The Resetting of the Head Direction Parameter

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This study aims to investigate the availability of the head direction parameter to Korean learners of English to find out how learners learn the head direction of English phrases in the EFL classroom. 95 intermediate and beginner students in their first year of middle school in Korea completed production and comprehension tasks. The results showed that the head final strategy is used more often than other interlanguage strategies when the head initial strategy is not available, which tends to show that the head parameter is reset through L1 values. In addition, the production task also proved that the acquisition of the VP head direction is accompanied by the acquisition of the NP, PP and AP head directions. In contrast, the participants showed a strong tendency of applying the head final strategy in translating English sentences in comprehension tasks. One possible explanation for this discrepancy between the production and comprehension tasks is that the interference of the Korean head final structure lets students decide the noun before the head is the compliment of the head. The pedagogical implication drawn from this study is that the head direction should be taught to beginners particularly in communicative classrooms.

Key Words: head direction parameter, phrase structure, EFL classroom, beginner

I. INTRODUCTION

It is important to teach how to produce English sentences to first-year students in middle school. Students at this age are expected to learn about sentence level structure. Since English classes in elementary school mainly focus on the learning of vocabulary, the first-year student has the ability to say some English words and remember some chunks such as "I like ice-cream." and "What is your name?" These grammatically correct short chunks do not necessarily mean that students know how to organize English sentences because, when students have to produce novel sentences in order to convey their own intended meanings, they usually arrange English words according to the order of words in Korean sentences. When teachers hear such incorrect sentences, they need to explicitly teach students that English word order is different from Korean word order. Therefore, it is necessary to know how students learn English word order in the English as a Foreign Language (EFL) context.

The error of word order is closely related to the issue of head direction parameter.

One of the most salient mistakes which students make is putting objects before verbs in a sentence like * *I bread eat*. When they start to use prepositions, they also produce wrong phrases like *(the) basket in* and *(the) table under*. These incorrect Preposition Phrases (PPs) are closely related to the wrong positions of objects and verbs in a Verb Phrase (VP) because these two phenomena are linked to the head direction parameter issue. Korean is a head final language which has the Subject-Object-Verb (SOV) pattern, and English is a head initial language which has the Subject-Verb-Object (SVO) pattern. Korean also uses postpositions while English uses prepositions. These differences are applicable to other phrases, such as the Noun Phrase (NP), Adjective Phrase (AP) and Complementizer Phrase (CP).

If the head direction parameter can be set in an EFL setting, teachers can utilize the similarities of related phrase structures and teach the patterns of all phrase structures together in order to reduce word order errors and facilitate the learning of beginners. Therefore, this study aims to investigate the availability of the head direction parameter to Korean learners of English to find out how learners learn the head directions of VP, NP, PP and AP in the EFL classroom.

## Ⅱ. Theoretical Backgrounds and Literature Review

1. Theoretical Backgrounds

In the generative framework, innate language ability plays a core role in language acquisition. Universal Grammar (UG) is composed of a limited number of principles and associated parameters. The head-direction parameter is one of the parameters in UG. It is argued that this parameter composes a part of children's innate knowledge of language. Input, however, is needed to set the values of principles – the setting of the parameter for one value gets you one language and setting of the parameter in another way results in another language (Cook & Newson, 2007).

The head-direction parameter is associated with the X-bar principle. The X-bar principle states that all phrasal categories are projections of their heads. It determines the relative position of the head and its complement (Chomsky, 1986). In other words, the direction of the head in relation to its complement is parameterized. It can be either 'head initial' or 'head final'. If the language is head initial, as in English, the head comes before the complement. On the other hand, if the language is head-final, as in Korean, the head comes after the complement. Examples of head initial phrases are shown in Figure 1.

