligibility. In contrast to Lear's study, which concentrated on metacognitive awareness, the current study employed shadowing as a direct practice technique and achieved statistically significant improvements, highlighting its practical effectiveness.

As a result, the findings of this study align with several prior studies, affirming that the shadowing technique is an effective pedagogical approach for enhancing speech intelligibility in EFL learners. The detection of a dynamic improvement trend in this study introduces a new aspect to the current literature, indicating that the advantages of shadowing may amplify over time with sustained practice.

5.3. Conclusions

This study aimed to enhance the speech intelligibility of Iraqi EFL university female students using the shadowing technique. The results indicated that the shadowing strategy had a positive influence on the enhancement of students' intelligibility over time. Although no statistically significant changes were detected between the experimental and control groups, the experimental group exhibited a distinct and positive improvement trend. The existence of statistically significant linear, quadratic, and cubic trends signifies that the enhancement in intelligibility was dynamic and progressive rather than static. The results substantiate the rejection of the null hypothesis and affirm that the shadowing technique is an efficacious instructional strategy for improving speech intelligibility. This study presents compelling evidence for incorporating shadowing into EFL speaking training, especially when pronunciation and speech clarity are frequently neglected, according to the favorable progress observed in the experimental group's performance.

5.4. Recommendations and Suggestions

Based on the findings of the current study, several recommendations have been outlined as follows:

1. It is recommended that the Ministry of Higher Education and Scientific Research promotes the implementation of effective speaking techniques, such as shadowing, in English departments across Iraqi universities.
2. University instructors of English ought to incorporate the shadowing technique into their standard speaking activities to enhance students' speech intelligibility.

Some suggestions for future research are as follows:

1. Looking at how other parts of speech, like intonation, emphases, and fluency, are affected by the shadowing technique.

2. Comparing the shadowing technique's effect on intelligibility with other methods, such as repetition exercises or role-playing.

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