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A Study of the Effectiveness of an Audioarticulation Model in Improving
Thai Learners' Pronunciation of Fricative Sounds

อ.อัมพวรรณ อิมเอมทรัพย์, อ.ดร.พนิดา กุลสิริสวัสดิ์ และอ.ดร.อัญชลี จันทร์เสมอ

A Study of the Effectiveness of an Audioarticulation Model in Improving Thai Learners' Pronunciation of Fricative Sounds

² ภาควิชาภาษาตะวันตก คณะมนุษยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ

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ABSTRACT

The objectives of this research were to investigate the effectiveness of the Audioarticulation model (AAM) in improving the pronunciation of English fricative sounds among adult Thai students and their attitude toward the AAM. Eight third year English Education students from Chiangmai Rajabhat University participated in the pronunciation training course based on AAM for 12 weeks. The study was quasi-experimental design with both quantitative and qualitative data analyses. The participants took pronunciation tests before and after the training course. During the course, they completed the learning logs and a questionnaire developed for measuring their attitudes toward the course. The Mann-Whiney U Test was applied to detect whether the participants have made any improvement in pronouncing English fricative sounds. The open coding system was used as a guideline for the analysis of the questionnaire. The three participants were purposive selected to be nested cases and individually analyze how the student engage with AAM and support three research questions. The findings indicated that all participants significantly improved their pronunciation of fricative sounds at the .05 level. They had positive attitudes toward the AAM. The three nested cases revealed that class hour and teaching techniques using in the training course helped them improve their pronunciation of fricative sounds.

Keyword : pronunciation, fricative sound, adult Thai students, effectiveness, Audio-articulation

Introduction

Each language has its own phonological structure which contrasts with that of other languages and its poses problems in the accommodation of English sounds. One of the most difficult problems facing non-native speakers of English is pronunciation. The deficiency in pronunciation ability can affect the ability of speech production. Carruthers (2007) states that good pronunciation is one of the foundations of effective spoken communication. If speakers pronounce the words clearly and correctly, their audience interlocutor would be able to understand what they are trying to express easily. However, misunderstanding, in many cases, occurs when words are inaccurately pronounced (Carruthers, 2007). In the study of Derwing and Rossiter (2002), it was found that pronunciation difficulties are the main concern of communication

breakdown among ESL speakers, adult immigrants in America. In the Thai context, Thai learners tend to have difficulties in oral communication (Ministry of Education in Thailand, 2008). A great number of studies show that the Thai sound system is noticeably different from English (Jukpim, 2009; Smyth, 1995). Many researchers agree that fricative consonant sounds are one of the most difficult sounds for Thai students (Smyth, 1995; Thep-Ackrapong, 2005). For example, only /v/, /θ/, /ð/, /ʃ/, /ʒ/, and /z/ regardless of their position (Jukpim, 2009; Yangklang, 2006). Jukpim (2009) indicated that fricative sounds only /v/, /θ/, /ð/, /ʃ/, /ʒ/, and /z/ were serious problematic sounds for Thai students. They usually substitute these sounds with sounds that occur in the Thai system. For instance, /θ/ and /ð/ are often substituted with /t/, /d/, or /s/. The insufficient capability in pronunciation of Thai students, therefore, has affected the ability in communication.

In the area of pronunciation, linguists divide problems that L2 students encounter into 2 levels: segmental and supra-segmental levels. The segmental level focuses mainly on phonemes and allophones inventory while the supra-segmental, the higher level, focuses mainly on stress and intonation. Researchers found that, however, L2 students have problems both at segmental and supra-segmental levels. Harmer (2001) claims that it is extremely difficult to speakers of another language to understand learners who consistently mispronounce a range of phonemes. Similarly, Derwing and Rossiter (2002) indicate when the communication breakdown occurs among students, the major of pronunciation problems relate to segmental. Apart from the differences between language systems, there are many factors that influence L2 learners to succeed in learning L2 pronunciation.

