Effects of Non-negotiated Pre-modified Input, Negotiation of Input without Output, and Negotiation of Input plus Pushed Output on EFL Learners’ Vocabulary Learning

Arash Azizi
Faculty of Foreign Languages, Islamic Azad University, Central Tehran Branch, Tehran, Iran

Abstract—This experimental study investigated the comparative effects of non-negotiated pre-modified input, negotiation of input without output, and negotiation of input plus pushed output on EFL learners’ comprehension and production. Before starting the study, forty-three male and female adult students at intermediate level took the Preliminary English Test (PET) and 30 of the students who scored one standard deviation above and below the mean score in the PET were randomly assigned to three experimental groups. The whole treatment took 10 sessions and, after the treatment, two sets of tests were administered; i.e., one written and the other oral. Analysis of Variance on comprehension test and analysis of nonparametric alternative, i.e., Kruskal-Wallis test, on production test, indicated that (a) negotiation had a positive effect on the comprehension and production of targeted L2 vocabulary items and (b) negotiation of input plus pushed output did not promote production of L2 vocabulary more than negotiation of input without output. The findings of this study provide empirical evidence on the important role of negotiation in facilitating comprehension and production of targeted L2 vocabulary items.

Index Terms—pre-modified input, negotiation of input, pushed output, vocabulary learning

I. INTRODUCTION

Traditionally, vocabulary learning was often left to look after itself and received only incidental attention in many textbooks and language programs. Although the course curriculum was often quite specific about aspects of teaching such as grammar, reading, and writing, little specification was given to the role of vocabulary. However, today, researchers and language teachers are becoming more convinced that vocabulary knowledge constitutes an essential part of competence in a second or foreign language. In recent years, hopefully, a variety of techniques have been suggested and used by teachers to teach vocabulary. Common to these techniques for teaching second language (L2) vocabulary is the proposition that L2 vocabulary items targeted to be taught should be embedded in enriched L2 input so that the input would provide a context from which the learner can make associations between the form of the word and its meaning. This proposition is grounded on the prominent importance that has been given to the role of input in L2 acquisition since 1980s, beginning with the works of Stephen Krashen (1982, 1985). This trend has had very important implications for teaching and learning L2 vocabulary. For example, according to Harmer (2007), the best way of introducing new words for students is to read texts or listen to audio and to see or hear those words in action. This means that L2 vocabulary items should not be taught to language learners in isolation; rather, it should be presented to the learner in an appropriate linguistic context.

II. DIFFERENT TYPES OF INPUT

A. Pre-modified Input

The most debated theory proposed to explain the role of input in the process of L2 acquisition is Krashen’s (1982, 1985) ‘Input Hypothesis’. According to this hypothesis, if \( i \) represents previously acquired linguistic competence then \( i+1 \) represents new knowledge or language structure that the language learner should be ready to acquire. According to Krashen, the acquisition of \( i+1 \) happens through understanding the message conveyed by the utterance representing \( i+1 \). One of the ways to make language input comprehensible is through providing the language learners with pre-modified language input (Johnson, 2003; Kim, 2003). Any spoken or written language input can be simplified or modified for the sake of comprehension through providing less difficult vocabulary items and complex syntactic structures (Carroll, 2001; Krashen, 1985; Loschky, 1994). The native speaker (NS), or the non-native speaker (NNS) with a higher proficiency level, could modify, or adjust his/her input so that the NNS might be able to comprehend the intended message. (e.g., Carroll, 2001; Kim, 2003; VanPatten, 2003)

The advantage of modifying the input through elaboration is that elaborated adjustments have the potential to supply language learners with access to the linguistic items they have not acquired yet in the process of L2 acquisition (Larsen-
Freeman & Long, 1991; VanPatten & Cadierno, 1993). There are some elaborated adjustments to make the input comprehensible for non-native students, including paraphrasing of words or sentences, reducing the complexity of message (simplification and foreigner talk), repeating, etc. A wide range of L2 scholars (e.g., Ellis, 1995; Ellis & He, 1999; Jensen & Vinther, 2003; Loschky, 1994; O’Malley, Chamot, & Kupper, 1989) has researched the role of these elaborated adjustments (i.e., pre-modified input) in the acquisition of different aspects of the L2. The findings of these studies have clearly shown that adjustments made to L2 input would help the learner to better understand the meaning of the intended messages, leading to the improvement of L2 knowledge. (Ellis & He, 1999; Loschky, 1994)

