Journal of English Language Teaching and Learning

University of Tabriz

Volume 15, Issue 31, (Spring & Summer 2023)

A Comparative Study on the Use of Pronunciation Learning Strategies

Amirreza Vakilifard (Corresponding Author)

Department of Persian Language Education, Imam Khomeini International University, Iran.

vakilifard@hum.ikiu.ac.ir

Mahmoud Ateshgaran

Department of Persian Language Education, Imam Khomeini International University, Iran.

a.atashgaran.edu. ikiu.ac.ir

ARTICLE INFO:

Received date:
2023.03.18
Accepted date:
2023.04.01

Print ISSN: 2251-7995
Online ISSN: 2676-6876

Keywords:

language, pronunciation, learning, strategy, Persian, learner, eligible pronunciation, teaching, Chinese speaking learner, Arabic-speaking learners

Abstract

Pronunciation is one of the sub-skills which has significant effect on improving the communication competency and linguistic performance. Moreover, Pronunciation is one of the most difficult parts of teaching a foreign language to adults. It seems that the sub-skill of pronunciation is not taught in the form of a well-rounded program in communicative approaches and interactive conversations in Persian language classes, and that learners pronounce Persian under the influence of the phonemes of their mother tongue. This study is an attempt to provide an answer for the question of what strategies foreign learners use in their learning process by examining pronunciation learning strategies. The current research is the application and collection of research data using the field research approach and the descriptive method is used for the data analysis. The research instrument in data collection is a questionnaire composed of 43 items, each question containing a pronunciation strategy. After verifying validity and reliability, it was randomly distributed among foreign Persian learners. Based on the findings, they make significant use of cognitive, social, metacognitive and compensatory strategies. Commonly, mother tongue does not have a significant effect on the use of these strategies, but Chinese speakers use the group of cognitive strategies significantly more than Arabic speakers do.

DOI: 10.22034/elt.2023.55893.2528

Citation: Vakilifard, A. & Atashgah, M. (2023). A Comparative Study on the Use of Pronunciation Learning Strategies.*Journal of English Language Teaching and Learning*, 15(31), 215-231. Doi: 10.22034/elt.2023.55893.2528

Introduction

Pronunciation is one of the most influential sub-skills in language learning, communication competence, and linguistic performance, particularly if the learner is consciously striving to acquire native like pronunciation. Incorrect pronunciation in conversation with non-native speakers reduces self-confidence and has a negative impact on learners' beliefs about language learning. Since language is a communication tool in contemporary teaching methods, communication format and framework become important. For this reason, the pronunciation should be as close and similar to the native speaker as possible to create a meaningful and efficient connection in the target language context, which is considered tremendously invaluable (Celce-Murcia, Brinton and Goodwin, 2010).

Pronunciation may be one of the most challenging parts of language learning for foreign language learners and also, one of the less interesting subjects for teachers in foreign language teaching. Studies show that there is scant study and research in the field of pronunciation learning strategies compared to other aspects and skills of linguistic sciences. Pronunciation learning strategies are in line with language learning strategies. The main point is that the sub-skill of pronunciation is not taught in Persian language classes as a systematic strategy in interactive conversation. Moreover, Persian learners, including Chinese speakers and Arabic speakers, are taught Persian language with the same lesson plan and activities. As the problem, each group pronounce the Persian language under the influence of the sounds of their native language, and despite years of studying and proximity in Persian language environment, they are not able to speak Persian with clear and correct pronunciation.

The general purpose of this study is to expand the general understanding of the result of using these strategies in learning the pronunciation of a second language, which is by examining the effectiveness of teacher training at the international level along with critical listening and note-taking, marking correction (margin writing) and oral practice and repetition of the elements of the language. Another goal of the research is to know whether Persian learners use pronunciation learning strategies in the language learning process. Then, it should be determined what strategies is important from the language learners' point of view. Finally, this study tries to shed light on the useful principles for language teachers in teaching understandable pronunciation.

The results of this research can lead to a better understanding of language pronunciation learning strategies in language classes and will help textbook authors to include various activities and pronunciation exercises in these educational resources based on the needs of learners and according to the audience. At the same time, the results of this project will directly help language teachers to have a diverse list of pronunciation learning strategies and teach them to their learners.

Conceptual Framework

In this section, in addition to presenting the theoretical concepts of pronunciation learning strategies and scientific definitions of these strategies, a series of practical strategies are introduced that have been taught by language teachers in the real communication environment.

The language learning cycle, the presented strategies and solutions form the theoretical basis of this research, based on these principles, the questionnaire was prepared and provided to language learners.

