The Impact of Process Ability Theory on the Speaking Abilities of Iranian EFL Learners

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Abstract—This paper is designed to investigate the impact of processability theory on the communicative capabilities (speaking skill) of Iranian EFL learners. In discussion of processability theory, learning strategies is seen based on various stages in language acquisition. This theory was coined by Pienemann in 1988. Speaking skill was the first skill that human being used it in order to resolve communication problems in his life. In this study, Iranian EFL learners’ speaking ability in producing the morpheme structures was examined through the use of two production tasks. One through the use of the picture description task which was designed based on special focus on the learners’ ability to use target structures in context; another, was reconstruction task used in which learners were asked to read and listen to two audio texts to help the learners focus on forms and elicit the target structures. The result of this article showed that both tasks had effective instruments to help EFL learners to produce the target structures in the order predicted by processability theory.

Index Terms—processability theory, Iranian EFL learners, speaking, second language acquisition

I. INTRODUCTION

This article is designed to examine the impact of processability theory on the communicative capabilities (speaking skill) of Iranian EFL learners. Speaking can be used as an important skill in Iranian EFL learners’ overall English language development and Iranian EFL learners can learn English language as their foreign language through speaking skills in EFL setting. One of the most problems that Iranian learners face with it when they are learning English through speaking skills is that Iranian English teachers are not enough educated in this area. They cannot manage their students in promoting their English knowledge through speaking skills in ELT classroom. They prefer to teach grammar of English language instead of teaching speaking skills. Khansir (2010) argued that many teachers feel that they cannot teach other skills but restrict their foreign language lessons to grammar. In developing of speaking skills, Linse (2005) mentioned that educators and linguists examine native-English language development look at the child's mean length of utterance. The mean lengths of utterances are the number of morphemes found in a sample of a child's utterances. Morpheme is the smallest unit of meaning in a word. One of the important features of Audio-lingual Method was 'dialogue', and ALM used it as one of the important skills in learning students in classroom.

Hinkel (2005) defined speaking as a process of oral production of language that is one of the principal language skills among four traditional skills. Teaching, learning and testing speaking in language education is arguably a difficult job (Celce-Murcia & Olshain, 2001).

The mastery of speaking skills in English is a priority for many second or foreign language learners. Profound knowledge of oral strategies helps foreign language learners negotiate meaning and solve any communication problem.

The first distinction between order and sequence of language acquisition was made by Ellis (2008) to determine which linguistic features were adopted before the other and through many hypothesis and theories has resulted in differentiation of language acquisition development and the development of patterns between the first language learning and the second language. Processability theory is a recent theory which was introduced by Pienemann (1988) which states that language acquisition procedures pass through various stages and each stage has a strict parameter of structures that can be comprehended by relevance to their current stage of language acquisition. Based on the theory of the Processability, second language learners produce and understand linguistic elements that can be processed at one time by the language processor in the memory. Therefore, knowing the composition of the language processor and the second language processes in language processor is significant. Thus, one person is able to predict the development of second-language skills of students regarding the language production and comprehension (Pienemann, 1998).

Processability Theory was used as a language processing model of second language acquisition in 1998. Simply, Processability Theory (PT) is a theory that wants to explain why second language learners follow a similar path in the development of morph syntactic structures (Plag, 2008). Processability Theory (Pienemann, 1998, 2005) is one of the important second language acquisition approaches studies and it is a universal framework that can predict developmental sequences for any second language. Pienemann (1998, 2005) mentioned that the logic can be used as
underlying of Processability theory is that the language learner at any stage has the ability to produce and comprehend only those L2 linguistic structures that current stage of language processor can handle. The basic assumptions of the language processing in Processability theory are considered in the following items:

- Processing components are relatively autonomous specialists which operate largely automatically;
- Processing is incremental;
- The output of the processor is linear, while it may not be mapped onto the underlying meaning in a linear way;
- Grammatical processing has access to a grammatical memory.