B. Interaction as Input

Gass and Torres (2005) define interaction as language exchange in which there is some indication that an utterance has not been entirely understood. The Interaction Hypothesis (Long, 1980) explains one way in which L2 learners can best succeed at learning a target language. According to the hypothesis, when a learner is attempting to negotiate a conversation in the target language, the gaps in his/her L2 abilities, such as gaps in pronunciation, syntax, grammar and vocabulary, are revealed to him/her and this self-realization brought about by authentic interaction will encourage the learner to produce L2 output to negotiate meaning and seek out the knowledge he/she lacks. According to the Interaction Hypothesis, learners realize the gap in their knowledge by checking with the persons that they are having a conversation with.

‘Checks’ are the key to the process. There are several types of interaction modification checks that take place during a natural conversation, such as clarification request, confirmation check, comprehension check, etc. These checks provide the learner with opportunities build positive effective feelings of confidence and learning opportunities. Previous literature shows that negotiation of meaning is centered on key elements of a language and the most significant of these key elements is L2 vocabulary (Ellis, 1995; Ellis, Tanaka, & Yamakazi, 1994; Hatch, 1983). According to Long (1996), "negative feedback obtained in negotiation work or elsewhere may be facilitative of SL development at least for vocabulary, morphology and language specific syntax (p. 414). A study by Mackey, Gass, and McDonough (2000) on the types of interactional feedback revealed that most of feedback learners received from NSs was triggered by problems with lexical items and that feedback episodes were perceived to be about lexis most of the time by learners.

C. Pushed Output as Input

The third source of input that can facilitate L2 acquisition is pushed or modified output. According to Swain’s Comprehensible Output Hypothesis (1985), learning takes place when the learner encounters a gap in his/her L2 knowledge. By noticing this gap, the learner becomes aware of it and might be able to modify his/her output so that he/she learns something new about the L2. Additionally, the Comprehensible Output Hypothesis is in certain ways connected to vocabulary learning, when it comes to productive vocabulary learning. There are three main arguments to support this proposition. First, vocabulary negotiation is a common feature of interactions between NSs and L2 learners (Gass & Varonis, 1985; Laufer, 1998; Pica, 1992). Second, L2 learner’s selective attention is often focused on specific identifiable units, and vocabulary items are the most representative of such units (Gass, 1997). Finally, some of the functions of output appear to be in operation during lexical output production (Swain & Lapkin, 1995). In line with these arguments, Laufer (1998) states, “if not pushed to use [L2] words, they may never be activated; therefore, remain in passive vocabulary only” (p. 267). Ellis et al. (1994) suggest that negotiation may benefit productive acquisition of new words given that the students have the opportunity to use the items they have begun to acquire and to receive feedback from other speakers (p. 483).

III. PURPOSE OF THE STUDY

The basis of most models of L2 acquisition is the premises that enriched input may yield beneficial effect for L2 acquisition, if effectively attract learners’ attention to certain forms contained in the input they receive. In line with this premise, teachers are usually encouraged to attract learners’ attention to vocabulary items in order to negotiate meaning, since vocabulary is said to function as a cornerstone without which any language could not exist (see Bogaards & Laufer, 2004; Harmer, 1993). For example, Harmer (1993) states, if language structure makes up the skeleton of language, then it is L2 words that provide the vital organs and flesh. In most models of vocabulary learning, the act of learning starts from comprehension to production and act of production of vocabulary is considered a more difficult task than a comprehension task. A number of studies have attempted to demonstrate how different types of input could contribute to the comprehension and production of targeted L2 words (e.g., Ellis & He 1999, Macky & Philips, 1998); however, the results of these studies have usually been contradictory and these studies have not compared the effects of different types of L2 input on both L2 comprehension and production. Therefore, the present study is set out to investigate the comparative effects of different types of L2 input on the comprehension and production of targeted L2 words while covering the research gaps of previous studies of the issue.