FIGURE 1

English Phrasal Category Structure (partially adapted form Kim & Hahn, 2001)

```
                        XP
                        |
                        X′
                      /    \
        X                      Compliment
        V                      NP (read a book)
        N                      PP (an apple in the basket)
        P                      NP (behind the door)
        C                      IP (when John comes home)
```
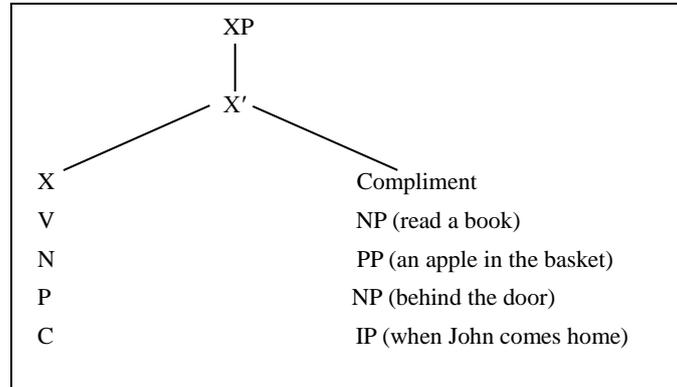
The head direction parameter deals with the positions of subordinate clauses in general (Cook, 1993). It captures a broad division among languages over the location of subordinate clauses within the structure of the sentence. For example, in English, relative clauses come after the noun head, as shown in (1). However, in Korean, relative clauses come before the noun head, as shown in (2).

(1) I liked the cookies he baked.
(2) 나는 그가 구워준 과자를 좋아했다.

Languages that post-pose relative clauses also tend to position subordinate clauses to the right of main clauses, as shown in (3). Conversely, languages that pre-pose relative clauses also tend to pre-pose subordinate clauses, as shown in (4).

(3) He will go when I ask him.
(4) 내가 그에게 부탁하면 그가 갈 것이다.

In this study, the term "head direction parameter" is used to refer to the parameter which affects all of the major recursive devices of language such as relative clauses, adverbial subordinate clauses, and also phrase complementation.

2. Previous research on the head direction parameter in L2 acquisition

In second/foreign language contexts, the availability of UG parameters has been questioned by some researchers. In L1 acquisition, in contrast, children need not learn the headedness of each of the individual categories (Radford, 2006). Only a small amount of input that tells them about the head direction in any one phrasal category will suffice to trigger parameter setting across all of the other categories. This phenomenon is known as a clustering effect. It means that when a child listens to utterances with a VO sequence, he/she finds that his/her language is head-initial and automatically applies this head direction to other phrases.

If a parameter is operative in L2 acquisition, it will either allow parameter setting or parameter resetting. Parameter setting means direct access of the L2 parametric value without the interference of the L1 value. Flynn (1984) assumed that the learner acquires the L2 value directly through the interaction between the UG and L2 input, and L2 learners do not display systematic L1 transfer regarding the head direction. Parameter resetting means a shift from the L1 parametric value to the L2 value. Schwartz and Sprouse (1994) argued that learners initially transfer the L1 word order. However, at some point, parameter resetting occurs and the resetting leads to a clustered change in head direction across all phrasal categories. Evidence for either case would be simultaneous changes of relevant structures, or clustering effect accompanied by the new fixing of the target value.

A few research studies showed that the setting of the head direction occurred with adult L2 acquisition. Stowell (1981) studied head direction parameter in adult L2 acquisition of pronoun anaphora. Two groups of adults – L1 speakers of Spanish, a head initial language, and L1 speakers of Japanese, a head final language – were the participants and their elicited production of English was examined. The results indicated that Japanese speakers were sensitive, from the early stages of acquisition, to the mismatch in the head direction in English and Japanese, and that they assigned new values to this parameter to cohere with the target L2 value. Flynn (1983, 1987) also investigated the role of the head-direction parameter in adult L2 acquisition and indicated that, from the earliest stages of acquisition, Japanese learners of English were able to acquire the English value of the head direction parameter with regard to the position of the head of the CP.

