

Sentence Production Process in L2 Learning

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The lexicon must be a driving force in sentence production in all languages (Levelt, 1989); however, there have been less research and studies centered on sentence production process of second language acquisition. By analyzing L1 spoken data, Levelt (1989) presented a model of sentence production, in which he insisted there has to be feedback between the Formulator and the Conceptualizer in language learning, and the system operating between the two notions becomes autonomous when it comes to first language acquisition. Regarding the sentence production process, this study is more concerned with the production mechanism in second language acquisition in terms of the existence of the conceptualizer and the formulator, their relationships in L2 learning, and L1 variables influencing L2 sentence production. In the experiment, a questionnaire which is a combined form of writing test and GJT was distributed to 27 learners of English. The results show that we can posit two different concepts, the conceptualizer and the formulator, to explain L2 production process. However, the process operating between the two concepts in L2 is not as autonomous as it is in the process of L1 production. Already acquired L1 conceptualizer & formulator as well as the nature of sentence production itself interrupt and retard the process of L2 production.

1. Introduction

Learners and native speakers of L2 recognize the importance of getting the word right, because they all know words' lexical information is crucial in determining syntactic relationships of different words in a language. Ironically, however, L2 learners' lexical errors outnumber their grammatical errors (Blaas, 1982; Meara, 1984). As a way to explain the irony, psycholinguistic approaches have identified the internal mechanisms responsible for variable linguistic performance. Psycholinguistics processing models have sought to account for the variation resulting from factors that influence the learners' ability to process L2 knowledge under different condition of use. In this study, among the psycholinguistic approaches taken so far to explain the sentence production process, Levelt (1989)'s study will be explored in the perspective of second language acquisition.

2. Previous Study

Studies concerning the lexicon have shown various ideas about the role of lexicon in second language acquisition and the description of sentence production process. Klein & Perdue (1989) believed that words are major factors determining the semantics and pragmatics of sentences. In Klein and Perdue (1989), they provided some principles that influence on word orders by second language learners in a naturalistic setting. They insisted that there are three rules which determine the arrangement of words in early learner varieties: they are, as quote, a phrasal, a semantic, and a pragmatic rule (1989, p 326). As learners control the vocabulary better, they become aware of specific lexical factors necessary for producing sentences. Ard & Gass (1987) also viewed that lexical information plays little role in early stage of language learning and, as learners learn more lexical information, they come to know which structures are possible for certain words. Hence, both research agreed to the idea that learners have to learn the lexical constraints on sentence production. Besides, Adjemian (1983) showed that L1 lexical rules affect learners' building of L2 lexical information.

However, there has not been much research on how this learning process, especially for sentence production, takes place. In that respect, Levelt's work (1989), though it described children's L1 acquisition, is worth noticing, since it presented a detailed model of sentence production. Like many researchers in the field, he postulates that the lexicon is a driving force in sentence production in all languages. In his study (1989), he tried to explain the sentence production process by suggesting two different production stages called 'conceptualizer' and 'formulator'. The concept of conceptualizer indicates learners' processing system for ordering information for expression, keeping track of what was said before, and monitoring one's own production (1989, p 9). And the formulator refers to the processing system that the output of the conceptualizer is converted into an ultimate speech. He insisted that there has to be continuous feedback between the conceptualizer and the formulator for learning languages. And Levelt (1989) claimed that, as one learns his native language and learns more lexical information, it is no longer necessary for the conceptualizer to ask the formulator at each occasion (1989, p 105). That is, he viewed the system operating between them becomes autonomous in L1 acquisition. However, he left the availability of applying the results of his study to second language acquisition to future studies.

3. The study.

3.1 Research questions.

On the basis of Levelt (1989)'s research, this study examines next three issues.

First, are there any distinctive concepts of conceptualizer and formulator in L2 acquisition as they are in L1 acquisition as Levelt (1989) insisted ?

Second, if there are two different concepts L2 production process, does the system between the

conceptualizer and the formulator go as much autonomous as in L1?

Third, if the operation between the conceptualizer and the formulator is not autonomous in L2 production, what other specific factors are operating in the process of conceptualizing and formulating L2 production?

3.2 Participants.

Twenty seven learners of English who were majoring in tourism and English at S college participated for this study. These participants were the students attending to the same course, English Conversation, in the first semester, 2004. They were divided into three groups according to their proficiency levels – advanced, intermediate, and beginner level. For the fact that the students haven't taken any official English test before, their English proficiencies were decided based on the final scores of the class. The evaluation was made by considering of the results of their mid-term and final term examinations, and their participation in the class. Those students whose final evaluations were A or A+ are grouped as advanced learners, while the students who had B or B+ were counted as intermediate learners. The students who received the scores from C to D were grouped into beginners.