Definition of Pronunciation Learning Strategies

In the early years of the 70s, researchers tried to describe the characteristics of a successful language learner and the strategies used in learning. For the first time, Peterson (2000) conducted a scientific research study on pronunciation strategies. By examining notes, he obtained from language teachers and interviews he conducted with language learners, he came up with valuable results. One of Peterson's (2000) suggestions is self-evaluation through listening to one's own pronunciation on a record, and considers this a valuable metacognitive activity in the acquisition of the language pronunciation.

According to Dörnyei and Ryan (2015: 144), "Strategy is a broader design or plan for approaching a high-level goal and it coordinates a set of tactics". Oxford (2002) considers strategies are action, behavior, strategy and special planning that a person does to improve and learn his second language skills. He considers pronunciation learning strategies as the special decisions and actions that the learner uses to facilitate learning the pronunciation of the second language, so that the mastery of the language and the fluency of the language and its pronunciation are realized in a short time, and also the learning of the language is more enjoyable and can be directed and transferred in the environment and in new and unexperienced situations.

According to the Oxford's (1990) taxonomy, most pronunciation learning strategies are innovative. He classifies these strategies into six categories:

Direct strategies:

1. Memory strategy: remembering the pronunciation of key words;
2. Cognitive strategy: recognizing and applying patterns and formulas for learning pronunciation;
3. Compensation strategy: avoiding using words with difficult pronunciation and trying to understand it in possible ways.

Indirect strategies:

4. Metacognitive strategy: focusing on specific sounds and phonetic coordination;
5. Affective strategy: trying to improve pronunciation combined with self-confidence and self-admiration;
6. Social strategy: correcting or asking others to comment on their pronunciation problems.

Some researchers have only arbitrarily proposed specific strategies to restore dialogue. In his study, Peterson (2000) presented twelve strategies and forty-three techniques in the form of notes obtained from interviews with eleven adult Spanish learners. These findings show that most of these techniques are mental and cognitive; especially strategies in which they repeat sounds naturally or in exercises. Memory strategies and speech and emotional restoration are less observed in language learners. Memory strategy in advanced language learners and emotional and social strategies can be seen more in language learners.

Eckstein (2007) started his studies and research with the aim of knowing and determining the learning rate of sounds and parts of pronunciation in the speech of each language learner who was taught pronunciation strategies and based on the perspective of the Pronunciation Acquisition Circle (PAC). He measured the difference of each learner in terms of pronunciation learning rate and cognitive strategy usage rate. The text pronunciation development test was conducted in a ten-week training course on an experimental group that participated in the story-reading activity. Meanwhile, those who had used motivational and effective strategies many times had better learning results than others. Therefore, motivation is an important factor in learning pronunciation. Eckstein mentions four stages for learning pronunciation and links the stage of motivation to it.

The first stage is called Integrative Experience in which the learner experiences pronunciation strategies together with linguistic data and in practice. In the second step, which is the Reflection of Observation stage, the learner uses strategies related to understanding and feedback. The third stage or the Abstract Concept stage, the learner forms his views and assumptions regarding the pronunciation of the target language. In the fourth stage, which is referred to as the Action Based on New Conceptualization, the learner tests the hypothesis established in the previous stage. The last component, Motivation Strategies, is added to these steps; because research clearly shows that motivation is a powerful factor in learning to pronounce the target language.

The expansion of public understanding is the result of the use of these strategies in learning the pronunciation of a second language, which is associated with the effectiveness of teacher training at the international level, along with critical listening and note-taking, correction of marking (marginal writing), and oral practice and repetition of the segmental elements. Suprasegmental features encompass word stress, reliance in a sentence or speech, tone, phonetic reduction or epenthesis in function and content words, conjunctions, stress placement on words and stress placement in multi-word expressions. Learning and understanding the sounds and the phonetic system of the second language and how to perform and produce them in the second language is one of the important skills for adult language learners who intend to speak the second language with maximum fluency, and it is also effective in improving listening skills (Celce-Murcia, Brinton and Goodwin, 2010).

Pronunciation Learning Strategies

Notwithstanding their breadth and diversity, pronunciation learning strategies can be classified as a subset of more general taxonomies of strategies, which differ in terms of the approach and techniques, the type of communication or learning context in which the language learner is placed. Each of these strategies and group or individual activities have their own characteristics, but it is worth mentioning that pronunciation training along with pronunciation learning strategies has its own content and educational space, and in some cases, laboratory, visual and auditory tools and the presentation of group activities It is special for these courses and requires the active and conscious participation of the learner. In the courses where these strategies are presented, learners are no longer silent and passive listeners; rather, they actively participate in their learning with the language teacher and other peers.