In the EFL context in Korea, however, the availability of the head direction parameter and its clustering effect have been somewhat denied by researchers who studied the acquisition of VP and PP. If the parameter-resetting is the right model for EFL learners' acquisition of head directions, at the moment when the VP head direction

is acquired, the head direction parameter is fixed at the head-initial position and the learners should know that English PP is also head-initial without being exposed to a sufficient amount of PP structures, which might not be the case in Korea.

A Korean study suggested that the parameter is not available at least in foreign language settings. Hahn (2000) investigated the development of phrasal categories in the early grammar of Korean EFL learners. In the study, nine Korean child and adolescent learners starting to learn English at different ages were examined for at least 20 months from the very beginning. Hahn's results showed that some learners initially transferred Korean word order, such as a verb coming after an object. Moreover, even after the learners acquired the VO order, they continued to use the head final NP-P sequence for PPs. Six out of nine learners showed a significant delay in the acquisition of the PP head direction. That is, the VP head-direction is acquired earlier than the PP head direction, and clustering does not occur.

Kim and Hahn (2001) also examined whether parameter clustering in head direction occurs in Korean EFL contexts or not. Three tasks were assigned to 145 Korean EFL learners, where the learners were asked to compose English sentences with adverbial CPs and to translate English test sentences with adverbial CPs into Korean. They found that the intermediate learners were influenced by the Korean head directionality both in composition and translation. This showed that the learners at first tend to assume the Korean headedness as an initial value for the English CP. At the same time, since almost all of the participants had acquired VP head direction, the head direction parameter is not fixed at the head-initial position and learners do not know that English CP is also head initial without being exposed to a sufficient amount of CP structures.

These two Korean studies proposed that if the structures are found to be acquired separately, a parameter is not operative in L2. In this sense, they suggested that EFL learners use the head final strategy in VP head direction, and the VP head direction is acquired earlier than the PP head direction and clustering does not occur. However, with the exception of the two studies, there has been little research which deals with the acquisition of many different phrases such as VP, NP, PP and AP by Korean EFL beginners. It is necessary to examine whether the acquisition of the head direction of NP, PP and AP occurs later than that of the head direction of VP.

Moreover, there have been few studies on Korean learners in their early stages of English learning. Kim and Hahn (2001) also pointed out the lack of data on L2 learners' early stages. Their study mentioned that L2 learners' initial data might include errors regarding the head direction, which is necessary to complete the understanding of Korean EFL learners. Therefore, this study aims to investigate the acquisition of head direction by Korean students who have been learning English for about six months in a

middle school.

The abovementioned reasons have led to the following two research questions.

1. Do Korean EFL students in their early stages of learning apply the head-final strategy to produce VP, NP, PP and AP constructions?
2. Is the acquisition of the VP head direction accompanied by the acquisition of the NP, PP and AP head directions for Korean EFL students in their early stages of learning?

Ⅲ. Methods

1. Participants

The participants were 95 first-year male students in a middle school located in Seoul. The original number of students was 125. However, the students who had not completed their tasks or who could not produce any sentences in English were excluded from this study.

The participants' English proficiency levels ranged from beginner to intermediate because this research was expected to study the participants' very first steps in learning English. Highly proficient students were also excluded because they already did not show any confusion with English head direction. Most of the participants tended to belong to Level A1 in the Common European Framework of Reference (2001). They usually learned English in school EFL classes, which are provided three times a week. They had not had chances to use English in a communicative context; nor had they taken an official English proficiency test such as TOEFL or TOEIC. According to their proficiency level, the participants were divided into two groups. The intermediate group was composed of students whose English scores on the mid-term exam were from 45 to 65, while the beginner group was composed of students whose scores were below 45.