Pienemann (1998) believed that second language acquisition could not be possible without processing the language. Pienemann (2008) delineated basic assumptions of Processability Theory as automatic and incremental processing, linearity of processor output, and the access of grammatical processing to short-term memory to keep grammatical information. According to Processability Theory, there are specific procedural skills required for the processing and the production of utterances in second language. In the first stage, learners develop lexicon that is the basic to all language processing in later stages. Learners, in the second stage, use the bound morphemes to produce free morphemes. Disconnected phrases bring together, in the third stage, by intraphrasal components such as conjunctions. Yet, learners have no knowledge of syntactic structures and the order of words is based on pragmatics. In fourth and fifth stages, gradually lexical features emerge into phrases based on syntactic knowledge. The last stage is consistent with the automatic use of subordinate clause.

The question and hypotheses of the study are mentioned as follows:

- Is there significant impact of Processability theory on Iranian EFL learners’ communicative capabilities (speaking ability)?

The following hypothesis is posed in order to answer the research question of the study:

- There is significant impact of Processability theory on Iranian EFL learners’ communicative capabilities (speaking ability).

In discussion of the statement of this article, the paper sheds a light upon the theoretical as well as the practical aspects of the research which in turn allows the use of more theoretically accurate and well-structured concepts which will help researchers better understand second language acquisition. The two main branches of second language acquisition being morpheme acquisition and interlanguage development, more and less theorists, scholars and researchers have shown their interests and have even provided their own models which have been very helpful for the purpose of providing a theoretically sound explanation regarding language acquisition along with evidence and predictive framework which according to Husseinali (2006) was not applicable in any other fields rather than the acquisition for second language revolving around English.

II. REVIEW OF LITERATURE

In this review of literature, many researches related to this study researched by the researchers:

Johnston (1995) examined the acquisition of Spanish language as a second language. In his research work, he used processing procedures to predict the development of procedural stages. Seven different proposed sequences of development in the interlanguage of learners of Spanish as a second language were examined. The results of study confirmed that the assumed predictions were happened. Glahn et al (2001) investigated the stages of second language acquisition of three Scandinavian languages such as Danish, Swedish, and Norwegian. The mentioned languages are similar in their some structures, like word order. Thus, based on the Processability theory framework, the predictions about the procedural stages of acquisition of three syntactic structures were tested. The target structures in this research consisted of attributive adjectives requiring phrasal exchange, predicative adjectives requiring inter-phrasal exchange, and negation in subordinate clauses requiring exchange between the main clause and the subordinate clause. Generally, Processability theory predicted that attributive adjective structures would be acquired before predicative ones, and that predicative adjective structures would be acquired before subordinate negation structures. In this paper, two different kinds of analysis were employed. The first analysis of this study compared the order of acquisition of the three target structures in the speech data to the predictions of Processability theory. The results of this analysis showed that there is an implicational pattern of acquisition conforming to Processability theory’s prediction (attributive > predicative > subordinate negation structures). The second analysis of this research compared the acquisition of gender and number features within the same structure using what the researchers called ‘semantically differentiated implicational scales’. The outcome of this paper indicated that with both attributive and predicative adjectives, number is acquired before gender. Hakansson (2001) investigated the acquisition of past tense-marking, and V2 in three different groups of Swedish children. He used 10 children for each group of his study. The first group of the study was Swedish and their mother tongue was Swedish. The second group of the research was immigrant children who were learning Swedish as second language. The first time of administering their test was four months after their immigrating. In the second group, the children had different first languages such as Albanian, Arabic, and Bosnian. The third group consisted of Swedish-speaking children with special language impairment. In Swedish language, verbs are marked only for tense. Verbs do not have any agreement marking with the Subject of phrase. In other words, the verb does not need to exchange agreement information with the subject. In a lexical-based grammar, the past tense marker is considered as a lexical
morpheme not a grammatical one. Processability theory predicted that lexical morphemes will be acquired at stage II. In other words, the production of V2 in Swedish involves exchange of information between phrases (NP and VP). Processability theory predicted structures requiring inter phrasal exchange of information are acquired at the S-procedure stage. The outcome of this work indicated that the second and third groups acquired the V2 after the tense marker on the verb. From a developmental perspective, the children in this research were language learners; thus, learning of their language was limited by processability of target structures. The children of the first group had a better position since they had a more economical language development. The children started with a different initial hypothesis, which enabled them to leave the phrase level as soon as they acquired the lexicon necessary for the S-procedure enabling them to produce V2 structures earlier. But the children in second and third groups were experienced something different. Based on Processability theory predictions, learners of the two groups had to make progress in an orderly manner. They had to proceed from processing procedure II (lexical tense marker) to processing procedure III (XSV) before getting processing procedure IV (V2, S-procedure level). On the other hand, normal group acquirers outperformed the other two groups because they developed faster as a result of their effective initial hypothesis. Di Biase and Kawaguchi (2002) reported the results of two types studies: the first study was about second language Italian and the second study was about second language Japanese. The mentioned researches, the Italian and the Japanese, were designed to test the typological plausibility of Processability theory. The Italian research investigated the acquisition of four different morphological and syntactic structures in second language Italian such as two lexical morphemes, agreement between the determiner and the adjective within the NP (phrasal morphemes), and number and gender agreement between a tropicalized object and its clitic on the verb (inter phrasal morphemes). The findings of the research indicated Processability theory predictions. All the participants in the research followed the predicted sequence of acquisition: lexical morphemes were acquired before phrasal morpheme and phrasal morpheme was acquired before inter phrasal morphemes. The Japanese research examined the acquisition of inflectional verbal morphology. Japanese is an agglutinating language. In this kind of languages strings of morphemes are affixed to the stem of the verb. The research investigated the acquisition of four different forms of the verb. First form of investigation was acquisition of the stem itself. Stems were said to require Lemma access. The second form of verbal inflection was the tense morpheme. Tensed verbs were lexical categories; therefore, they would require category access. The third morpheme examined was the V comp inflection. It was argued that V comp requires a phrasal procedure in Japanese. Finally the last morphemes were passive, causative and benefactive in terms of grammatical features. It is said that these affixations are in Japanese require sentence procedure. The findings supported Processability theory’s predictions. Husseiniali (2006) investigated the development of the interlanguage of learners of Arabic as foreign language (AFL) from the Processability theory perspective. He applied the Processability theory procedures to seven syntactic structures of Arabic and three stages of development in the interlanguage of AFL learners of Arabic were predicted. For data collection, 679 minutes of six AFL learners’ speech was recorded. The results of this study indicated that although no stage skipping was observed among the learners, there was the variability between structures within the same stage. For example, both VS and SV were predicted to develop at stage four; however, SV was acquired before VS and VS word order was acquired later, after two other structures in stage four. The seven syntactic structures were appeared in five developmental, implicational, and independent sequences.

III. METHODOLOGY

The methodology of the study consisted of data collection and data analysis. Each of them will be considered in this study.

A. Participants

The participants of the study were 60 Iranian EFL learners selected from among students whose age range was of 22 to 30 and they enrolled in Genaveh Islamic Azad University in Bushehr. They were Iranian national and their language was Persian. The selection of the participants was based on the results of an English language proficiency test called Oxford Placement Test (OPT). Regarding the purpose of the study, the participants who had an adequate knowledge of the target linguistic structures but they still need to improve their knowledge of the morpheme structures were selected to participate in the study. It was done by means of recognition pre-test. Considering the results of the pre-test, those learners who demonstrated a well-balanced knowledge of the morphemes (90% or above) and those who did not show sufficient knowledge of these morphemes both in their comprehension and production were excluded from the study.

