



University of Tehran press

## The Impact of Flipped, Face-to-Face, and Blended Teaching on the Pronunciation Ability of Introverted and Extroverted English Language Learners



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### ABSTRACT

The goal of this study was to investigate the influence of flipped, face-to-face, and blended instruction on EFL intermediate introverted and extroverted learners' pronunciation ability. To fulfill the objectives of the study, 60 EFL intermediate-level learners were selected from English language institutes of Esfahan City. Then, they were randomly allotted into a face-to-face, flipped, and blended group. Each group included 20 learners. After that, the Eysenck Personality Inventory was distributed among the learners of each group. As a result, the learners of each group were divided into an extroverted group and an introverted group. The next time, the pronunciation pre-test was given to the learners of the three groups separately. Subsequently, the learners of the flipped group were provided with the pronunciation instruction three days before coming to their classes, and then during class time, they performed various activities and exercises regarding the content. In the face-to-face class, the learners received the traditional instruction of pronunciation. In addition, in the blended group, during online training the researcher taught the instructional content via the social media of Eita, and during face-to-face training, the learners were required to do the related exercises and activities of their book. After instruction, the pronunciation post-test was administered among the three groups. Then, the acquired data were analyzed through statistical techniques like the analysis of two-variable variance and the analysis of one-way variance. The findings showed that the three instruction approaches could positively increase the extroverted participants' pronunciation ability but the flipped group attained more advancement in pronunciation learning. EFL instructors, learners, and syllabus designers can benefit from the findings of the study.

### ARTICLE INFO

Article history:

Received: 15 August 2022

Received in revised form  
02 December 2022

Accepted: 10 December  
2022

Available online:  
Spring 2024

### Keywords:

*Flipped Instruction, Face to Face Instruction, Blended Instruction, Introversion, Extroversion, Pronunciation.*

Khodabandeh, F. (2024). The Impact of Flipped, Face-to-Face, and Blended Teaching on the Pronunciation Ability of Introverted and Extroverted English Language Learners. *Journal of Foreign Language Research*, 14 (1), 89-114. <http://doi.org/10.22059/jflr.2022.347097.980>.



© The Author(s).

Publisher: The University of Tehran Press.

DOI: <http://doi.org/10.22059/jflr.2022.347097.980>.

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## 1. Introduction

In recent years, there has been a significant increase in interest and attention to pronunciation instruction. Numerous studies have been conducted on pronunciation in English language teaching environments (Bagheri Nevisi & Farmoudi, 2022; Rahbar et al., 2020). While pronunciation instruction has not always been a popular area among language instructors (Roach, 2009), research in pronunciation has recently gained special importance, as increased knowledge about factors affecting pronunciation and methods of improvement facilitates the educational process, enhances language skills, and ultimately facilitates interpersonal communication (Amiri, 2023). Nushi (2020) also noted that teaching pronunciation accurately and with effective methods is of great importance, as correct pronunciation is the most fundamental factor in understanding concepts and communications in English. From the students' perspective, pronunciation is very important because the ability to pronounce words and phrases correctly helps them establish better communication with others and progress in the process of learning English. Correct pronunciation increases students' confidence in speaking and enables them to use English more effectively in various situations. Furthermore, correct pronunciation helps students better understand course materials and make good use of various educational resources (Berry, 2021).

The use of technology in pronunciation instruction is highly important. Various technologies such as pronunciation software,

instructional videos, and mobile applications can help students improve their pronunciation skills through self-learning. These technologies can provide students with opportunities to practice pronunciation at any time and place by providing immediate feedback and offering interactive exercises. Moreover, the use of technology can provide opportunities for learning pronunciation in interactive and engaging environments such as computer games and real-life simulations, which increases students' participation and focus (Akmali et al., 2022). In general, technology can help design more effective teaching methods and improve performance in pronunciation, making the learning experience more engaging and effective for students (Salimei & Zangeneh, 2022). So far, a considerable number of studies have been conducted on the use of technology in English language teaching (e.g., Soleymani et al., 2022; Fathi & Barakhoda, 2021; Moradi et al., 2023). One of the notable approaches in this area is flipped teaching, which, as a new approach in the field of teaching and learning, creates an engaging and effective learning environment for students by changing the attitude of teachers and schools (HashemiFardnia et al., 2021).

Flipped strategy is a teaching method in which lesson content is learned at home using technology, allowing instructors to dedicate class time to practicing lesson content through exercises, discussions, and group work. This approach, by reversing the traditional learning and teaching process, emphasizes step-by-step teaching and the use of modern technologies, enabling students to independently understand concepts