3.3 Methodology

In order to get answers to the research questions mentioned in 3.1, a questionnaire which has a combined form of writing test and grammatical judgment test (GJT) was made and distributed to the 27 learners of English. The first section is a writing test, which asks learners to write down the meanings of 18 words as much as they know and to make sentences corresponding to the meanings that they listed for each word. The words that were given to the participants were causative verbs, perception verbs, and verbs followed by infinitives or gerunds, which are all semantically existing in Korean, learners' L1, though different rules are required for the sentences production in L2. The writing section was made to find out whether there are distinctive concepts, the conceptualizer and the formulator, in L2 learning, and how much they are autonomous in their operation. The second section is the GJT, which are composed of 18 multiple choice questions. Their answer choices are four grammatical and ungrammatical sentences which have 18 vocabularies of the first section as main verbs. What learners had to do in this section is to make a decision on which sentence is grammatical and ungrammatical based on their knowledge of L2 lexis. The four answer choices are made to identify the obstacle lying between the conceptualizer and the formulator in L2 learning.

4. Results and Discussion

4.1 The Conceptualizer and Formulator in L2 Learning

The conceptualizer, as a preverbal plan of sentence production, determines the notions that will be expressed in the actual verbal message. And the output of the conceptualizer, the actual speech, is called the formulator (Gass, 1994). As a way to identify the existence of the conceptualizer and the formulator in L2 learning, the writing section which shows learners' knowledge on meanings of the given words and their competence to make sentences with the given words was analyzed.

Table 1. Consistency between the conceptualizer and the formulator in L2

Consistency	Advanced		Intermediate		Beginners		All groups	
	mean	%	mean	%	mean	%	mean	%
CoFo	13.7	76.1	9.7	53.9	6	33.3	9.8	54.4
CoFx	2.7	15	6	33.3	7.7	42.8	5.5	30.6
CxFo	0	0	0	0	0	0	0	0
CxFx	1.6	8.9	2.3	12.8	4.3	23.9	2.7	15
Total	18	100	18	100	18	100	18	100

COFO: Correct conceptualizer and correct formulator

Table 1 shows there are various cases such as CoFx, CxFo, and CxFx, besides the case of CoFo. This shows that learners' knowledge on words, especially their knowledge on words' meanings, doesn't guarantee that learners are successful in producing grammatical sentences in L2. Therefore, it can be said that L2 learners' conceptualizer and formulator are not congruent. Conceptualizing L2 and formulating L2 should be regarded as completely independent systems in learning L2. Furthermore, the noticeable inconsistency between the conceptualizer and the formulator (30.6%) shows that there are two distinctive notions, the conceptualizer and the formulator, in L2 learning, and we can use them to explain the process of L2 learning as well as to explain L1 acquisition as Levelt (1989) did.

The result about the consistency rates of different proficiency levels indicates that the system operating between the conceptualizer and the formulator is not autonomous in L2 learning. The advanced learners show the highest consistency between the conceptualizer and the formulator. This tells that they have more knowledge on L2 words and they are more competent than other groups in making L2 sentences based on their L2 lexical knowledge. Yet, as the language proficiency levels down, the inconsistency rates between the conceptualizer and the formulator are greatly increased. In addition, beginners have more difficulties in making grammatical sentences, even though they know the meanings of the words, which means their conceptualizer is well established (42.8%). Therefore, at least in L2 learning, the operation between the conceptualizer and the formulator is not as autonomous as it is in L1.

The fact that there isn't any case of CxFo in all groups shows that the knowledge on lexicon is the most basic and initial equipment for learning languages. Without having necessary knowledge on lexis, learners cannot produce sentences which make sense in L2.

There is more evidence which shows the relationship between the conceptualizer and the formulator is not as autonomous as we expected. The analyses of GJT section shows that how well the L2 learners build up the conceptualizer and the formulator for the given L2 lexis. Since all questions in the GJT section have four sentences at their choices, on which learners are asked to judge their grammaticality, higher number of correct answers reflects the number of learners' right judgment on four sentences.