Since 1980, English pronunciation has been receiving more attention in EFL classrooms (Celce-Murcia, Brinton, & Goodwin, 1996). It has been acknowledged as a fundamental skill which students should acquire, primarily because it directly affects comprehension (Yangklang, 2006). However, Kelly (2000) suggests that there are two key problems with pronunciation teaching. First, it is likely to be neglected. Second, if it is not neglected, it tends to be reactive to a particular problem that has arisen in the classroom rather than being strategically planned. Moreover, some researchers claimed that the time in pronunciation practice in traditional classroom instruction has remained relatively limited (Neri, Cucchiarini, & Strik, 2006; Demirezen, 2008). These phenomena also happen around the world (Macdonald, 2002) including Thailand (Neri et al., 2006). In addition, many researchers found that Thai teachers have insufficient skill (Biyaem, 1997 as cited in Wiriyachitra, 2002; Wei & Zhou, 2002). Therefore, in teaching pronunciation, teachers are likely to use Thai style English pronunciation (Wei & Zhou, 2002). As a result, the students "absorb" the Thai style pronunciation of English.

As mentioned, the obstacles in improving Thai students' pronunciation of English are the teacher's insufficient knowledge of pronunciation and time restriction. Regarding the first factor, it might be because English pronunciation is one of the most difficult areas for both teachers and students (Jukpim, 2009). Kelly (2000) claims that many experienced teachers would admit that they lack knowledge of the theory of pronunciation and they feel the need to improve their pronunciation. As for the second, Demirezen (2010b) claims that in a traditional classroom, the teacher usually spend only 10-20 minutes teaching pronunciation. It is not enough for the students to get familiar with their English pronunciation. This idea is reinforced by Wei and Zhou (2002) who indicate that "most of Thai university students have this problem, pronunciation problems, because of the limitation of time and lacking of visible targets, most students just ignore it" (p.11).

Since the mastering of L2 language pronunciation of L2 students is hard to achieve, many researchers are trying to come up with strategies to help students untangle the problems. Interestingly, Prof. Dr. Mehmet Demirezen, a professor of linguistics at Hacettepe University in Turkey has invented a model to treat the fossilized pronunciation errors in Turkish adult students. He terms his model "the Audioarticulation Model (AAM)". The AAM has been successfully used in teaching and treating fossilized pronunciation in the adult Turkish students of English (Demirezen, 2010a, 2009; Hismanoglu, 2009; Demirezen, 2008, 2007a, 2007b, 2006, 2005b, 2005a). Demirezen (2010b) claims that this method is designed to fill the gap in the field of pronunciation teaching. He explains that the Audioarticulation Model is based on the analytic-linguistic approach which involves micro-listening and speaking, macro-listening and speaking activities in terms of automatic speech recognition and production exercises. According to Demirezen (2010b), there are five stages for the working mechanism of the AAM.

1. *Identification of a problematic sounds* of the target language for the non-native of the target language. This stage is to identify the problematic sounds of L2 students by using diagnostic tests.

2. *Preparing a corpus of 50-100 words* including the problem causing sounds and its nearest pairs. This stage aims to prepare the corpus for teachers and students to use in micro-listening to correcting and practicing pronunciation in order to understanding fast, fluent conversational skill in real life situation.

3. *Singling out minimal pairs from the corpus*. Each minimal pair can be picked up and treated to cure the pronunciation mistakes. The teacher handles students in neuromuscular oriented, imitation, repetition, and exhortation-wise experimental practices to control pronunciation.

The students have to practice listening comprehension skills and listening discrimination exercises and do the guided oral production practice.

4. *Developing proper tongue twisters, proverbs, idioms, mottoes, or cliché expressions* in chunks for classroom practice. The humorous tongue twisters and incorporating idioms, mottoes, or cliché expressions are prepared to be used as a source of practicing exercises. In addition, teachers have to create a contrast across two sentences. It is called paradigmatic drills, or in the AAM it is called minimal sentences. These practicing exercises are used to raise students' awareness in articulation, listening attention on streams of oral practices.

For example:

Don't SLIP/SLEEP on the roof.

Please FEEL/FILL it.

The next drill which the teacher has to create is syntagmatic drill. It is a creation of phonemic contrast within a sentence. In AAM termed as sentences with contextual clues. Here are some examples:

Don't SIT in that SEAT.

Can your LIP LEAP ?