(Jafarigohar et al., 2019). Flipped teaching utilizes advanced tools such as computers, educational software, and videos to capture students' attention and explain concepts. Additionally, flipped instruction encourages students to think independently (Al-Naabi, 2020). With flexibility in time and place, flipped teaching enables students to continue learning independently according to their personal circumstances (Khalifeh et al., 2022). In fact, flipped classes provide ample time for comprehensive analysis of various subjects in class, including problem-solving activities, inquiry-based activities, and practical exercises (Kianinezhad, 2023). Moreover, flipped instruction, as an engaging learner-centered approach, has attracted the attention of many researchers and practitioners worldwide (Rezaei Fard et al., 2022). Flipped teaching, as an effective instructional tool, has a significant impact on students' skills such as comprehension in the second language (Fathi & Barakhoda, 2021), listening (Namaziandost, 2019), writing (Yousofi & Bashiri, 2023), and speaking (Khazaie & Derakhshan, 2023). Previous articles and studies have also demonstrated the effectiveness of flipped instruction in increasing English language learners' interest in grammar (Yusmalinda, 2023). Additionally, the flipped teaching framework has been cited as an effective educational resource that creates an interactive and participatory environment for students (Gustian et al., 2023). Furthermore, studies have shown that students who are taught with visual aids in flipped classrooms have had positive feedback (Chen Hsieh et al., 2017). Parvaneh et al. (2020) stated that the flipped

strategy can help students organize other materials more positively and comfortably outside of class through various assignments, saving time for both teachers and students. According to Fazlali et al. (2018), flipped teaching, intelligently implemented, has become a desirable exercise that aligns students with the language learning process.

Today, advances in information and communication technology have made it possible to provide blended learning, or a combination of online and face-to-face classes, in English language learning (Albiladi & Alshareef, 2019). This approach has many advantages; for example, online classes provide interactive and multimedia content that allows students to easily access and study anytime and anywhere they want (Rahim, 2019). On the other hand, face-to-face classes provide an opportunity for practicing speaking and listening skills, as these activities are best done in a physical environment. Additionally, the combination of these two approaches facilitates communication and discussion between students and teachers in both online and face-to-face environments, which enhances collaboration and social learning (Khoshneshin, 2017). Moreover, as Naemi Hoseyni et al. (2012) stated, this type of learning applies a technical approach to deal with challenges posed by technology. In addition to various teaching methods, especially in language learning, students' pronunciation abilities may also be influenced by their personality traits. Among all the external factors affecting individuals' education, personality can also have an impact on their learning. The issue of

individual differences can not only have a fundamental effect on the most vital foundational process of second language learning but may also affect different learning styles (Toyama & Yamazaki, 2020). Based on this, individual differences, especially personality types of introversion and extroversion, affect the progress of English language learners in language learning (Mofrad, 2017). Therefore, this study is designed to investigate the effect of flipped, traditional, and blended instruction on the pronunciation ability of introverted and extroverted English language learners. To the best of the researcher's knowledge, several studies have examined the impact of different instructional approaches, including blended instruction (Purnamasari, 2018), flipped instruction (Bakla, 2018), and traditional instruction (Hayati, 2010), on the pronunciation and speaking ability of language learners. Furthermore, some researchers have attempted to compare the effects of flipped, blended, and traditional instructional environments on language skills (Khodabandeh & Tharirian, 2020). Additionally, studies have been conducted on pronunciation instruction methods (Pourhosein Gilakjani et al., 2020). Moreover, numerous studies have explored the relationship between personality and language skills (Bagheri Nevisi & Farmoudi, 2022). However, to date, no study has been conducted on the effect of flipped, traditional, and blended instruction on the pronunciation ability of introverted and extroverted English language learners. Therefore, this research aims to provide a comprehensive investigation into this topic.

The following research questions will be addressed in this study:

Does flipped instruction have a significant effect on the pronunciation ability of introverted and extroverted English language learners?

Does blended instruction have a significant effect on the pronunciation ability of introverted and extroverted English language learners?

Is there a significant difference in the pronunciation ability of introverted and extroverted English language learners who receive traditional, blended, and flipped instruction?

## 2. Review of Literature

Based on the literature review, previous research related to the subject of this study is evident. In this section, some of these studies will be examined:

### 2.1. Studies Investigating the Effect of Flipped and Blended Instruction on Pronunciation and other Language Skills of Language Learners

In recent decades, discussions related to language learning using innovative and effective methods have received considerable attention. One of these methods is flipped instruction, which examines its importance and effects on language learners' language skills. Studies conducted in this area have shown that the use of flipped instructional methods, aiming to change traditional teaching approaches, can help improve language skills in language learners. For example: Zhang et al. (2016) attempted to investigate the effect of an innovative teaching method, namely flipped instruction, on the pronunciation ability of language

learners. In this study, they employed mixed methods to gather sufficient evidence to demonstrate the effectiveness of this instructional approach. Participants' scores in the final exam were compared with those of individuals who had received traditional instructional methods. Additionally, a face-to-face interview was conducted to identify participants' understanding of these teaching methods. The results indicated that the flipped method in pronunciation instruction was more effective than the traditional method. Vahedi (2022) studied the effect of flipped instruction on learning strategies on speaking and self-regulation skills of language learners. Using a pretest-posttest design and dividing participants into experimental and control groups, 120 intermediate-level language learners participated in the study. The results showed that flipped instruction in learning strategies significantly improved speaking skills and had independent effects on language learners. Additionally, a positive effect on learners' self-regulation was observed. Miraei Mohammadi et al. (2021) investigated the effect of traditional and online instruction on the speaking ability of Iranian English language learners. For this study, 32 language learners were selected. Participants' proficiency level was determined to be lower than intermediate after completing the Oxford Placement Test. Then, participants were randomly assigned to two experimental groups. Speaking pre-tests and post-tests were administered for both groups. One group received traditional flipped instruction, and the other group received online flipped instruction using Adobe Connect. The results