Table 2. The number of correct answers

The No. of correct answers	Advanced		Intermediate		Beginners		All groups	
	mean	%	mean	%	mean	%	mean	%
4	1.3	7.2	0.3	1.7	0.3	1.7	0.6	33
3	4.4	24.5	2.3	12.8	2.6	14.1	3.1	17.2
2	7.0	38.9	9.7	53.9	6.7	37.2	7.8	43.3
1	4.0	22.2	4.0	22.2	5.7	31.7	4.6	25.6
0	1.3	7.2	1.7	9.4	2.7	15	1.9	10.6
Total	18	100	18	100	18	100	18	100

Table 2 shows the number of correct answers is 2, 1, 3, 0, and 4 in the order of high numbers. Advanced learners made right decisions on more than two sentences out of four (2>3>1>4=0), while the intermediate learners (2>1>3>0>4) and the beginner learners (2>1>0>3>4) judged right on less than two sentences. Though advanced learners are little superior to other groups in making right grammaticality judgments, they still have problems in judging grammaticality for all sentences. This implies that there is an obstacle preventing the conceptualizer and the formulator from operating autonomous in L2 learning.

4.2 The mediator between L2 conceptualizer and L2 formulator

Now it is needed to find out the reason why the operating system between the conceptualizer and the formulator is not as autonomous as it is in the first language acquisition. The four sentences in GJT section were composed of both grammatical and ungrammatical sentences. One of the sentences was made of the basic semantic feature of the given verb which feature corresponds with the L1 lexicon. And its structure had the most basic L2 structure like subject + verb, or subject + verb + object/complement. This sentence was counted as L2=L1. Another sentence was made up of the

same verb, but it had other structures which require more advanced knowledge on the word in terms of forms and word orders. This sentence was called L2=L1'. Third sentence was also made of the same verb, but it has different structure which doesn't exist in learners' L1. This one was classified as L2=L1°. The last sentence had totally different structure and meaning from learners' L1. So one must be the sentence which learners must feel the difficulty the most. This one was classified as L2↔L1 sentence.

Table 3. The causes of wrong judgments

Patterns of sentences	Advanced		Intermediate		Beginners		All groups	
	mean	%	mean	%	mean	%	mean	%
L2=L1	2.7	7.6	5.3	13.2	4.0	9.2	4.0	10.8
L2=L1'	19.0	53.2	21.0	52.0	24.0	55.4	21.3	57.2
L2=L1°	10.0	37.3	13.7	34.0	14.3	33.1	11.2	30.1
L2=L1	0.7	1.9	0.3	0.4	1.0	2.3	0.7	1.9
Total	32.3/72	27.8	43.3/72	34.8	43.3/72	37.4	27.2/72	100

Table 3 shows that the lexical and grammatical distance between L1 and L2 determines learners' grammaticality judgments on L2 sentences. The number of wrong grammatical judgments on four sentences is higher from L2=L1', L2=L1°, L2=L1, to L2=L1. What is interesting is that learners made wrong judgment on the sentence which required additional L2 grammatical knowledge, but they had less difficulty when they judged sentences which have totally different grammatical structures from their L1. That is, as proficiency rises, learners are more acknowledge of structural rules of L2 which require additional changes in words' form or words orders in sentences. And the number of wrong choices is the highest in beginner level and in the intermediate the next. This result indicates the grammatical distance between L1 and L2 is an important factor affecting learners' right grammatical judgment on L2 sentences.

4.3 The relation between the consistency of the conceptualizer and the formulator, and the results of GJT.

The results of analyses of GJT need to be examined here in the relation with the consistency of the conceptualizer and the formulator.

Table 4. The causes of wrong answers in the case of the lexicons of CoFo

	Advanced		Intermediate		Beginners		All groups	
	mean	%	mean	%	mean	%	mean	%
Correct choice	30.6	42.5	18.7	26.0	11.7	16.3	20.4	28.3
Wrong choice	24.0	33.3	20.0	27.6	12.3	17.1	18.8	26.1
L2=L1	1.7	2.4	2.7	3.7	1.7	2.4	2.0	2.8
L2=L1'	43.0	19.8	11.0	15.2	7.0	9.7	10.8	15.0
L2=L1°	7.3	10.2	6.0	8.3	3.0	4.1	5.4	7.5
L2=L1	0.7	0.9	0.3	0.4	0.7	0.9	0.5	0.7

As table 4 shows learners who is believed to establish the right conceptualizer and formulator for a word failed to make right grammatical judgment on the same word. Although correct choices (28.3%) are made more than wrong choices (26.1%) in all groups, all learners made right decisions less than 50% even for the words, on which they have already established the conceptualizer and the formulator. This tells that L2 learners need to get used to using diverse L2 structures possible for L2 lexis

Table 5 shows the results of GJT for the words on which learners established right conceptualizer and wrong formulator.