5. *Doing further awareness raising and experiential practices* within a suitable methodology. The systematic exercises, which are production exercises, recognition exercises, phonemic discrimination activities and drills, minimal pair practice, and listening discrimination, are required to control automatic pronunciation mechanism. The minimal sentences, sentences with contextual clues and concentrated examples are the very powerful practices to equip a context for improving pronunciation and also create a relaxed atmosphere in a conducive learning (Demirezen, 2010b). In addition, in larger stream of utterances in practices like minimal sentences, contextual clues, adding asking questions can promote the student's macro-level strategies. They offer them an opportunity to develop the meta-cognitive skills and it can be used as a basis for connection between listening and speaking activities in class. Such exercises, then, can create a noticeable impact on modifying the speech of each student towards increased pronunciation intelligibility (Demirezen, 2010b).

Objectives of the study

1. To study the effectiveness of the Audioarticulation Model (AAM) in the Thai context.
2. To investigate whether the Audioarticulation Model helps to improve Thai learners' pronunciation of fricative sound.
3. To investigate how Audioarticulation Model (AAM) were experienced by Thai learners

Research Methodology

Research design

In determining the role of AAM in improving English pronunciation of fricative sounds, the case study design was employed as methodology. This case study design had two components. The first component was an analysis of eight participants on the pronunciation accuracy in a context. The second one was an analysis of three case study selected from the eight participants using purposive sampling technique in order to deeply focused on their engagement with the AAM based training and perception toward the use of such method in classroom. The participant who gained the highest, middle and lowest scores of the pre-test were selected to be the nested cases.

Population and sample

The population of the study was the third year English Education students at ChiangmaiRajabhat University, Chiangmai in the academic year 2010. The total number is 58. The population was to pass ENG 1101 Linguistic and ENG 1103 Introduction to Phonetics, the fundamental of linguistic and phonetic courses, to ensure that their erroneous pronunciation was not the result of their lack of English pronunciation knowledge. Eight participants were selected by using a voluntary basis technique. The study took place in the third semester of the academic year 2010. The training was lasted for 12 weeks.

Research Instruments

This study was quasi-experimental design with both quantitative and qualitative data analyses. Lesson plans, pronunciation test and questionnaire were provided for quantitative data analysis. Learning logs and research journal were employed for qualitative data analysis. The lesson plans used this study consisted of theoretical and practical parts which were based on an audio-articulation methodology by Demirezen (2010b). Each lesson lasted for about 50 minutes. The pronunciation test contained lists of vocabulary that contained fricative sounds /v/, /θ/, /ð/, /f/, /ʒ/, and /z/ which had been taught in the training course. Pronunciation test was divided into three sections; Part (A) contained 36 words list, Part (B) contained 6 sentences, and Part (C) contained a paragraph reading. The total score was 96. The questionnaire was divided into four main parts. The first part drew the profile of the participants. The second and third parts allowed participants to rate their attitude toward English pronunciation and the AAM based training course respectively. The last part contained two open-ended questions for the participants to give any additional opinions and suggestions for the training course. The learning log was employed to explore the participants' experiences during the training course. The participants had to hand in

the learning logs to the researcher in every next class. The research journals were taken by the researcher in order to record the three nested cases' behavior.

Data Collection

To collect quantitative data, the pronunciation test was used as pre-test and post-test. The second and third parts of the questionnaire were used to gather students' opinion on the English pronunciation and the AAM. At the end of training, the participants were asked to indicate their degree of agreement or disagreement with each item with five point Likert Scale.

To collect qualitative data, the open-ended questions which were in the fourth part of questionnaire were given to the participant at the end of course. The learning logs were asked to hand in to the researcher in the following class.

Data Analysis

Quantitative data analysis

In this study the researcher adopted the data analysis procedures of Hismanoglu (2009). The collected data was divided into three categories: (a) speech sound produced correctly, (b) speech sound produced incorrectly, and (c) speech sound that was not produced. In order to evaluate the performance of students' pronunciation, the researcher gave one point for the speech sound that produced correctly and gave zero for the incorrect sound and not produced sound. To come up with the final score, the researcher asked the English native-speaker teaching at Srinakarinwirot university to be a judge. The researcher and the native-speaker of English judge were compared the scores. Then Mann-Whiney U Test was used to detect the score to see the students' progress. In order to investigate the students' attitude toward the pronunciation and the AAM based pronunciation training course, the students's responses were tallied and qualitatively analyzed.