indicated that implementing flipped instructional strategies enhanced the speaking ability of both groups. Additionally, learners in the traditional flipped instruction group performed better than those in the online flipped instruction group. This suggests that using traditional face-to-face learning, where learners had face-to-face interactions, had a positive effect on their speaking ability. Davari & Mall-Amir (2022) examined the effect of the flipped approach on the complexity, accuracy, and fluency of speaking among English language learners. Two English language schools were selected for this research. The participants in the experimental group received flipped instruction, while those in the control group received traditional instruction. A speaking section was conducted both before and after the test to assess the participants' performance in the speaking components. Hashemifardnia et al. (2021) examined the effect of implementing flipped instruction on reading comprehension in Iranian middle school students. For this purpose, 50 students from the pre-intermediate level were randomly assigned to two experimental and control groups. Both groups took a reading comprehension test as a pretest. Then, the participants in the experimental group were placed in a flipped classroom. Participants were asked to read each section before attending the class and discuss it with their classmates. In contrast, the participants in the control group received traditional instruction. After completing the instructional period, a post-test reading comprehension assessment was administered to both groups. The findings showed that the participants in the

experimental group performed better in the post-test compared to the control group. Abaeian and Samadi (2016) investigated the effect of flipped language instruction on the reading ability of Iranian language learners with different proficiency levels. One hundred female English language learners from language institutes in Shiraz were selected from 120 learners after taking a proficiency test. After the proficiency test, learners at each proficiency level were randomly assigned to two experimental and control groups. Before the test, a pretest reading assessment was distributed to all groups. After 18 sessions, a post-test reading assessment was administered to all groups. According to the results, the learners in the control groups performed better in the reading post-test. Moradi Khazae and Dowlatabadi (2020) examined the effect of flipped instruction on the writing ability and writing motivation of Iranian English language learners. For this research, the participants in the control group received conventional writing instruction, while those in the experimental group received flipped writing instruction. The results showed that the flipped approach was effective in improving the writing ability of the language learners.

Quantitative studies in the field of English pronunciation learning using a combined approach have also been conducted, and their results indicate the effectiveness of this approach in improving pronunciation skills. For example: Yoon (2011) conducted a study on the perceptions and effectiveness of combined learning in English pronunciation skills from the

perspective of Korean students. The participants in this study were 173 university students in Korea, and quantitative data were collected from questionnaire responses and pre-tests. The results showed that the students had positive perceptions of combined learning. Additionally, combined learning was found to be effective in developing pronunciation skills. Ehsanifard et al. (2020) examined the effect of combined learning on success and oral participation. Sixty English language learners from institutes in Tehran were selected for this research. As a pre-test, students from both groups were asked to complete a participation scale in the course and a speaking test. Then, participants in the experimental group were taught using a combined learning approach, while those in the control group received traditional instruction. After the experimental period, the course participation scale and a post-test speaking assessment were administered to the learners in both groups. The research findings indicated that the learners who received combined instruction performed better than those taught using traditional methods. Luo et al. (2022) investigated the effect of combined, explicit, and implicit instruction on English pronunciation. One hundred and twenty English learners in China were equally divided into three groups: combined instruction, explicit instruction, and implicit instruction. Based on the data collected through pre-tests, during the course, and post-tests, the results showed that combined instruction provided the best performance in terms of improving performance and class satisfaction.

## 2.2. Studies on the Correlation Between Personality and Language Skills: Extraversion and Introversion as Personality Traits

Personality traits play a significant role in the language learning process. Therefore, understanding the characteristics of language learners may be beneficial for English language teachers and instructors in achieving their goals. Examining the differences in personality traits such as extraversion and introversion among language learners has confirmed a positive correlation between these two types of personality traits in language learning and teaching. According to Özbay and colleagues (2017), two common variables that contribute to the performance and success of language learners are their personality traits, namely extraversion and introversion. In this regard, Chen and colleagues (2015) conducted a study to determine that personality traits such as extraversion and introversion play key roles in achieving better feedback in speaking skills. The findings indicated that individual differences and motivations are important factors in language learning. Some previous studies have shown that the personality traits of extraversion and introversion, motivation, and speaking skills are essentially interrelated. Overall, Liyanage and Bartlett (2013) stated that many teachers claim that extroverts perform better than introverts, especially in conversation as a skill. Previous studies have shown that most teachers and students believe that extroverted and introverted personalities play a significant role in the success or failure of language

skills (Marzban & Qadikolaei, 2023). Despite these results, there is still a final conclusion that states the success of language learning is related to the personality traits of learners, such as extroversion and introversion. There are some potential factors that may affect the speaking ability of English language learners, including age limitations, maturity, socio-cultural factors, and emotional factors (Boroujeni et al., 2015). Based on the findings, introverted personalities are likely to perform better than extroverts and do not talk much, possibly thinking more deeply before speaking (Hakim, 2015).