As mentioned above, this study is an attempt to examine the comparative effects of pre-modified input, negotiation of output and negotiation of input plus pushed output on comprehension and production of targeted L2 words. This study is set out in hope to find a better way to boost the lexical comprehension and production ability of L2 learners.
Therefore, the findings of the study will be beneficial for teachers whose concern is not only comprehension but also production of L2 vocabulary. Based on what was mentioned, the purpose of the present study is to study the comparative effect of non-negotiated pre-modified input (NNPI), negotiation of input without output (NIWO) and negotiation of input and pushed output (NIPO) on EFL learner’s comprehension and production of targeted L2 words. Therefore, this study was conducted to answer these two questions:

RQ1- Is there any significant difference among the effects of NNPI, NIWO, and NIPO on Iranian EFL learner’s comprehension of targeted L2 words?

RQ2- Is there any significant difference among the effects of NNPI, NIWO, and NIPO on Iranian EFL learner’s production of targeted L2 words?

IV. METHODOLOGY

A. Participants

This study was conducted in Ghotbeh Ravandi English School for adults in Tehran, Iran. The Preliminary English Test (PET) was administered to 43 students in order to sample the participants who would serve the purposes of the study. Of the 43 learners who took the PET, 30 learners who scored one standard deviation above and below the mean score were chosen as the homogenized participants of the study. The participants of the study aged from 23 to 33 and were at an intermediate level, according to their teachers. The participants were then randomly assigned to three experimental groups; i.e., non-negotiated pre-modified input (NNPI) group, negotiation of input without output (NIWO) group, and negotiation of input plus pushed output (NIPO) group.

B. Instrumentation

Targeted Words

Fifty adjectives were chosen from Word Skills for Intermediate Students (Gairns & Redman, 2008) and 504 absolutely essential words (Bromberg, Lieb, & Traiger, 2005) were taught to the students in the 3 experimental groups. First, a test of the targeted words was designed including 60 items in order to make sure that the sample did not know these words and they had not been exposed to these vocabularies prior to the treatment. For this purpose, the test was piloted with another group of 25 Iranian EFL learners. After conducting the pilot test and doing item analysis, 10 malfunctioning items were removed from the list of the targeted words and, thus, 50-targeted words remained for the study. In addition, 50 pictures corresponding to theses adjectives were used to facilitate learning since, according to Meta Memory Techniques (Wright, 1990), using imagery can facilitate the process of learning and retention of words. The images were used as a facilitative tool in the hope for better comprehension and production of the targeted words.

Posttests

Two sets of tests for measuring the comprehension (recognition) and production of targeted L2 words were designed. One test was conducted in written form and the other test was conducted in oral form. For the comprehension (recognition) test, a multiple choice test format was designed to measure the participants’ ability to comprehend (recognize) the meanings of the targeted words. This test included 50 items for the 50-targeted English adjectives. Each item consisted of an incomplete sentence (as the stem) along with four lexical options. The students’ duty was to choose the best word that completed each sentence. They were given 40 minutes to complete the comprehension test. As for the production test, an oral test was designed to measure the ability of participants to produce the targeted words (i.e., adjectives). The researcher gave the images of the 50 instructed words to each individual and asked some questions to elicit the answers. They had a total time of 30 minutes to complete the test.

C. Procedure

For the NNPI group, on each session, the instructor wrote five of the targeted words on the board and attached their pictures randomly on the board; then, the instructor presented the definition of each word. The participants could ask the instructor to repeat the definition as much as they wanted within one minute, but they could not ask any questions for confirmation or elaboration. Further, they were not allowed to interact with each other. After giving the definitions of all the five-targeted words, as an activity, the instructor gave a piece of paper to each of the participants and the participant was supposed to match the definitions from column A with the targeted words in column B. In a second activity, the participant was asked to write down each of the targeted words under the appropriate illustrated pictures. At the end, the instructor pointed to the pictures on the board and elicited words from the participants and then the participants repeated the words chorally twice. The treatment took 20 minutes for each session (10 sessions).