Teaching pronunciation

Language learners are introduced to self-monitoring strategies in classroom training, and exercises are provided under the supervision of the language teacher in the language laboratory. Homework is done using the strategies of the native speaker pattern and with the recorded voice of the learner's conversation. Common educational activities include:

a) listening to the language teacher and repeating and using the key features of native speaker pronunciation (in the classroom, in the laboratory and during individual exercises);
b) During class, using a text to predict the location of target language features, and then listening together to identify these features and discuss any inconsistencies;
c) Implementing and transcribing the recorded voice of the native speaker and the student's own conversation, according to the pronunciation features presented in the class;
d) Taking notes and writing and playing the audio recording of your presented article in class and exercises during which the learner performs self-correction of her speech.

Receiving feedback on pronunciation strategies is done in three ways:

a. By the language teacher: who provides direct feedback on classroom activities and records students' conversations as individual feedback for oral assignments and writes notes on assessed assignments and individually for twenty minutes with each language learner after a short classroom presentation, talks;
b. By peers: immediately after the class presentation, language learners give written feedback on the comprehensibility of these presentations to three of their classmates;
c. Self-assessment by each learner: After each class presentation or essay writing, learners listen to their recorded speech and complete a self-assessment form.

The class activity consists of a written part containing general impressions in the form of transcription of selected passages, a detailed assessment of the application of target language pronunciation features and responding to feedback from classmates and the instructor. Each learner has the opportunity to correct heterogeneous features in the recorded assignments.

Although the two types of training are described separately; instruction for pronunciation strategies and objectives are related and inseparable. Since the use of self-monitoring strategies requires the use of pronunciation goals and strengthening education in line with these goals, both types of education were introduced at the same time, and language learners showed a greater desire to practice strategies based on the goals of the course every week. Until the end of the semester, language learners monitored their assignments and pronunciation independently.

Eligible Pronunciation Strategies

One of the main goals of teaching pronunciation in any course is "comprehensible pronunciation", not similar and perfect pronunciation. Comprehensible pronunciation is an indispensable part of communication competence. Achieving a perfect pronunciation similar to a native speaker is no longer the primary goal. Morley (1994) seeks to set more realistic goals that are reasonable, feasible, and appropriate for the learners' communication needs. From his point of view, the learner should be equipped with the following abilities:

A. Having the ability to expand their cognitive ability; That is, the ability to understand what is said relatively easily in communication.
B. Having the ability in functional communication and responding to the communication needs they face.
C. Boosting self-confidence and developing speech monitoring abilities and speech correction strategy.

Therefore, it is essential that language learners learning a language for international communication speak it with the aim of being comprehensible and intelligible, not necessarily like a native speaker. It is equally important to learn to understand it. Especially when it is produced by people with different accents and in natural speech conditions. Rajaduari (2001) suggests that pronunciation is an integral part of oral communication in listening and speaking courses in any educational program. It is quite logical that removing the teaching of pronunciation from language teaching and conversation analysis is not a constructive decision. Consequently, considering the importance of meaningful communication and intelligible pronunciation, limiting pronunciation education to pronunciation classes or even listening/speaking classes in some programs is not enough; Rather, pronunciation training is everywhere along with language training.

Characteristics of an intelligible pronunciation: Since Persian language has increasingly become the language of use for foreign students interested in studying various fields of study in Iran, it is essential that speakers of the language, whether native or non-native, are able to effectively communicate and convey meaning (the main message). The unrealistic view that language learners should pronounce the language with a native speaker's accent is fading. (Burns, 2003). Burns believes that for the language learner, the valuable and critical issue in language learning is that:

A) His/her words should be clear and recognizable; it means pronouncing the phonological patterns of the target language correctly and recognizably.
B) His/her words are understandable; it means the native or non-native listener can understand the meaning and concept of the sentences (s)he produces.
C) It can be translated and interpreted; in other words, the listener can understand the purpose of what is being said.

The meaning must be available to the listener. If indirect meaning is desired, he must be able to translate and interpret it beyond words. Even if the learner cannot use the correct words and uses incorrect grammar, the correct pronunciation can cover the speech defect and the listener can understand the message (Burns, 2003). On the other hand, the findings of Couper (2003) regarding the role of listening exercises in improving pronunciation show positive effects. Both studies do not conclusively show how oral practice effectively improves pronunciation. Although the learner is taught the correct phonetic and phonetic lines; But it is mostly about getting feedback from them, not training that leads to self-monitoring and self-correction. Learners need to get to the point where they learn strategies to monitor their pronunciation and correct their mistakes.

The cycle of repetition and practice makes the learner familiar with the correct pronunciation of new words, and in this process, the context and linguistic needs and the desired meaning are

influential; So that it makes them pay more attention to the production and presentation of correct language. In learning the pronunciation of the language, repetition and familiarity with the features of the target language and the use of communication activities in the context and the teaching of reliance and tone at the sentence level in the target language create a chain that scientifically promotes educational progress and language learning and correct pronunciation. In such exercises, mere repetition is not important, it is a desired process that causes a person to focus and monitor her own produced speech and use rules to evaluate her own speech production.