In this section, the studies conducted on the correlation between personality and language skills are thoroughly reviewed. For instance, Bagheri Nevisi and Farmoudi (2022) examined the correlation between cognitive styles, personality types, and the willingness of English language students to communicate. For the purpose of the study, 198 learners were selected. Initially, the Eysenck Personality Questionnaire was administered to the participants. Then, the cognitive styles of the students were identified using the Group Embedded Figures Test. Following the implementation of these tools, the participants were classified as introverted or extroverted students, and finally, the Willingness to Communicate Questionnaire was distributed among the students. The findings indicated a significant correlation between cognitive styles and the participants' willingness to communicate. The extroverted students had a significantly higher field dependence compared to introverted students and exhibited a greater willingness to communicate. Additionally,

Yaghoobinejad and Ahour (2019) conducted a study aimed at examining how much of the variance in language learners' assertiveness is explained by the five personality traits. To achieve the research objectives, 66 graduate students aged between 22 and 35 years participated in the study. The College Self-Expression Scale and a personality questionnaire were used to assess the assertiveness level of the participants and their personality types. Multiple linear regression analysis was performed to analyze the data. The findings showed that about 14% of the participants' assertiveness was explained by the five personality traits, with extraversion being the only trait significantly correlated with their assertiveness. Furthermore, Mirhosseini and Abousaeedi (2023) investigated the correlation between students' personality types and their writing and speaking skills. For this purpose, 40 students were selected using a convenience sampling method. Then, a personality scale was administered to the participants. After completing the personality questionnaire, one group of introverts and one group of extroverts were formed. Writing and speaking tests were conducted as pre-tests. Subsequently, the writing and speaking tests were administered again as post-tests to measure the students' progress based on their personality types. Overall, the findings showed that the extroverted participants made more progress in their productive skills compared to introverted participants.

As mentioned in the literature review, as far as the researcher knows, some studies have examined the impact of various educational approaches such as blended

learning, flipped learning, and face-to-face learning on learners' pronunciation and speaking abilities (e.g., Zhang et al., 2016). Additionally, some researchers have conducted comparisons between flipped, blended, and traditional learning environments in the context of language learning and related issues (e.g., Hashemifardnia et al., 2021). Furthermore, several studies have been conducted on pronunciation and its teaching (e.g., Nikbakht, 2011). There have also been studies on the relationship between personality and language skills and sub-skills (e.g., Liyanage & Bartlett, 2013). However, no research has been conducted on the impact of flipped, face-to-face, and blended educational approaches on the pronunciation abilities of intermediate English learners who are either introverted or extroverted. Therefore, this article aims to investigate this topic.

### 3. Research Methodology

In this research, an experimental methodology was employed. The main objective of this study was to examine the impact of the independent variables, including flipped learning, face-to-face learning, and blended learning approaches, on the dependent variable, which is the pronunciation ability of learners in two groups: introverted and extroverted intermediate English learners.

#### 3.1. Participants

For the purpose of this study, 117 English language learners aged between 17 and 21 years were randomly selected from language institutes in the city of Isfahan, namely Safir and Gouyesh. The average age of the



participants was 18 years. The Nelson English Language Proficiency Test was administered to select a homogeneous group of participants. Based on the results, 83 learners who had an intermediate level of proficiency were selected. These participants were those who scored between 20 and 27 on the Nelson test. Following this, a pronunciation test was conducted to determine the initial general pronunciation ability of the participants. Then, 60 learners with a homogeneous level of English were selected. They were randomly assigned to three groups: face-to-face, blended, and flipped groups. Each group consisted of 20 female learners aged between 17 and 21 years.

### 3.2. Data Collection Tools

In this study, the following tools were used for data collection: the Nelson English Language Proficiency Test, the Eysenck Personality Questionnaire, and a pronunciation test.

#### 3.2.1. Nelson English Language Proficiency Test

The Nelson English Language Proficiency Test was used to assess the general language proficiency of the learners and to select a homogeneous group. The test includes four sections: reading comprehension, grammar, vocabulary, and pronunciation. The Nelson test is one of the most reliable tests for evaluating pronunciation and speaking ability in English. The pronunciation section consists of questions where participants must correctly pronounce words or sentences.

**Pronunciation of Words:** In this section, learners must correctly pronounce English words.

**Pronunciation of Sentences:** In this part, learners must correctly pronounce sentences.

**Pronunciation in Speech:** In this section, learners must read a text with correct and fluent pronunciation.

All sections consisted of multiple-choice questions, and the total time allotted for completing the test was 45 minutes. The reported reliability of the test using Cronbach's alpha statistical method was 0.90.

#### 3.2.2. Eysenck Personality Questionnaire

In this research, the Eysenck Personality Questionnaire was used to identify the extroversion and introversion of the participants. The items in this scale were simple and designed to identify whether the learners were introverted or extroverted. Participants responded to 11 yes/no questions, and scoring was done based on the number of "yes" responses. The 11 questions are as follows:

Do you often engage in self-reflection and deep thinking?

Are you often quick and energetic?

Do you often express your feelings and thoughts?

Do you often enjoy being in groups?

Do you often seek new adventures?

Do you often have self-confidence?

Are you often lively and cheerful?

Do you often experience stress and worry?

Are you often calm in serious and dangerous situations?

Are you often indifferent and inattentive to people?

Do you often experience doubt and hesitation?