Qualitative data analysis

In order to see the perception and students' experiences, the case study design was employed. It had two components; the whole case analysis and the three nested cases. The purpose of the whole case analysis was to offer an overall picture regarding the perception on Audioarticulation Model in improving the students' pronunciation of English fricative sounds. The attitude toward the AAM training course from the second and third parts of the questionnaire and the students' comments and suggestions from the fourth part of questionnaire were categorized and put into groups. The data was interpreted for analyzing the effectiveness (or the lack) of the AAM training course in Thai educational context. The open coding system of Strauss and Corbin (1990) was

used as a guideline for the analysis. Then, three participants were purposive selected to be nested cases and individually analyze to see how the students engage with the AAM

Results

The result from pronunciation test revealed that the participants significantly improved their pronunciation of fricative sounds after attending the pronunciation course ($p < 0.05$). The highest pre-test and post-test scores were 50.5 and 84, respectively. Mean score of pre-test was 29.37 and post-test was 59.31. The standard deviations were 10.14 and 12.72, respectively. The analysis of the three nested case found that, the first participant gained 27.5 scores in his pre-test and 62 score in the post test. The second participant earned 19.5 and 50.5 in pre- and post-test, respectively. The third participant, she got 50.5 for the pre-test and rose to 84 in her post-test.

The questionnaire clearly demonstrated that most of the participant agreed that correct pronunciation was important ($\bar{X}=4.75$). They believed that to improve their own pronunciation, they had to practice a lot ($\bar{X}=4.75$). In addition, they agreed that the teacher should pay more attention to each students' pronunciation ($\bar{X}=4.75$). With regard to the participants' opinion toward the AAM, it was found that drill exercises, minimal pair practices and teacher's explanation about place of articulation were techniques that help the participants to improve their pronunciation. All participant agreed that the AAM can help them to develop their pronunciation accuracy ($\bar{X}=4.62$). According to the three nested case, the first participant believed that pronunciation was important and he needed to improve his pronunciation a lot. Minimal pair sound was his most favorite activity. He had more confident to speak English. He mentioned that the AAM pronunciation course was very good because he could apply it to the real life. The second participant's questionnaire revealed that she believed that to achieve the correct English pronunciation, the very hard practicing is important. She also needed to pronounce native-like pronunciation as much as possible. According to the perception toward the AAM, the most favorite activities of the second participant were minimal pair practices activity and how to use the place of articulation in order to pronounce a sound activity. She suggested that she had problem with /r/ and /l/ sound so she would like to practice such sounds through the AAM. The last nested case's questionnaire showed that she was aware of the correct pronunciation. She agreed that pronunciation was important and needed to improve. She also agreed that teacher should give more attention to pronunciation skill in classroom. The questionnaire about the opinion toward the AAM revealed that the third participant

liked drill activity, minimal pair practices, and how to use the place of articulation to pronounce a sound. She mentioned that she had a bit worried when practicing tongue twister. In addition, if the listening and repeating vocabulary was more than twice time, sometime it would make her bored.

With regard to the learning logs, the participants indicated that this pronunciation course helped them realize the importance of pronunciation and develop their pronunciation skill. They believed that they were more aware of the importance of correct pronunciation. Half of them indicated that they could recognize their own pronunciation mistakes and know how to correct them after taking this course. In addition, they commented that they did not think that learning pronunciation could be fun until they took the course. In the three nested cases' learning logs, the first participant noted that he was happy during the course. He was more confident to speak English after taking the AAM course. He also mentioned that he had more opportunities to practice his listening skill than other pronunciation course. The second participant commented that this AAM course help her improve English pronunciation. She believed that she could discriminate the minimal pair sounds more easily. In addition, she was more aware of pronouncing English sounds. The last participant mentioned that pronunciation games were very fun for her. Moreover, she realized that she should listen to English music or movie more in order to improve her listening skill.

Conclusion

It was found that the AAM had positive impact on participants' pronunciation of fricative sounds ($p < 0.05$). Analysis of the questionnaires revealed all participants agreed that pronunciation was important and needed to improve. The participants also agreed that the drill exercises, minimal pair practices and teacher's explanation about place of articulation were techniques that helped them to improve their pronunciation. Games for pronunciation practice and listening & discrimination exercises were the most favorite activities of all. The learning logs showed that all participants had positive attitude toward the AAM.