Literature Review

Pronunciation learning is inextricably intertwined with language learning strategies, which has attracted the attention of many researchers in recent years, and over time, the attitude of researchers towards the field of pronunciation education has changed from a simple attitude to a strategic one. In other words, the attitude towards the subject of learning pronunciation is considered to be beyond the secondary language education.

Peterson (2000) conducted a research study on the use of pronunciation learning strategies by eleven adult learners of Spanish through the use of diaries and interviews. The results of this study revealed that cognitive strategies, especially practicing with sounds were implemented the most. Students using memory, compensatory strategies and affective groups were the least. Peterson reported that memory strategy was used only by advanced learners and that affective strategy was implemented by basic learners.

Hişmanoğlu (2012) carried out a study with 38 English companies in Cyprus. He found that advanced student tended to use more metacognitive strategies in general and self-evaluation as a tactic of it. The findings also indicated that a great number of the participants stated that they employed affective strategies including the use of humor to lower anxiety and the development of humor about their own mispronunciation. However, the use of social strategies with tactics such as asking for help, cooperating with peers, asking somebody else to correct them and pronounce a word, and tutoring others were found to be the least implemented ones. In general, it was found that advanced learners of English as a Foreign Language tended to employ all six major strategies although the use of metacognitive, affective and compensation ones was the highest. The least frequently used ones were social strategies.

Akyol (2013) aimed at investigating pronunciation strategy use of prospective teachers with a questionnaire. He found that cooperation strategies, i.e., social ones, were highly employed, and memory and affective ones followed them. On the other hand, the least used ones were compensation, metacognitive, and cognitive pronunciation learning strategies.

Rokoszewska (2012) carried out a study using a sample which consisted of 63 (44 females and 19 males) first-year students of an English department. The subjects were on average 20 years old, and declared that they had learnt English at school for about 10.87 years. Firstly, the results of the study indicate that the first-year students of the English department use PLS rather occasionally. Indirect strategies are used more than direct ones. In the group of direct strategies, the use of cognitive strategies is the highest, whereas in the group of indirect strategies, the use of metacognitive strategies is implemented the most.

Research Questions and Hypothesis:

As the literature review show, no research has been conducted on the pronunciation learning strategies used by Persian language learners. In this regard, the research seeks to answer the following 2 main questions:

Q1. Which pronunciation learning strategy is most frequently utilized by learners of Persian as a second language?

Q2. Which pronunciation learning strategy Chinese-speaking Persian learners use more than Arabic-speaking Persian learners?

The mentioned studies have reported more that learners of a second or foreign language use the cognitive strategies of pronunciation (Rokoszewska, 2012 and Peterson, 2000). Based on the afore-mentioned studies and corresponding to the research questions and, the following hypotheses are proposed:

H01. The cognitive strategy is most frequently utilized by learners of Persian as a second language.

H02. Chinese-speaking Persian learners use more the cognitive strategy than Arabic-speaking Persian learners.

Research Method

Considering the current circumstances related to pronunciation strategies, a questionnaire was used to examine and evaluate insights and perspectives related to pronunciation learning strategies. This instrument was designed on the basis of Oxford's Strategy Inventory for language learning (SILL) (Oxford 1990,) and it was of descriptive nature, encapsulating 43 items, each one addressing a particular pronunciation strategy using a 5-point Likert scale, with 1. Never, 2. Rarely, 3. Sometimes, 4. Usually, and 5. Always. According to Oxford (1990), the questionnaire was divided into *direct* (memory, cognitive and compensation) and indirect (metacognitive, affective and social) strategies. In the present research, the researcher used Calka's (2011) taxonomy and Peterson's (2000) classifications which have been created on the basis of Oxford (1990).

In a preliminary test, the scale was distributed among a panel of five expert educators, and the respondents were requested to express their opinions about the appropriateness of the items in the newly-developed scale for measuring the target index, as well as their remarks on the prevailing ambiguities, while answering the questions. The experts' corrective comments were applied to the questionnaire in the items, accordingly. The content validity of this questionnaire was confirmed by a comprehensive review of the related literature through studying books and articles pertinent to the field of research and determining the necessary information items along with applying corrective comments.

Subsequently, questionnaires and content validity for the diagnosis of indicators were calculated based on the opinions of twelve evaluators. Commensurate with the number of twelve evaluators, in line with the table below, the minimum content validity (CV) of the scale was established. In order to determine the reliability of the questionnaire, first, an initial sample, consisting of 30 pre-test questionnaires, and then using the data obtained from these questionnaires, the Cronbach's alpha reliability coefficient for these scales was calculated

using the statistical software (SPSS). According to the results of the investigation, it can be seen that the reliability of the questionnaire is 0.895 at the appropriate and acceptable level.