The more "yes" responses indicated higher extroversion, while more "no" responses indicated introversion. To assess the reliability of the personality tool, Cronbach's alpha was calculated using SPSS software, and the reliability was reported as 0.85. This statistic indicates the reliability and trustworthiness of this tool in measuring the personality traits of the participants.

### **3.2.3. Pronunciation Pre-Test/Post-Test**

To collect the required data, a pronunciation test developed by the researcher was used in this study. This test included 30 pronunciation items, selected from the English book "Tree or Three?" as a supplementary resource. The time allocated for answering the questions was 30 minutes. The pre-test was administered by the students' own teacher before the start of the study. Another English pronunciation test was given to both the experimental and control groups at the end of the training period. The post-test was a modified version of the pre-test. The content of the post-test and pre-test was the same, but the format was different. This test was given to students who had participated in 16 sessions over six weeks. The test included 30 questions, and the time allocated for answering the questions was 30 minutes. Both the pre-test and post-test in pronunciation included the following sections:

**Pronunciation of Words:** Participants had to correctly pronounce a list of English words.

**Pronunciation of Sentences:** Participants had to correctly pronounce a series of sentences aloud.

**Pronunciation of a Paragraph or Text:** Participants had to fluently and correctly pronounce a paragraph or text.

To assess the reliability of the pronunciation test, Cronbach's alpha formula was used, resulting in a value of 0.80. This result indicates the reliability and trustworthiness of this test in measuring the pronunciation ability of learners before and after the training.

### **3.2.4. Skyroom**

In this study, the social network Skyroom was used as an educational tool. Skyroom is a highly popular web-based application for holding virtual meetings and online conferences. This platform provides features such as video conferencing, chat, and screen sharing, enabling users to communicate and collaborate remotely. Skyroom is recognized as a comprehensive and powerful tool that allows work groups to easily connect and conduct effective meetings.

## **3.3. Treatment**

### **3.3.1. Instruction Phase for the Flipped Group**

In this study, a class was conducted using the flipped learning method on the Skyroom platform, whereby the participants received educational materials before the online sessions. The participants in the flipped class received pronunciation instruction content three days prior to attending the online Skyroom class through recorded videos provided via Skyroom. This approach allowed the participants to familiarize themselves with the material beforehand and be prepared for class activities. During the online class sessions, the participants engaged in various pronunciation activities and

exercises. The researcher explained any unclear points and answered students' questions. The pre-prepared educational content included pronunciation exercises and tasks related to unclear points to enhance pronunciation accuracy.

### **3.3.2. Instruction Phase for the Blended Group**

For blended learning, the participants participated in both online Skyroom classes for one hour and in-person classes for one hour. The online classes were held twice weekly, while the in-person classes were held once weekly. Each term consisted of 16 sessions.

During the instruction phase for the blended group, the researcher initially created the Skyroom group and asked the participants to receive their educational activities through the Skyroom group. In the in-person classes, the researcher taught the pronunciation points of the selected book. During the in-person instruction, the participants were asked to complete and perform exercises and activities related to their books.

### **3.3.3. Instruction Phase for the Face-to-Face Group**

For the face-to-face group, there was no need to create a Skyroom group. In the in-person classes, the pronunciation sections of the book were taught by the researcher to the participants over 16 sessions. The participants were then asked to complete pronunciation exercises and activities from their book under the guidance of the researcher, who corrected them in case of any mistakes.

After 16 instructional sessions, the pronunciation post-test was administered to the three groups. Finally, the collected data was analyzed using appropriate statistical methods with the help of the Statistical Package for the Social Sciences (SPSS) software.

## **4. Descriptive Statistics**

In this section, the frequency distribution of the participants' gender, age, and the mean distribution of their pronunciation pre-test and post-test scores are presented.

**Table 1.** *The Mean Distribution of the Participants' Pronunciation Test Scores in Pre-test and Post-test*

Report			
Groups		Pronunciation pre-test	Pronunciation post-test
Face to face	Mean	19.2300	23.4500
	N	20	20
	Std. Deviation	2.56700	2.35025
blended	Mean	20.0000	24.7500
	N	20	20
	Std. Deviation	1.55597	1.55174
flipped	Mean	18.3500	27.0500
	N	20	20
	Std. Deviation	2.90689	1.87715
Total	Mean	19.3315	25.0833
	N	60	60
	Std. Deviation	2.55178	2.24961

The findings of Table 1 indicate that the average pronunciation test scores of the participants who received blended instruction in the post-test phase were higher

than the average scores of the participants who received flipped and face-to-face instruction.

**Table 2** *The Mean Distribution of the Extroverted and Introverted Learners' Pronunciation Test Scores in Pre-test and Post-test*

group		Pronunciation pre-test	Pronunciation post-test
Intorverted	Mean	20.3438	23.2500
	N	32	28
	Std. Deviation	2.41780	2.08389
Extroverted	Mean	21.1429	26.4375
	N	28	32
	Std. Deviation	2.67657	1.88265
Total	Mean	20.7167	24.8421
	N	60	60
	Std. Deviation	2.55178	2.24961

The results of Table 2 indicate that the average pronunciation test scores of extroverted learners in the post-test phase were higher than the average scores of introverted learners.