Discussion

It was found that the participants' pronunciation of fricative sounds were improved after attending 12 pronunciation training classes. That was significant at the $p < .05$ level. To explain this research result, three facts can be discussed.

First, class allocated in each week supported students' learning. Spending around 2 hours per week, participants were probably familiar with the target sounds. They got involved in repetitive practices. Therefore, it helped them to increase the degree of using the target sounds. This is relevant to Jesry (2005) who claims that the degree of exposure and the use of the target language can support pronunciation skill development.

Second, the techniques employed in training provided participants with more opportunities to practice the fricative sounds. In each class time, participants had to practice the target sounds through various techniques such as minimal pair drill and discrimination, songs, and pronunciation games. They had to practice listening and speaking, both individually and as a whole class. It could be assumed that those techniques helped the participants improving their English fricative sounds.

Third, the sequences of each technique could support the nature of learning development. According to *information processing theory* by Rumelhart and Norman (1978), there are three stages of learning. The first one is *accretion mode* or adding new information which was similar to the state of listening to and repeating new vocabulary in AAM pronunciation course. Then, the *restruction mode* which allows students to recognize and create the new patterns. It was similar to the stage of practicing target sound by using tongue twisters. The last mode is *tuning* which allows students to modify and create the information more accurately. Using games or songs can facilitate the flow of this stage. In addition, it conformed to the suggestion of Demirezen (2010b) who suggests that the Audioarticulation Model can bring the trainees close to a standardized internationally intelligible pronunciation.

Regarding the investigation on the participants' perception on the AAM revealed that all participants had positive attitude toward the English pronunciation and the AAM. The importance of the positive attitude toward the English pronunciation was demonstrated by the fact that all participants were English Education students. Therefore, they seemed to have clear goals to achieve the good English pronunciation. In addition, they had instrumental motivation (O'Grady et al., 1997) because they are going to be English teachers. In order to prepare good teachers, the pronunciation skill might be concerned as the first priority needed improving. The learning log revealed that the participants believed that good English pronunciation skill can promote them to be good teachers. This is supported by the claim of O'Grady et al. (1997) who suggested high level of instrumental motivation can lead to successful learning.

The result in the present study showed that all participants had positive attitude toward the AAM. A reason for this positive opinion might be the use of different techniques. During the training, the researcher applied many drill techniques. The researcher noticed that all participants paid attention to both individual and whole class activities. Moreover, it was found that many

activities such as tongue twisters and the pronunciation games were very good activities that provided participants with chances to organize their correct fricative sounds more spontaneously. In addition, most of the participants suggested that they would like to apply these techniques into their future classes ($\bar{X}=4.75$). It might be because they were happy to learn pronunciation through this type of training. Consequently, they would like to apply this model into their future classes. In studying the three nested cases, it was found that all of them preferred drill, minimal pair sound activity and how to use place of articulation to pronounce sounds discriminating sounds as their favorite activities. They also noted that they were fun during each class. This can confirm that all participants had positive attitude toward the Audioarticulation Model.

Regarding to the participants' experiences through the training course, all participants were satisfied with the course. Many participants' responses in learning logs indicated that the pronunciation course helped them realize the importance of pronunciation and develop their pronunciation skills. Learning pronunciation intensively for 50 minutes was viewed as effective. The extended time provided the participants' opportunity to consider, familiarize, and practice the target sounds. In addition, the participants noted that they clearly understood how to pronounce the fricative sounds and how to pronounce the target sounds more easily. In each class, the participants started learning two contrasting minimal sounds. Then they learned how to differentiate two similar sounds. As the result, they could seize the specific characteristic of each sound, and then pronounce it more easily. This assumption is supported by the claim that various systematic exercises can create a noticeable impact on modifying the speech of students towards increased pronunciation intelligibility (Demirezen, 2010b). Furthermore, the pronunciation games were the most effective tool to encourage their learning and practicing the target sounds. Most participants suggested that this course was more interesting than the previous. They also claimed that they were happy and had fun during the class because they could play and learn the English pronunciation at the same time. This perspective was in accordance with Phoprai (2008) suggestion that students' pronunciation abilities were significantly improved through pronunciation games and other kinds of fun activities. It was supported by the evidence from the three nested case. The first participant noted that activities in this course raised his long term memory. He also pointed out that he learned by doing. The second participant commented that the activities provided her more opportunities to practice the target sound. Therefore, at the end of the course, she believed that she had more confidence to pronounce English sounds and had more awareness of using or pronouncing English fricative sounds. The third participant also added that the course helped her understand how to discriminate two similar sounds that helped her pronounce such sounds correctly. Moreover, she realizes her weak listening skill after doing the listening and discriminating

activity. This evident showed that the activities could promote the pronunciation skill, and participant's self-evaluation assisted pronunciation improvement.