In the questionnaire, the strategies were presented in two languages, Persian and English, and given to one hundred people in a multitude of different classrooms. Prior to distributing questionnaires, language teachers of each class gave explanations about the scale. The scale's descriptive statistics were calculated with SPSS software once responses to questionnaires were obtained. All these strategies require the active contribution of the learner in their learning processes. The scale was prepared and arranged in six parts:

- The first part has to do with memory strategies such as representing sounds in memory, phonetic symbols, rhythms and how to remember the pronunciation of words.
- The second part is related to cognitive strategies including practicing naturalistically, practicing formally with sounds and analyzing the sound system, imitating the speech sounds of words and the style of practicing and repeating these lexical items. The methods of recognition and comparison of sounds and the difference between the pronunciation of the word in Persian and the native language of the Persian learner are questioned. The majority of the questions about pronunciation strategies are presented in this section.
- The third part encompasses a compensation strategy used for proximal articulations.
- The fourth part is about the metacognitive strategies of finding out about the TL, setting goals and objectives, planning for language task and self-evaluating pronunciation phonological rules and general knowledge of the phonetics of the Persian language.
- The fifth part is concerned with affective strategies, which is using humor to lower anxiety (the use of humor, fun and entertainment strategies in learning pronunciation).
- The sixth part is related to social strategies and this strategy is related to asking for help and cooperating with peers (cooperative and communicative strategies for learning pronunciation).

Persian language learners were asked to answer the questions according to their own pronunciation learning strategies in the answer sheets. It was explained to the participants that the questions had no effect on their class scores and that no answer was wrong.

Setting and participants

This study was conducted at Imam Khomeini International University. 99 language learners participated in this study. 52.5% of the participants were under 20 years old, making the highest age frequency and 47.5% over 20 years old. Arabic was the mother tongue of 56 participants (6/56) and 43 people (4/43) were Chinese speakers.

Analyzing Data and Research Questions

Data analysis is presented in two sections, examining questions and additional findings.

Investigating the First Research Hypothesis

For the purposes of this research, the following hypothesis was proposed as the cognitive strategy is most frequently utilized by learners of Persian as a second language. As mentioned before, one-sample t-test was used to check this hypothesis. The null hypothesis in examining the status of the six components of the research according to the five-point Likert scale is as follows:

Assumption test:

(Null hypothesis): 0H $\mu = 3$

(Directional hypothesis): 1H $\mu \neq 3$

All questions of the questionnaire were designed directly. The mean or arithmetic average obtained in the range of one to three is tantamount to 'no use' and 'very little use', and in the range greater than three, it means 'a lot and continuous use of the strategy' in question.

According to Table 1, the t-tests for the components of pronunciation learning strategies as cognitive strategy, metacognitive strategy and social strategy are statistically significant, also the mean obtained from these components is more than three and the amount of use of these four strategies for learning Pronunciation is very acceptable among language learners. However, in the case of the two components of the memory strategy and the affective strategy, the test is not significant, and the average obtained from these two components is in the range of 3, which means the average use of these strategies. Therefore, considering the level of significance, language learners meaningfully use 4 pronunciation strategies: cognitive strategy, compensation strategy, metacognitive strategy and social strategy to learn.

Table 1. *Investigating the Status of the Components* of *Pronunciation Learning Strategies*

Components	Mean	Std.	Test Statistics	Sig.	Status of Strategy Use
Memory	3/146	0/923	1/578	0/118	On average
Compensation	3/439	0/522	8/373	0/001	in large measure
Cognitive	3/787	0/961	8/156	0/001	in large measure
Metacognitive	3/470	0/565	8/272	0/001	in large measure
Affective	2/994	1/018	0/049	0/961	On average
Social	3/531	0/672	7/860	0/001	in large measure

For the ranking of 6 strategies, the Table 2 reveals the results of Friedman's test, which demonstrate that the test is significant.

Table 2. *The Result of the Friedman Test for Six Learning Strategies*

Pronunciation Learning Strategies		Mean
Direct PLS	1. Cognitive	4/42
Indirect PLS	2. Social	3/79
Indirect PLS	3. Metacognitive	3/56
Direct PLS	4. Compensation	3/49
Direct PLS	5. Memory	2/89
Indirect PLS	6. Affective	2/84
The Result of the Friedman Test		**Sig = 0/001 x^2 = 50/857**

This means that 6 strategies have different ratings from the point of view of language learners in terms of use for learning pronunciation. Also, according to the average rank, the strategy of "cognitive strategy" is in the highest rank and "affective strategy" is in the lowest rank. According to the results of this test, the first hypothesis of the research is confirmed.

Investigating the Second Research Hypothesis

The second research hypothesis was Chinese-speaking Persian learners use more the cognitive strategy than Arabic-speaking Persian learners.