**Inferential Statistics**

In this section, first of all, the Kolmogorov-Smirnov Test was employed to indicate the normality or non-normality of the data distribution. Then, the research questions were analyzed utilizing the related statistical techniques.

**Table 3.** *The Kolmogorov-Smirnov Test of the Pronunciation Ability*

<b>One-Sample Kolmogorov-Smirnov Test</b>			
		Pronunciation pre-test	Pronunciation post-test
N		60	60
Normal Parameters <sup>a,b</sup>	Mean	20.7167	24.8421
	Std. Deviation	2.55178	2.24961
Most Extreme Differences	Absolute	.148	.102
	Positive	.127	.086
	Negative	-.148	-.102
Kolmogorov-Smirnov Z		1.146	.792
Asymp. Sig. (2-tailed)		.145	.557
a. Test distribution is Normal.			
b. Calculated from data.			

The findings of Table 3 indicate that the significant difference is above the 0.05 error level, so it can be concluded that the data in the table follows a normal distribution.

The first research question was whether flipped instruction has a significant impact on the pronunciation ability of intermediate-level introverted and extroverted English learners.

**Table 4.**

*Test of the Assumption of the Homogeneity of the Variance of Pronunciation Ability*

**Table 5.** *Examining the Homogeneity of Regression Slope*

<b>Test of Homogeneity of Variances</b>			
F	df1	df2	Sig.
1.145	1	18	.205

The results of the above table show that since the significance level (sig = 0.205) is greater than the 0.05 error level, the variance of both the introverted and extroverted groups was equal.

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	64.237 <sup>a</sup>	2	42.119	2.120	.102
Intercept	12.521	1	12.521	25.238	.000
group * pretest	74.237	2	37.119	2.120	.102
Error	42.346	57	.743		
Total	15637.000	60			
Corrected Total	116.583	59			
a. R Squared = .072 (Adjusted R Squared =.068)					

The above table shows that since the significance value is greater than 0.05 ( $P > 0.05$ ) and the fitting variable value is 2.12 ( $F$

= 2.12), it can be noted that the assumption of regression slope has been met.

**Table 6.** Examining the Findings of the Variance Analysis of the Pronunciation Ability

Tests of Between-Subjects Effects						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	52.017 <sup>a</sup>	1	52.017	65.919	.000	.342
Intercept	14420.417	1	1442.417	16496.961	.000	.975
group	52.017	1	52.017	65.919	.000	.342
Error	54.567	18	.941			
Total	15637.000	20				
Corrected Total	116.583	19				
a. R Squared = .232 (Adjusted R Squared = .224)						

As can be seen from Table 6, the analysis of variance showed that the difference in pronunciation ability between extroverted and introverted English learners who received blended instruction was statistically significant ( $p < 0.05$ ). Therefore, it can be claimed that using the blended learning

approach improved the pronunciation ability of extroverted learners in the post-test.

The second research question was whether face-to-face instruction has a significant impact on the pronunciation ability of intermediate-level introverted and extroverted English learners.

**Table 7. Test of the Assumption of the Homogeneity of the Variance of Pronunciation Ability**

Test of Homogeneity of Variances			
F	df1	df2	Sig.
1.982	1	18	.112

greater than the 0.05 error level, the variance of both the introverted and extroverted groups was equal.

The findings of the above table show that since the significance level (sig = 0.112) is

**Table 8. Investigating the Homogeneity of Regression Slope**

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7491.390 <sup>a</sup>	2	4320.695	1.531	.152
Intercept	58.917	1	58.917	193.679	.000
group * pretest	7491.390	2	4320.695	1.531	.152
Error	1253.343	57	21.988		
Total	407628.000	60			
Corrected Total	9744.733	59			
a. R Squared = .080 (Adjusted R Squared =.078)					

As it is evident from the above table, since the significance value is greater than 0.05 ( $P > 0.05$ ) and the fitting variable

value is 1.53 ( $F = 1.53$ ), it can be concluded that the assumption of regression slope has been observed.

**Table 9.** Investigation the Results of the Variance Analysis of the Pronunciation Ability

Tests of Between-Subjects Effects						
Dependent Variable: post-test pronunciation ability						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	420.400 <sup>a</sup>	1	420.400	7.942	.018	.196
Intercept	388255.267	1	388255.267	2488.290	.000	.977
group	420.400	1	420.400	7.942	.018	.196
Error	9274.333	18	159.902			
Total	407628.000	20				
Corrected Total	9744.733	19				
a. R Squared = .232 (Adjusted R Squared = .224)						

Based on the findings of the above table, the analysis of variance demonstrated that the pronunciation ability of extroverted and introverted English learners who received face-to-face instruction was statistically significant ( $p < 0.05$ ). Therefore, it can be noted that compared to introverted learners, the use of face-to-face instruction led to improvement in pronunciation among extroverted learners in the post-test. The results indicated that face-to-face or in-person instruction resulted in a 0.19% improvement in the pronunciation ability of extroverted participants.

The third research question was whether blended learning has a significant impact on

**Table 11.** Analyzing the Homogeneity of Regression Slope

the pronunciation ability of intermediate-level introverted and extroverted English learners.