B. Instruments

The instruments were used to collect data such as a language proficiency test, two tasks, pre-test and post-test. The participants’ knowledge of the target structures was assessed by means of three different testing instruments. A recognition test functioning as pre-test and post-test used to check the students’ receptive knowledge of the target structures. Two tasks (picture description and text reconstruction) used to check their productive knowledge of the target structures. The collection data were described in details: language proficiency test, in order to reach the students’ homogeneity in this paper, a version of Oxford Placement Test, namely Solutions Placement Test was designed by Edwards (2007) was used in this project. The test consisted of 50 multiple choice questions assessing students’
knowledge of grammar, vocabulary, and a reading text with 10 graded comprehension questions (five true-false and five multiple choice items) measured learners' comprehension ability. In this article, two kind of tasks such as 'speaking-based tasks namely picture description and text reconstruction tasks used in order to elicit the production of the target structures. The picture description task selected Toyama and Rivers' book (2005) in order to measure the learners' ability to use target structures in context. The task consisted of two pictures, one presented past time and the other one indicated present time. There were a number of activities in each picture that some individuals done them. For each item, learners were asked to see the picture and then describe it in a simple sentence. In advance, the time limit for each picture was announced for the participants. It was expected that the learners produced eight sentences for each picture. Thus, producing more than 8 sentences was not received extra scores. The text reconstruction task selected from Toyama and Rivers' book (2005) consisting of an audio-text cartoon strip and in line with Izumi (2002). The selection of cartoon strip was based on the participants' familiarity and understanding with its content. The time of the task was controlled, so the researchers could control over the time of exposure as well as succession of the activities. Like picture description task, the cartoon strip consisted of two parts: present and past time. This could help the learners to store more items in their memory. Each part contained 20 sentences with a reasonable length that prevented both forgetting and memorizing the content of the story. The learners were asked to read and listen to two audio texts each of which had two minutes length and they were semantically related to each other. The cartoon strip made learners reconstruct the texts by using the form rather than the contents. The audio text was an authentic text to help learners focus on forms, elicit the target structures and give them a chance to experience real life situations.

C. Procedure

In order to measure the impact of processability theory on the speaking performance of EFL learners, a structured procedure was designed to collect data. The data collection was conducted during normal class schedule by the researchers in four phases, i.e., administering the proficiency test and random sampling of the participants to two groups, administering the pre-test to both groups of the study, administering the tasks and administering the post-test of the study. In the administration of language proficiency test, Oxford Placement test used in order to ensure the homogeneity of the participants. The language proficiency test consisted of 50 multiple-choice items of grammar, vocabulary, and 5 true-false items as well as 5 multiple-choice reading comprehension test items. In this process, 74 Iranian EFL students participated to answer the language proficiency test in this project. However, 14 participants could not attain the minimum score to join in this research and they were excluded from the study. The second process of the test was a pre-test. The aim of the administration of the pre-test was to check the learners' knowledge of target structures at the beginning of the study. Afterwards, the researchers practiced speaking-based tasks in four successive sessions and helped the students to make progress in English speaking. Two production tasks conducted to check the participants' production of verbal morphemes. The two tasks were used to measure the learners' oral production at sentence and discourse levels. In advance, the purpose of the tasks were told to the learners and they were asked to look at the pictures or read and listen to the audio text carefully because it would not be repeated for them. They were not allowed to take any notes. Then, they were asked to express their understandings in one sentence or retell the text as correctly as possible. No feedback was provided before or during the administration of the tasks. The last phase of the study was administration of the post-test. Thus, this test was administered in order to find the learners' acquisition of the target forms. The data were collected and submitted to data analysis in order to explore the results of the study. The tests of this research were analyzed by the computer programmed from SPSS and the descriptive statistics was also used to compare the performance of participants on the tasks of the study.