Independent samples t-tests were utilized to check the second hypothesis. The results are summarized in Table 3. Based on independent t-tests regarding the difference in the use of strategies according to the mother tongue, it can be seen that the average components of memory strategy, cognitive strategy, metacognitive strategy, affective strategy and social strategy have not statistically significant differences among participants. There are no statistically significant differences in Arabic or Chinese groups.

Table 3. *Comparison of the Mean and Standard Deviation of the Six Components of Telepathic Learning According to Native Language*

Group / Variable	Arab Language	Chinese Language	Test Result
Memory	3/214± 0/943	3/019± 0/984	t=0/859 sig=0/393
Compensation	3/517±0 /522	3/426± 0/511	t=0/744 sig=0/459
Cognitive	3/535± 0/971	4/153± 0/784	t=2/840 sig=0/006
Metacognitive	3/484± 0/608	3/448± 0/554	t=0/252 sig=0/802
Affective	3/017± 0/953	3/096± 1/113	t=0/328 sig=0/744
Social	3/564± 0/701	3/746± 0/572	t=1/154 sig=0/252

This means that the mother tongue has no effect on the use of these 5 strategies in learning pronunciation. However, the cognitive strategy component made a significant difference between Arab and Chinese students, and according to the mean score of language learners, Chinese learners have used this component more than Arab ones. The research results in Table 3 show that the second hypothesis can be fully accepted

Secondary Findings

The frequency of use of PLS tactics

Friedman's test was used to rank the indicators of the components of memory strategies. After being significant, this test ranks the indicators using the average rank.

Table 4. *The results of Friedman's Test for Ranking Indicators of the Memory Strategies*

Direct strategies		
Group of memory strategies	***Tactics***	***Mean***
Representing Sounds in Memory	Using phonetic symbols or one's own codes to remember how to pronounce something.	1/52
	Making up songs or rhymes to remember how to pronounce words.	1/48
The Result of Friedman's Test	$sig = 0/646\ x^2 = 0/211$	

Table 4 summarizes the result of the Friedman test for ranking the indicators of the memory strategies, and it can be seen that the test is not significant. This means that the indicators of the memory strategy do not have different ratings from the perspective of Persian learners in terms of use for learning pronunciation.

Table 5 summarizes the results of Friedman's test for ranking the indicators of cognitive, which shows that the test is significant.

Table 5. *The Results of Friedman's Test for Ranking Indicators of the Cognitive Strategies*

Direct Strategies		
Group of Cognitive Strategies	***Tactics***	**Mean**
Practicing Pronunciation	Imitating Persian speakers or one's teacher.	16/04
	Repeating aloud after the teacher or a native speaker.	11/14
	Repeating aloud after recordings, television or a movie.	8/71
	Doing exercises/practicing to acquire Persian language sounds.	14/94
	Talking aloud to oneself.	7/73
	Saying things silently to oneself.	10/85
	Noticing mouth positions, watching lips.	10/16
	Concentrating intensely on pronunciation while listening to Persian language.	15/31
	Trying to recall how one's teacher pronounced something	16/28
	Trying to recall and imitate one's teacher's mouth movement.	10/70
	Listening to recordings / televisions / movies / music.	13/70
	Concentrating intensely on pronunciation while speaking.	14/21
	Speaking slowly to get the pronunciation right.	13/17
	Noticing and trying out dialects of Persian.	11/55
	Concentrating intensely on pronunciation while speaking.	14/21
	Mentally rehearsing how to say something before speaking.	15/29
Formally Practicing with Sounds	Reading aloud.	12/36
	Repeating silently.	13/01
	Practicing sounds first in isolation and then in context.	12/71
	Practicing words using flashcards.	7/35
	Practicing saying words slowly at first and then faster.	14/71
Analyzing and Reasoning	Forming and using hypotheses about pronunciation rules.	12/31
	Noticing pronunciation errors made by Persian language speakers.	13/78
	Noticing contrasts between Persian and my language Pronunciations.	15/97
The Results of Friedman's Test		**Sig= 0/001 x^2 =390/362**

This means that the indicators of cognitive strategy have different ratings from the perspective of Persian learners in terms of use for learning pronunciation. Also, according to the average rank, "I try to recall how the teacher pronounces a word" is in the highest rank and "I use flashcards to practice words" is in the lowest rank.

Table 6 shows the summary of Friedman's test results for the ranking of compensatory strategy indicators. It can be seen that the test is not significant and language learners use both tactics equally.