For the NIWO group, like the first group, on each session, the instructor wrote five of the targeted words on the board and attached their pictures randomly on the board; then, the instructor presented the definition of each word but, unlike the first group, the participants were allowed in the NIWO group in order to get the meanings of words, questions such as “Is it related to personality?”, “Does it describe things or human being?”, “Is it positive or negative?”, etc. The instructor helped the participants indirectly by answering their questions to find and indicate the appropriate image. They were also allowed to interact with each other to understand the meanings better. After giving the definition of the five-targeted words and negotiating their meanings with the participants, the instructor showed the pictures to
them and elicited the words from students, and then they repeated words chorally. Like the first group, 20 minutes was allocated to each session (10 sessions).

For the NIPO group, the instruction was the same as the NIWO group; the only difference was that, after indicating the pictures to the participants, they were asked to make a sentence with each of the words. By doing this, the participants were involved in the process of producing the targeted L2 words. Like the first and the second group, 20 minutes were allocated to each session (10 sessions). One week after the end of the treatment sessions, two tests (one written (comprehension test) and the other oral (production test)) were administered to all the participants in the three experimental groups as the posttests.

V. RESULTS

A. Descriptive Statistics

Table 1 presents the descriptive statistics of the comprehension posttest for the three experimental groups. As you can see from the table, the participants in the NIWO group gained the highest mean score among the three experimental groups on the comprehension posttest (M = 38.70, SD = 6.30), followed by the participants in the NIPO group who gained the second highest mean score among the three experimental groups on the comprehension posttest (M = 37.60, SD = 3.59). Finally, the participants in the NNPI gained the lowest mean score among the three experimental groups on the comprehension posttest (M = 27.30, SD = 4.29).

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NNPI</td>
<td>10</td>
<td>22.00</td>
<td>36.00</td>
<td>27.30</td>
<td>4.29</td>
</tr>
<tr>
<td>NIWO</td>
<td>10</td>
<td>30.00</td>
<td>49.00</td>
<td>38.70</td>
<td>6.30</td>
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<tr>
<td>NIPO</td>
<td>10</td>
<td>30.00</td>
<td>42.00</td>
<td>37.60</td>
<td>3.59</td>
</tr>
</tbody>
</table>

Table 2 presents the descriptive statistics of the production posttest for the three experimental groups. As you can see from the table, the participants in the NIWO group gained the highest mean score among the three experimental groups on the production posttest (M = 30.00, SD = 9.40), followed by the participants in the NIPO group who gained the second highest mean score among the three experimental groups on the production posttest (M = 29.20, SD = 4.45). Finally, the participants in the NNPI gained the lowest mean score among the three experimental groups on the production posttest (M = 17.10, SD = 3.31).

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NNPI</td>
<td>10</td>
<td>13.00</td>
<td>25.00</td>
<td>17.10</td>
<td>3.31</td>
</tr>
<tr>
<td>NIWO</td>
<td>10</td>
<td>13.00</td>
<td>47.00</td>
<td>30.00</td>
<td>9.40</td>
</tr>
<tr>
<td>NIPO</td>
<td>10</td>
<td>25.00</td>
<td>35.00</td>
<td>29.20</td>
<td>3.45</td>
</tr>
</tbody>
</table>

B. Inferential Statistics

The First Research Question

In order to investigate the first research question of the study which aimed to examine if there was any significant difference among the effects of NNPI, NIWO, and NIPO on Iranian EFL learners’ comprehension of targeted L2 words, an Analysis of Variance (ANOVA) was to be conducted. The ANOVA results are shown in Table 3 below. As the results of ANOVA show, the significance value came out to be .000<.05, showing that there was a significant difference between the three groups regarding their comprehension (recognition) of the targeted L2 words. Therefore, it can be stated that the three types of L2 input investigated in the present study (i.e., NNPI, NIWO, and NIPO) had differential effects on the participants’ comprehension and production of the targeted L2 words.