**Table 10.**

*Test of the Assumption of the Homogeneity of the Variance of Pronunciation Ability*

Test of Homogeneity of Variances			
F	df1	df2	Sig.
2.239	1	58	.296

Based on the results of Table 10, due to the fact that the significance level ( $\text{sig} = 0.296$ ) is greater than the 0.05 error level, it can be concluded that the variance of both the introverted and extroverted groups was equal.



Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	80.570 <sup>a</sup>	2	55.285	2.269	.132
Intercept	20.549	1	20.549	13.356	.000
group * pretest	90.570	2	55.285	2.269	.132
Error	55.030	18	.965		
Total	14008.000	20			
Corrected Total	174.600	19			
a. R Squared = .056 (Adjusted R Squared = .053)					

Table 11 indicates that since the significance value is greater than 0.05 ( $P > 0.05$ ) and the fitting variable value is 2.26 ( $F = 2.26$ ), it can be said that the assumption of regression slope has been met.

**Table 12.** Analyzing the Findings of the Variance Analysis of the Pronunciation Ability

Tests of Between-Subjects Effects						
Dependent Variable: post-test pronunciation ability						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	81.667 <sup>a</sup>	1	81.667	19.088	.000	.215
Intercept	13862.400	1	13862.400	12575.900	.000	.982
group	81.667	1	81.667	19.088	.000	.215
Error	53.933	18	1.102			
Total	14213.000	20				
Corrected Total	145.600	19				
a. R Squared = .232 (Adjusted R Squared = .224)						

Based on Table 14, the analysis of variance demonstrated that the difference in pronunciation ability between extroverted and introverted English learners who were provided with blended instruction was statistically significant ( $p < 0.05$ ). Therefore, it can be stated that compared to introverted

learners, the implementation of blended instruction was the reason for the improvement in pronunciation among extroverted learners in the post-test.

The fourth research question was whether there is a significant difference in the pronunciation ability of those categories of

extroverted and introverted English learners when face-to-face, blended, and flipped instruction are provided.

**Table 13.** *The Results of the Difference between the Pronunciation Ability of the EFL Learners Who Received Flipped, Face to Face, and Blended Instruction*

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	80.933	2	40.467	10.598	.000
Within Groups	217.650	57	3.818		
Total	298.583	59			

**Table 14.** *The Results of Tukey Test Regarding the Pronunciation Ability of the EFL Learners Who Received Flipped, Face to Face, and Blended Instruction*

Multiple Comparisons						
(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Fact to face	blended	-.30000	.61793	.878	-1.7870	1.1870
	flipped	-2.60000*	.61793	.000	-4.0870	-1.1130
blended	Fact to face	.30000	.61793	.878	-1.1870	1.7870
	flipped	-2.30000*	.61793	.001	-3.7870	-.8130
flipped	Fact to face	2.60000*	.61793	.000	1.1130	4.0870
	blended	2.30000*	.61793	.001	.8130	3.7870

\*. The mean difference is significant at the 0.05 level.

The above table indicates that there is a significant difference in the pronunciation ability of English learners who received flipped, face-to-face, and blended instructions ( $P < 0.05$ ). As the table above shows, the pronunciation ability of participants who received blended instruction was better than the other two groups, and the pronunciation ability of this group improved significantly.

## 5. Discussion

The present study focused on examining the impact of flipped, face-to-face, and blended instruction on the pronunciation ability of introverted and extroverted language learners. The findings showed that, compared to the flipped and face-to-face teaching methods, the blended learning approach had a positive effect on the pronunciation learning of extroverted participants compared to introverts. Blended classes, which combine in-person and online

instruction, as a new educational approach, provided many advantages and opportunities to improve students' pronunciation. This method leverages the benefits of both approaches: on one hand, it allows direct interaction with the teacher and collaboration in in-person classes to practice and enhance pronunciation; on the other hand, it utilizes online tools such as pronunciation software, educational videos, and interactive exercises that enable students to practice and improve their language skills autonomously and at any time (Khodabandeh & Tahririan, 2020). In blended classes, the teacher could use various technological tools for teaching pronunciation, such as listening software that helped students learn correct pronunciation by listening to and repeating words and sentences. Additionally, with the use of educational videos, students could visually see pronunciation and improve themselves by watching exercises and examples of correct pronunciation. Furthermore, the blended classes provided direct communication with the teacher, allowing the teacher to give feedback and correct mistakes during the class. This direct interaction with the teacher enabled students to ask questions and clarify doubts directly, benefiting from the teacher's explanations and guidance to improve their pronunciation. Given that the blended classes also facilitated student-to-student interaction, students could collaborate in small groups and perform group exercises, benefiting from each other's experiences and thereby improving their pronunciation. Thus, by combining the advantages of in-person and online education, the blended classes significantly improved students'

pronunciation skills and proved to be an effective method for language learning. The results of this study are consistent with previous findings that confirm the positive impact of blended learning approaches on the learning progress of students (Ehsanifard et al., 2020; Luo et al., 2022; Yoon, 2011).