Table 6. *The Results of Friedman's Test for Ranking Indicators of the Compensation Strategies*

Direct Strategies		
Group of Compensation Strategies	***Tactics***	**Mean**
Guessing intelligently	Guessing the pronunciation of new words.	4/89
Overcoming limitations in pronunciation	Purposefully avoiding practicing inappropriate Persian sounds.	5/28
The Result of Friedman's Test	$\boldsymbol{Sig = 0/646 x^2 = 0/211}$	

Table 7 provides a summary of the findings of Friedman's test for ranking the indicators of the metacognitive strategy. It shows that the test is significant. This means that the indicators of the metacognitive strategy have different ranks from the point of view of language learners in terms of use for learning pronunciation. Supplementary to this, according to the average rating, "I try to memorize the sounds (or alphabets) of Persian correctly" is the highest and "instead of reading a text, I try to memorize it" is the lowest.

Table 7. *The Results of Friedman's Test for Ranking Indicators of the Metacognitive Strategies*

Indirect strategies		
Group of Metacognitive Strategies	***Tactics***	**Mean**
A. Finding out about target language (TL) pronunciation	Revising general knowledge of phon etics.	4/77
	Reading reference material about Persian language pronunciation rules.	4/75
B. Evaluating one's learning	Recording oneself to evaluate one's pronunciation.	5/28
C. Arranging and planning one's learning	Seeking out models for sounds.	4/63
	Seeking out individuals to correct one's pronunciation.	5/15
D. Setting goals and objectives	Deciding to focus one's listening on particular sounds.	5/43
	Deciding to focus one's learning on particular sounds.	5/33
	Deciding to memorize the sound (or the alphabet) right away.	5/98
	Choosing to memorize, rather than read a text.	3/68
The Result of the Friedman Test	***Sig=0/ 001x^2 =56/256***	

Table 8 displays the results of the Friedman's test for ranking the affective strategies indicators, which shows that the test is not significant. This means that the indicators of the affective strategy do not have different ratings from the perspective of Persian learners in terms of use for learning pronunciation, and the use of both indicators is at the same level and size.

Table 8. *The Results of Friedman's Test for Ranking Indicators of the Affective Strategy*

Indirect Strategies		
Group of Affective Strategies	**Tactics**	**Mean**
Taking one's emotional temperature	Having a sense of humor about mispronunciation.	1/46
	Having fun with pronunciations, such as imitating the overall Persian language sounds with my language words.	1/54
The Result of the Friedman Test	***Sig=0/345 x^2= 0/891***	

Table 9 summarizes the results of Friedman's test for ranking indicators of the social strategy. It shows that the test is not significant. This means that the indicators of the strategy of helping others have different ratings from the perspective of Persian learners in terms of use for learning pronunciation. Besides, according to the average rank, "I study with someone else" is in the highest rank and "I help someone else with Persian pronunciation." is in the lowest rank.

Table 9. *The Results of Friedman's Test for Ranking Indicators of the Social Strategy*

Indirect Strategies		
Group of Affective Strategies	**Tactics**	**Mean**
Taking one's emotional temperature	Having a sense of humor about mispronunciation.	1/46
	Having fun with pronunciations, such as imitating the overall Persian language sounds with my language words.	1/54
The Result of the Friedman Test	***0/345 x^2= 0/891=Sig***	

Discussion and Conclusion

The findings of this research (Table 1) indicated that Persian language learners attempt to use more or less six major pronunciation learning strategies (memory, cognitive, compensation, metacognitive, affective and social strategies) to improve their pronunciation, although they did not apply a wide repertoire of tactics for every strategy group, they instead relied on those they preferred. These results are consistent with other previous research studies. Data analysis in this study shows that students do not use all tactics. This is because most students did not learn pronunciation formally in their native language and also received no training in strategy during language lessons. It is thought provoking that language learners do not use a wide range of pronunciation tactics and strategies. Nonetheless if teachers are trying to develop un intelligible pronunciation among foreign students during their language learning process, they should vise to formally teach pronunciation strategies in their classes.

As shown in Table 2, language learners have used strategies with the following order of frequency: cognitive, social, metacognitive, compensation, memory and affective. These results are in line with the results of other studies, notably those of Peterson (2000) and Rokoszewska (2012), which found high-frequency use of cognitive strategies with a wide variety of tactics. These findings are not in tune with other study findings including Hişmanoğlu (2012), based on which affective strategy has been reported the most use. Besides, the social strategy was ranked first in Akyol (2013) research and second in our research among 6 strategies. The findings of these two studies are close in this regard. Also, the result of this research confirms those of Peterson (2000) that ranked the affective strategy as the last one.

It seems that the largest number of pronunciations learning techniques is of the cognitive type, which is mostly placed in the broader fields of general language learning strategic research. Learners need to know what it takes to improve their pronunciation and enhance their communication skills in the target environment, especially outside the classroom.

In this regard and according to the second hypothesis of the research, it is shown (Table 3) that Chinese and Arabic language learners use all pronunciation learning strategies. But Chinese speakers use cognitive strategies with a significant difference compared to Arabic

speakers. The reason for obtaining such a result is perhaps that among the tactics of the cognitive strategy group, there are many verbs, such as I repeat, I practice, In Chinese culture, students learn the sayings and poems of Confucius by repetition and memorization.