Table 5. The causes of wrong answers in the case of the lexicons of CoFx

	Advanced		Intermediate		Beginners		All groups	
	mean	%	mean	%	mean	%	mean	%
Correct choice	6.7	9.3	8.7	12.0	15.3	21.2	10.2	14.1
Wrong choice	4.0	5.6	15.3	21.2	15.3	21.2	11.5	16.0
L2=L1	0	0	2.0	2.8	1.0	1.4	1.0	1.4
L2=L1'	2.7	3.8	8.3	11.5	9.7	13.7	6.9	9.6
L2=L1°	1.3	1.8	5.0	6.9	4.0	5.7	3.5	4.9
L2=L1	0	0	0	0	0.3	0.4	0.1	0.1

The number of correct judgments is higher than the number of wrong ones in the advanced group. The number of correct judgment is lower and equal to that of wrong judgments in the intermediate and beginner level. This result suggests that, being in the state of CoFx, advanced learners are more skillful in identifying grammaticality of the given sentences.

Still, the causes of wrong choices in all proficiency levels follow the general trend: L2=L1' > L2=L1° > L2=L1 > L2=L1. They have difficulty in judging grammaticality for sentences which used L2 structures a little different from L1 rather than totally different.

Lastly, table 6 shows learners' grammatical judgment on the word for which they haven't established conceptualizer nor formulator.

Table 6. The causes of wrong answers in the case of the lexicons of CxFx

	Advanced		Intermediate		Beginners		All groups	
	mean	%	mean	%	mean	%	mean	%
Correct choice	2.4	3.3	4.0	5.6	2.7	3.8	3.0	4.2
Wrong choice	4.3	6.0	5.3	7.5	14.7	20.4	8.1	11.3
L2=L1	1.0	1.4	0.7	0.9	1.0	1.4	0.9	1.3
L2=L1'	2.0	2.8	2.0	2.8	6.3	8.8	3.4	4.7
L2=L1°	1.3	1.8	2.7	3.8	7.3	10.2	3.8	5.3
L2=L1	0	0	0	0	0	0	0	0

In all groups, wrong judgments were taking place more often than right grammatical judgments. The beginners show a considerable difference between the numbers of correct and wrong grammatical judgments. This indicates they haven't yet established sound conceptualizer of L2 lexis.

5. Conclusion

This study explores the sentence production process in L2 learning in terms of the conceptualizer and the formulator. Levelt (1989), who had first presented these two processing notions to explain children's first language acquisition, insisted that there had to be feedback between the conceptualizer and the formulator in language learning, and the system operating between the two concepts becomes autonomous when it comes to first language acquisition. With regard to L2 learning process, especially L2 sentence production, this study also shows that the process of L2 production can be explained by introducing the two concepts, the conceptualizer and the formulator, into the mechanism of L2 learning. However, the process operating between the conceptualizer and the formulator in learning L2 is not as autonomous as it is in the process of L1 production.

Not only are the nature of sentence production in L2 itself but also already acquired L1 - L1 conceptualizer and L1 formulator – interrupts and retards the process of L2 production. And learners have more difficulties when they face L2 sentences which are made of grammatical rules different from L1 than the sentences which structures are opposite to L1. Hence, this study suggests that L2 learners need to be accustomed to more diverse lexical constraints on L2 sentence production and also need to improve the skill to identify the grammatical differences between L1 and L2.

This research, though it has its own results and conclusion, is still a kind of pilot study. This study needs to be more substantiated in future studies because the number of participants is still small amount and the statistical results need to be further examined in their validities.

Reference

- Adjemian, C. (1983). The transferability of lexical properties. In S. Gass & Selinker (Eds.), *Language transfer in language learning* (pp. 250-268). Rowley, MA: Newbury House.
- Ard, J., & Gass, S. (1987). Lexical constraints on syntactic acquisition. *Studies in Second Language Acquisition*, 9, 235-255.
- Blaas, L. (1982), *Fossilization in the advanced learner's lexicon*. In S. Gass & Selinker (Eds.), *Second Language Acquisition* (pp. 270). Lawrence Erlbaum Associates, NJ: Hove and London.
- S. Gass & Selinker. (1994). *Second Language Acquisition*. Lawrence Erlbaum Associates, NJ: Hove and London.
- Klein, W., & Perdue, C. (1989). The learner's problem of arranging words. In B. MacWhinney & E. Bates (Eds.), *The crosslinguistics study of sentence processing* (pp. 292-327). Cambridge: Cambridge University Press.
- Levelt, W. J. M. (1989). *Speaking: From intention to articulation*. Cambridge, MA: MIT Press.
- Meara, P. (1984). The study of lexis in interlanguage. In A. Davies, C. Cramer, & A. Howatt (Eds.), *Interlanguage* (pp. 225-235). Edinburgh: University of Edinburgh Press.