Based on the presented results, the flipped learning has also significantly improved learners' performance. The findings indicated that compared to traditional methods, the flipped learning was more effective and led to substantial improvements in learners' pronunciation. The primary reason for this improvement might be that in the flipped classroom, the instructor provided educational videos to the learners. The participants had to watch these videos before class and prepare for the online session. This preparation helped the learners familiarize themselves with the content, allowing them to actively participate in classroom activities, leading to greater advancements in their pronunciation learning. This aligns with the idea of Herreid and Schiller (2013), who stated that higher-order thinking can be enhanced by flipping the classroom because students are responsible for their learning before class and repeatedly engage with educational videos and discuss class content. Therefore, based on the study results, it can be concluded that the performance of the flipped classrooms has improved and this approach can lead to significant improvements in learners' language skills, consistent with previous studies (Abaeian & Samadi, 2016; Davari & Mall-Amiri, 2022; Hashemifardnia et al., 2021; Miraei Mohammadi et al., 2021; Moradi Khazaei &

Dowlatabadi, 2020; Zhang et al., 2016). The flipped method, as a novel educational strategy emphasizing the use of technology and changing traditional learning and teaching practices, has a significant impact on students' language skill education (Khanahmadi & Nasiri, 2022). This method utilizes self-directed learning and step-by-step focus, leveraging advanced tools like computers, educational software, and videos to enhance students' understanding of concepts and improve pronunciation. This approach allows students to continue learning independently and flexibly, accommodating their personal circumstances (Moradi et al., 2023). Additionally, flipped classrooms, by creating high-quality educational activities and combining content-focused and skill-focused teaching, help students better understand concepts and improve various abilities such as listening, writing, and speaking. This method, by establishing an interactive and collaborative framework for students, not only increases their interest in learning but also helps improve their language abilities (Naeemi Hoseyni et al., 2012).

Based on the third research question of this study, the results showed that among the three educational approaches examined, the extroverted English learners were more successful in learning pronunciation than introverts. These results are consistent with the findings of Bagheri Nevisi and Farmoudi (2022), who studied the relationship between cognitive styles, personality types, and the willingness to communicate among English language students. Their findings indicated a significant correlation between cognitive

styles and the participants' willingness to communicate. The extroverted students showed a significantly higher tendency to communicate compared to the introverted students. This can be attributed to the personality traits of the two groups. Extroverted students are generally more social and outgoing, making them more inclined to communicate with others. In other words, they enjoy interacting with others, which increases their willingness to communicate. On the other hand, introverted students typically prefer to spend time alone and are less inclined to interact with others (Bagheri Nevisi & Farmoudi, 2022). Furthermore, the findings of this research are in line with the results of Yaghoobinejad and Ahour (2019) and Mirhosseini and Abousaedi (2023). They examined the relationship between students' personality types and their productive skills. Data analysis findings indicated that, compared to introverted participants, extroverted participants were able to enhance their productive skills.

### 5.1. Conclusion

This study aimed to investigate the impact of flipped, face-to-face, and blended learning approaches on the pronunciation abilities of introverted and extroverted English learners. The results indicated that the blended group achieved greater progress in pronunciation learning. Based on the research findings, it can be concluded that using a blended learning approach has the potential to enhance the pronunciation abilities of English language students. As the findings showed, the extroverted personality trait had a positive correlation with the participants'

pronunciation ability. Considering the results, it can be concluded that extroverted participants in the blended learning group had better pronunciation performance.

The results of this study can encourage English language instructors to use the blended learning approach as a practical technique to develop learners' pronunciation skills. The use of blended classes, which combine face-to-face sessions and online instruction, can be highly beneficial for teaching pronunciation to English language teachers. This method allows teachers to utilize a variety of educational resources and leverage technology to enhance the learning process. Face-to-face sessions can serve as opportunities to explain theoretical concepts and provide practical guidance for correct pronunciation. Teachers can give immediate feedback and necessary corrections to improve students' pronunciation during these sessions. Additionally, the use of online educational resources such as instructional videos, pronunciation software, and other materials allows teachers to enable students to practice independently. These resources can provide instant feedback and help students achieve more accurate pronunciation. Overall, blending face-to-face and online instruction allows teachers to bring the best of both worlds into their classrooms, offering diverse opportunities for practice and improvement, thus creating a better educational experience for students. Allport (1937), considering the correlation between personality traits and language learning, stated that personality characteristics never occur identically in two individuals. Therefore, to effectively use

teaching methods in the classroom, educators must increase their awareness of the diverse personalities of their students. They need to consider that students have different personality types and adjust their teaching styles accordingly to ensure progress in their language classes. Besides teachers, curriculum designers and content providers need to be familiar with students' personality diversity to gain insights into student diversity and understand the different needs of students for planning academic advancement.

The number of English learners participating in this study was limited to only 60 intermediate-level English learners. To aid in the generalization of the results, it is recommended that other researchers conduct similar studies with a larger number of learners. Additionally, the English learners in this study were all at the intermediate level. It is therefore suggested to replicate this research by including learners of different proficiency levels, such as beginner, pre-intermediate, and even advanced. As mentioned before, the participants were selected from language institutes in Isfahan. High school and middle school students from other cities were not included in the study. Thus, it is recommended that future research be conducted in different cities across Iran, allowing for the inclusion of high school and middle school students. Moreover, since this study involved female English learners, other researchers are advised to replicate the study with male English learners. Finally, as this study did not consider the participants' perspectives on the three educational approaches, future researchers conducting

similar studies should take this aspect into account.

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