In addition to this long-standing tradition, the main difference between Mandarin Chinese and most other languages in the world is its tone. In this way, each syllable in this language is mostly pronounced in 4 tones. For this reason, the tones must be learned in a fixed way, and if the tone changes, the meaning change as well. Influenced by the mother tongue, the Chinese learn other languages much more easily through practice pattern tactics, which seems more difficult for people whose mother tongue is fusional, such as the Arabic language. Such habits as learning by repetition and patterns have become established in the minds of Chinese learners. This is why several Chinese learners pronounce the same sentence in a foreign language in the same way, it is as if a speaker plays a recorded phrase several times. (S. J. Hosseini, personal communication, April 02, 2022).

The foreign students use more cognitive tactics (Table 2 and 5), such as recalling teacher pronunciation, Imitating teacher's pronunciation, mentally rehearsing how to say something before speaking and concentrating on pronunciation while listening to Persian language. The high use of cognitive tactics may be the result of formal or informal classroom practices, but the use of tactics of social strategy (2nd rank in Table 2) suggests that students know that being dependent on the classroom practices is not sufficient to successfully learn pronunciation, so they use more tactics of social strategies, like studying with someone else, learning pronunciation with others, ... in order to become familiar with other cultural and pragmatic aspects of Persian language (Table 9).

Although the use of affective tactics was the highest (2nd rank) in Hişmanoğlu (2012) research, it seems that Persian language learners do not use (Table 8) some sense of humor about mispronunciation, do not take pleasure with pronunciation and do not imitate the overall Persian language sounds with their language words.

As far as the metacognitive factors are concerned, the results of the analysis of the participants answers (Table 7) do not confirm the findings of Akyol (2013) who found little use of metacognitive strategies. This group of strategies has been assigned the third priority of the respondents (Table 2) and deciding to memorize the sound (or the alphabet) right away, to focus one's listening on particular sounds, to concentrate one's learning on particular sounds were commonly used tactics. Activities such recording oneself to evaluate one's pronunciation and seeking out individuals to correct one's pronunciation were also popular. The use of these tactics show that Respondents are aware that these activities allow them to take charge of their learning. But then again, the fact that they do not use certain groups of metacognitive strategies, such as finding out about TL pronunciation and some tactics in this group, show in the necessity of teaching clearly and directly how to manage their pronunciation learning and how to evaluate themselves and others, which helps them to be more self-regulating and autonomous in their language learning process.

One of the least popular group of strategies were memory strategies (5th rank in Table 4). They do not use the strategy of the representing sounds in memory and the use of both tactics (using phonetic symbols or one's own codes to remember how to pronounce something and

making up songs or rhymes to remember how to pronounce words) are at the same level and size. It seems that the teachers can develop the use of memory tactics such as grouping, making associations between a target language sound and a native language sound, applying images or sounds, creating mental linkage and putting words into context in order to memorize their pronunciation.

Regarding the strategies of the group of compensation strategies (guessing intelligently and Overcoming limitations in pronunciation), they are less used (Table 6), teachers should familiarize students with the different types and instances of using compensation strategies to facilitate communication, especially at the elementary levels. But at a more advanced level, language learners need to put more effort into improving their pronunciation, instead of using proximal articulation, guessing, or avoidance.

The last word that should be mentioned is that if the teacher and the learner participate together in the learning process, all learners can be successful in learning the pronunciation of a foreign language. If individual teaching and learning goals are set, it can be successful.

Pronunciation is more than the correct production of sounds. It should be viewed with the same significance as grammar, syntax and conversational skills, which are prominent parts of communication. The prevailing approach at present in language education knowledge is based on the premise that intelligible pronunciation is an essential component of communicative ability. It is not impossible to improve pronunciation, although there is little desire for this among language learners. A much different pronunciation or accent does not reflect favorably on native speakers or other language learners who have learned it at an advanced level. In the real communication situation and in the second language environment, poor pronunciation even causes misunderstanding and failure to communicate with the target language and creates a negative psychological feeling in the other party.

In view of this, the teacher should set achievable goals that are appropriate and appropriate to the learner's communication needs. The learner should also be a part of the learning process and actively participate in his learning. The content of this course should be connected to the communication class, and the content should emphasize teaching the elements of grammar and the connection of pronunciation with listening comprehension and allowing the act of meaningful pronunciation. Acts with the teacher as a speech coach, not as a pronunciation monitor. Feedback given to Persian learners can encourage them to improve their pronunciation. If these criteria are met, it can be expected that most of language learners could learn Persian language pronunciation in the best possible ways and with their own strategies

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