TABLE 1

Participants in Intermediate and Beginner Group

Group	Scores in the Mid-term English Exam	N
Intermediate	46-65	50
Beginner	28-45	45

2. Tasks and procedures

As for the vocabulary included on the test sheets, the verbs and prepositions that are

often found in textbooks were avoided because learners tend to memorize the verb phrases and preposition phrases as chunks. For students, *read a book* seems to be a chunk and they do not know that "read" is a verb and "a book" is an object. Since students did not know the meanings of the new English words on the test sheet, they were taught the meanings of the words so that vocabulary might not have a derogating influence on the results of the tasks. (see Appendices)

Two types of tasks were used in this study. One was a picture-cued production task and the other was a comprehension task. One of the problems of previous studies is that Korean sentences were given to the students for the production tests and then students were asked to arrange the given English words and make English sentences so that each sentence could best represent the meaning of its counterpart Korean sentence. However, the students were found to follow Korean word order when they did not know what the correct English sentences were, as shown in (5). It might be because students were able to see the Korean sentences on the paper sheet.

(5) 방안에 컴퓨터가 있습니다.
There, in, a computer, room, is
* There is room in a computer.

In order to reduce the influence of Korean sentences, this study used a picture-cued production task. Since students could not see Korean sentences, they were expected to create English sentences.

For the picture-cued production task, five pictures were given to the students. Two were aimed at eliciting VP, another two were aimed at the production of NP and PP, and the remaining picture was aimed at the production of AP. Since the participants were first-graders in middle school, their textbook had not yet exposed them to AP. AP appears first in second-graders' textbook. Therefore, only one AP is included in each task to see whether the same head direction is applied without previous exposure. The participants were asked to rearrange the randomly ordered English words and make sentences so that they could best describe the given pictures. Before the task, the students were instructed to make clear the meaning of each given picture. The picture-cued production task along with the list of given English words is presented in Appendices.

For the comprehension task, the students translated five English sentences into Korean. The number of production and comprehension task items was 10 because the participants were easily distracted when presented with long lists of task items. Two sentences contain transitive verbs to test the acquisition of VP, as shown in (6) and (7).

Another two sentences contain prepositions for PP, as shown in (8). The last sentence contains AP, as shown in (9).

(6) Linda invites Yumi to the birthday party.
(7) Minho helped John yesterday.
(8) There is a circle in a square.
(9) Jane is proud of Susan.

During the task session, the production task preceded the comprehension task. After the students finished the production task, the task sheets were immediately handed back to the teacher. Afterwards, they were given the comprehension task. The order of tasks was such so as not to give the students the relevant input from the comprehension task, which they might make use of in the production task.

3. Scoring

1) Production scoring

As for VP, the sentences in which verbs precede objectives were considered correct even though the position of the subject was wrong. It is because describing a picture caused problems in interpreting the meanings of the pictures. The examples are shown in (10).

(10) Correct: Minho throw a ball.
              민호가 공을 던진다.
              * Throw a ball Minho
              공을 던지는 민호
    Incorrect: * Minho a ball throw.
              민호가 공을 던진다.
              * A ball throw Minho
              공은 던지는 민호

As for PP, if a preposition precedes a noun, the phrase was considered as correct, as shown in (11).

(11) Correct: There is a cat behind the board.
              * There is behind the board a cat.
    Incorrect: * There is a cat the board behind.

      * There is the board behind a cat.

As for NP, if NP precedes PP, the phrase was regarded as correct, as shown in (12).

(12) Correct: There is a cat behind the board.
          * There is a cat the board behind.
  Incorrect: * There is behind the board a cat.
          * There is the board behind a cat.

  The head directions of NP and PP are judged in the same two sentences. For example, the sentence * *There is a cat the board behind* was regarded correct for NP. However, it was regarded incorrect for PP.
  As for AP, if an adjective precedes a noun, the phrase was considered as correct as in (13).

(13) Correct: * woman afraid a bear.
        여자가 곰을 무서워한다.
        * Afraid a bear woman
        곰을 무서워하는 여자
  Incorrect: * woman a bear afraid.
        여자가 곰을 무서워한다.
        * A bear afraid woman
        곰을 무서워하는 여자

  The sentences which follow neither English nor Korean head direction were excluded. The examples are shown in (14).