However, ANOVA only shows that there is significant difference among a set of variables but it does not tell us where the difference stands. Therefore, it is necessary to conduct post-hoc analysis to see where the difference is. Table 4 demonstrates the results of the post-hoc analysis via the Tukey Test for this purpose. As you can see from the table, the difference between the NIWO group and the NNPI group in the comprehension posttest was statistically significant. The difference between the NIPO group and the NNPI group in the comprehension posttest was also statistically significant. The difference in the comprehension posttest between the NIWO group and the NIPO group, however, was not statistically significant.
The Second Research Question

In order to investigate the second research question of the study which aimed to examine if there was any significant difference among the effects of NNPI, NIWO, and NIPO on Iranian EFL learner’s production of targeted L2 words, the non-parametric Kruskal Wallis Test was conducted. The non-parametric Kruskal Wallis Test was used, instead of ANOVA, because preliminary analyses indicated that the scores of the participants in the NNPI group on the production posttest were not normally distributed. The results of Kruskal Wallis Test conducted have been shown in Table 5. According to the table, the Significance value equaled .000<.05, showing that there was a significant difference among the three experimental groups in the production posttest.

A post-hoc analysis was conducted to determine where exactly this difference lay. The post hoc analysis was performed implementing the following formula (see McQueen & Knussen, 2006) in which N stands for the number of the participants in each sample group and d stands for the rank total of one group minus the rank total of the other.

\[ K = \frac{d - \bar{d}}{\sqrt{\frac{N}{N^2}}} \]

According to the post-hoc analyses, the NIPO group with a mean rank of 21.06 outperformed the NNPI group with a mean rank of 6.60. Further, the analyses also indicated that the NIWO group with a mean rank score of 19.05 outperformed the NNPI group with the mean rank score of 6.60. The post-hoc analyses, however, indicated that the difference between the NIWO and the NIPO was not statistically significant in the production post-test.

VI. DISCUSSION AND CONCLUSION

As for the first research question, the results of the study showed that there were significant differences among the effects of NNPI, NIWO, and NIPO on EFL learners’ comprehension (recognition) of the targeted L2 words. Learners in the NNPI group achieved the lowest level of recognition of the targeted L2 words. On the other hand, the learner’s recognition of the targeted L2 words was greater, when they had opportunity to negotiate the meanings of the targeted words than they were exposed to non-negotiated pre-modified input. Further, the results showed that learners in the NIWO group achieved the highest level of recognition of the targeted L2 words. These results support those of previous studies (Ellis et al. 1994; Loscky, 1994; Fuente, 2002) but contradicted the results obtained by Ellis and He (1999) who found no significant difference between the pre-modified input group and interactionally modified input group in the recognition of L2 words.

One possible reason may be that the participants in the NIWO group and NIPO group had the opportunity of controlling the input. Negotiation allowed learners in both the NIWO group and the NIPO group to process the instruction better and to notice the specific words that contribute to the comprehension of utterances (Ellis et al 1994). It can also be argued that in the NIWO and NIPO conditions, the participants were able to repeat the target words when asking for confirmation, clarification, and repetition. In addition, these participants could get different types of information regarding the referents and connotations of the targeted words, while the participants in the NNPI group did not have this chance due to lack of interaction.

As for the second research question, the results of the study showed that there were significant differences among the effects of NNPI, NIWO, and NIPO on the participants’ production of the targeted L2 items. The participants in the NNPI group obtained the lowest scores in the production test. In comparison, the participants in the NIWO group and the NIPO group attained higher scores in the test; that is, the participants in these two groups outperformed the participants in the NNPI group in terms of production of the targeted words. The results show that the participants’ production of the targeted L2 words was greater, when they had the opportunity to negotiate the meanings of the words than they were not allowed to negotiate the meanings and were only exposed to non-negotiated pre-modified input. These results provide more evidence for Long’s Interaction Hypothesis (1980, 1996). It also suggests that cognitive factors, such as attention and noticing, are the key elements to producing L2 vocabulary items. These results are consistent with those of Ellis and He’s (1999) study in which the learners who received interactionally modified input

\[
\text{Table 4.} \quad \text{MULTIPLE COMPARISONS (TUKEY TEST)}
\]