In conclusion, it is clear that the longer period of time students spent in each class positively affected good attitude toward learning how to articulate English fricative sounds. The positive environment of the activities also had benefits in term of participants' awareness and perception. The analysis of participants' learning logs clearly revealed that the techniques being use class played an important role in the pronunciation development and the perception of the participants. In addition, it was important not to overlook the participants' personalities. Three nested cases revealed that the role of personality could arouse the students' attention and cooperation in class.

Limitations of the study

This study has revealed that the Audioarticulation Model was proved to be effective in helping the third year English students improve their English pronunciation. However, there were at least three limitations that may affect the research results.

1. The participants were chosen by using a voluntary basis technique. The researcher was not able to specify their baseline English proficiencies and articulation skill.
2. This research was a case study and the results were not intended to be generalized.
3. This course was an extra pronunciation course designed for these students only which was taken in summer semester. If the course and materials are adopted to use with other groups of students to cover a longer period of time, the results may be different from the finding in this study.

Implications of the Study

The lesson plan, based on Audioarticulation Model, for improving problematic fricative sounds

1. The AAM can be used to train other groups of adult Thai students and also EFL English teachers who have problems producing fricative sounds in order to improve their pronunciation skill and raise their awareness of correct pronunciation skill.
2. The AAM can apply to teach other consonants and problematic vowels sounds in adult pronunciation classes. For elementary and secondary classes, each lesson plan should be simplified and divided into 2-3 periods of 50 minutes.
3. The results of the study can apply to improve the pronunciation course for university students.

Suggestions for further studies

Before applying the AAM based pronunciation course to use, teachers should recognize the learners' fundamental knowledge in order to be able to choose pronunciation exercises which best suit the learners' proficiency level. Moreover, the AAM based lesson plan should be divided into two or three class due to the students' level. In presenting the corpus or tongue twister sentences activities, the teachers should provide student the meaning of words or sentences which would raise the activities more meaningful. Furthermore, some learners felt shy about pronouncing the target sound in front of the class, the group activities can help them practice more comfortably.

The Audioarticulation Model helped the participants to improve the pronunciation of English fricative sounds. It may be useful for teachers and other interested in using the AAM to teach other consonants and vowel sounds. Beside /v/, /θ/, /ð/, /ʃ/, /ʒ/, and /z/ that are problematic sounds for Thai students, /ɹ/, /ə/ or /tʃ/ are also severe problematic sounds (Jukpim, 2009). Moreover, the AAM can be further should be conducted with younger students as Florez (1998) suggested that learners of different age and background have the same capacity learning.

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Review Article

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Patumrat Nakhitta

Department of English, Faculty of Humanities and Social Sciences Rajabhat University

The pronunciation of fricative sounds is one of the major problems among EFL speakers, and Thai students are included. The article entitled “A Study of the Effectiveness of an Audio-articulation Model in Improving Thai Learners' Pronunciation of Fricative Sounds” illustrates how the audio-articulation model helps improve a group of college students' fossilized fricative sounds: [v], [θ], [ð], [ʃ], [ʒ], and [z]. It also illustrates the students' positive opinions on the model.

The merit of this article is that it provides teachers and learners with another method to tackle the problem of fossilized fricative sounds. The audio-articulation model presented in this article contains five stages involving micro-listening and speaking, and macro-listening and speaking tasks, which help improve students' pronunciation.

The success of the use of this method, however, needs a lot of effort from both the teacher and the learners. The teachers following this model are required to work hard preparing a variety of activities and the students need to complete all the activities provided. Therefore, it is obvious that the good cooperation of the teacher and the learners is essential as it is one of the most important factors affecting the results of the use of the model.