IV. RESULT AND DISCUSSION

The aim of this project was to investigate the impact of processability theory on speaking ability of Iranian EFL learners. Speaking is one of the languages four skills can be used to develop learners' language knowledge in EFL setting. In this result and discussion, the research question and hypotheses were discussed and reached the answer of the question of the study. Analysis of language proficiency, the number of the learners of the study participated in answering language proficiency test were 74 and. However, 14 participants could not attain the minimum score to join in this research and they were excluded from the study. The purpose of the proficiency test was to manifest the learner's homogeneity. The detailed descriptive statistics of proficiency test is shown in table 1.
In order to ensure the homogeneity of the participants, the participants were randomly assigned to two groups and their scores were compared by a t-test analysis. The results showed that there is not any significant difference ($t = .75$, $p > .01$) among selected participants for intermediate level in table 2.

In the analysis of pre-test, the homogenized participants ($n = 60$) were pre-tested by a multiple-choice test that was designed to test the participants’ knowledge of target structures before receiving the treatments of study. The descriptive statistics of participants’ performance on pre-test is provided in table 3 as follows:

Two tasks were implemented in order to measure the learners’ oral production at sentence and discourse levels. Then, the post-test was administered in order to find the effect of processability theory on EFL learners’ acquisition of target structures through speaking. It should be mentioned that the data from each testing measure were scored separately and were then combined to obtain a composite test score. The descriptive statistics of the participants’ scores are shown in table 4.

Table 5 showed the descriptive statistics of the paired samples. The mean and standard deviation for the pre-test were 7.63 and 2.699 while the mean and standard deviation of the post-test were 12.32 and 3.034. The results are provided in the following tables.
Finally, the results of table 7 indicated that there is a significant different between the participants' pre-test and post-test scores ($t = 10.72, p < .05$). In other words, the performance of the participants in post-test was considerably better than pre-test, therefore, any improvements from pre-test to post-test can be attributed to the effect of the treatment. Thus, the Processability theory had a significant impact on EFL learners' speaking ability and the hypothesis of the study was accepted.

Figure 1 showed that in this study there is a significant difference between the participants' performance on pre-test and post-test as follows:

![Figure 1: Difference between the Participants' Performance on Pre-test and Post-test](image)

This study provided an empirical evidence for Iranian EFL learners to investigate the potential role of processability theory in their speaking ability. The analysis of pre-test and post-test results suggested that there was a significant gain on acquisition of grammatical morphemes. The findings of the study provided an empirical support for the effectiveness of processability theory on Iranian EFL learners' speaking ability.

V. CONCLUSION

The present study was designed to explore the impact of processability theory on Iranian EFL learners' speaking ability. EFL learners' speaking ability in producing the target structures was stimulated through the use of two production tasks. One task was picture description task designed based on special focus on the learners' ability to use target structures in context; another was reconstruction task used in which learners were asked to read and listen to two audio texts to help the learners focus on forms and elicit the target structures. On the basis of the outcome of statistical analyses, both tasks were effective instruments in order to help EFL learners to produce the target structures in the order predicted by processability theory.

Speaking is an interactive process between the listener and the speaker. The results of this study empirically supported the use of morpheme structures in EFL learners' oral communicative interactions. According to the processability theory, there are clear stages in processing foreign language development which are progressed hierarchically. The findings of the study showed that there was no counterevidence for the assumptions of the theory.

It can be inferred from the results of this study that the use of picture description and text reconstruction tasks can significantly contribute EFL learners to produce verbal morphemes in their speech. In other words, in contrast to individual and controlled activities, using the tasks which appeal to the students' interest can help to finalize the acquisition process of specific language features. This interactive pedagogy allows language learners to practice and engage language forms within realistic communicative settings of task-based instruction. It was successful in putting the learner in favorable situations which stimulated them to produce the target forms in their interlanguage and the target language system.

In implication of this paper, it is worth mentioning that the assumptions of processability were achieved only by using a pre-designed task which posed cognitive processing load in terms of target linguistic features. EFL teachers can
consider using this kind of output task as a supplementary activity in English classroom as it can draw learners’ attention to grammatical features of target language internally and keep their focus on content at the same time. The teachers should keep abreast of the standards and study the available resources to select suitable learning condition, teach through effective techniques, and assess speaking ability appropriately.

REFERENCES


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