<table>
<thead>
<tr>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.42** (NIWO, NNPI)</td>
<td>0.12</td>
<td>0.000</td>
<td>1.69</td>
</tr>
<tr>
<td>1.04 (NIPO, NNPI)</td>
<td>0.23</td>
<td>0.000</td>
<td>4.60</td>
</tr>
<tr>
<td>1.28 (NIWO, NIPO)</td>
<td>0.18</td>
<td>0.028</td>
<td>6.70</td>
</tr>
</tbody>
</table>

*The mean difference is significant at the 0.05 level.

\[
\text{Table 5.} \quad \text{KRUSKAL WALLIS TEST FOR THE PRODUCTION POSTTEST}
\]

<table>
<thead>
<tr>
<th>Chi-square</th>
<th>Sig.</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.694</td>
<td>0.000</td>
<td>5</td>
</tr>
</tbody>
</table>

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outperformed the learners who received non-negotiated input in the production of the targeted L2 words. However, the result of this study contradicted the results of Fuente (2002) who found significant difference between negotiation of input plus pushed output group and negotiation of input without output group as far as the production of targeted L2 words were concerned.

This study revealed the important role of negotiation on EFL learners’ comprehension and production of vocabulary. It suggested that learners who were exposed to negotiation of input outperformed learners who exposed to non-negotiated pre-modified input in terms of both comprehension and production of vocabulary. However, the performance of the participants who had the opportunity to produce target words was higher than the participants who did not have this chance, suggesting that negotiation and pushed output would improve the comprehension and production of L2 words for language learners. On the other hand, there was no significant difference between the performances of learners who were exposed to only negotiation of input and those who exposed to negotiation of input plus pushed output in the production test. In other words, the learners who were not only exposed to negotiation of input but also were pushed to produce the targeted words did not outperform the learners who were allowed to negotiate the meanings of the targeted words.

VII. PEDAGOGICAL IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

In line with Long (1980, 1996) and Gass (1997), the findings of this study suggest that cognitive factors such as attention and noticing are significant to processing L2 structures and elements. The results of this study can be beneficial and interesting to those teachers whose concern is not only promoting the comprehension aspects of an L2, but also improving the production aspects in language learners. Teachers can guide learners through negotiation of meaning and help them come with a better understanding of the meanings of new words that would facilitate their learning of the new words. Especially, the learning could be boosted, if teachers use pictures for associating the meaning of a new word with its form. In addition, students can get advantages from negotiation both between themselves and with the teacher through checks such as clarification, confirmation, repetition, etc. in order to get more information regarding the new word and comprehend the word better. In addition, when they are pushed to produce the targeted word immediately and get feedback from the teacher, their production abilities increase largely.

Since this study investigated the acquisition of adjectives, the findings of this study cannot be generalized to other types and aspects of L2 vocabulary learning such as verbs, adverbs, associations, collocations, etc., as the targeted L2 words in this study were deliberately delimited only to adjectives. For example, previous literature has shown that word class is a psycholinguistic factor affecting lexical acquisition. Therefore, there is a clear need for more empirical studies to find out whether the present findings can be generalizable to other aspects of lexical knowledge. Moreover, although some effects on lexical acquisition were found for L2 output, what induced the production of the targeted words and which processes accounted for the conversion of intake into production of the words can only be hypothesized. Clearly, more studies are needed to explore these processes. Furthermore, this study investigated the role of negotiation only on the comprehension and production of the targeted words but not on their retention; there is a need for further research to investigate the role of negotiation on retention of L2 words. In addition, although there were both males and females in the study, the number of females exceeded the number of males. Therefore, gender might have acted as an intervening variable in this study.

REFERENCES


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**Arash Azizi** is an interpreter, translator, and an EFL teacher and researcher. He has taught in several English schools for adults in Tehran. He has also taught in a variety of programs in private high schools and well-established organizations in Iran. He received an MA in Teaching English as a Foreign Language from Islamic Azad University, Central Tehran Branch, and a BA in Translation from Islamic Azad University, South Tehran Branch. His main interest is teaching to adults and young children at different levels and programs.