(14) * Throw Minho a ball. (VP)
    * There is a cat basket. (PP)
    * afraid woman a bear. (AP)

2) Comprehension scoring

  For the comprehension task, the students translated five English sentences into Korean. Two sentences contained VPs with transitive verbs, two sentences contained PPs and the last sentence contained an AP.
  As for VP, if the students translated the objects as verb complements, and if the

students put the Korean postposition 을 or 를 behind the objects, the translation was considered correct, as shown in (15).

(15) Correct: Minho helped John Yesterday.
　　　　　민호가 어제 존을 도와주었다.
　　　　　민호가 어제 도와주다. 존을.
　Incorrect: 민호를 도와주었다. 존이.
　　　　　민호가 도움을 받았다. 존에게서.

As for AP, if the students translated the noun as an adverb complement, the translation was considered correct. As for PP, if the students translated prepositions not as postpositions but as prepositions, the translation was considered correct as shown in (16).

(16) Correct: There is a dog in front of a cat.
　　　　　개가 고양이 앞에 있다.
　　　　　고양이 앞에 개가 있다.
　Incorrect: 개 앞에 고양이가 있다.

The number of correct interpretations of NP structure was not counted since it was hard to discern whether the students understood the head direction of NP structure. A future study would use the grammaticality judgment task to find out whether students understand the organization of NP structures.

The sentences which follow neither English nor Korean head direction were excluded. The examples are shown in (17).

(17) Minho helped John yesterday.
　　민호랑 존이랑 서로 돕는다. (VP)
　　There is a dog in front of a cat.
　　고양이가 개를 따라간다. (PP)
　　Jane is proud of Susan.
　　제인이 자랑스러운 수전 (AP)

Ⅳ. Results and Discussion

The results of the two tasks are discussed concerning the two research questions and an unexpected result is presented and explained at the end.

1. Korean EFL students' application of the head-final strategy for producing and comprehending VP, NP, PP and AP constructions

The production and comprehension data were examined to analyze whether students used the head-final strategy. Table 2 presents the results of the production task and Table 3 presents the results of the comprehension task of all 95 students. Since two production items were related to VP head direction, the number of the sentences that all 95 students produced concerning VP is 190. The case is the same with NP and PP. There was only one production task item related to AP, so the total number of sentences that students produced is 95.

TABLE 2

The Results of the Production Task of All Students (N=95)

Phrase	Head Initial	Head Final	Others
VP	140(73%)	47(25%)	3(2%)
NP	156(80%)	25(14%)	9(6%)
PP	143(70%)	44(22%)	13(8%)
AP	61(62%)	24(25%)	10(13%)
Total	500(73%)	140(21%)	35(6%)

TABLE 3

The Results of the Comprehension task of All Students (N=95)

Phrase	Head Initial	Head Final	Others
VP	153(80%)	31(17%)	6(3%)
PP	88(44%)	84(47%)	18(9%)
AP	84(91%)	2(1%)	9(8%)
Total	325(68%)	117(26%)	33(6%)

As shown in Tables 2 and 3, among the erroneous comprehension and production results, the number of times the head final strategy was used is greater than the number of times other strategies were used. While more than 20% of the sentences contained head-final phrases, only 6% of the sentences were affected by unknown strategies. Since Korean is a head final language, the students seemed to be affected by their native language. If students' L1 does not affect their strategy, students might use unknown erroneous interlanguage strategies instead of the head final strategy. However, there is a tendency toward the head final strategy which is in their L1. It does not seem that students can directly access UG and set the parameter of L2. Rather the head parameter tends to be reset through L1 values.

Tables 4 and 5 show differences in the production task between intermediate students and beginners.

TABLE 4

The Results of the Production Task of Intermediate Students (N=50)

Phrase	Head Initial	Head Final	Others
VP	98(98%)	2(2%)	0(0%)
NP	92(92%)	8(8%)	0(0%)
PP	94(94%)	6(6%)	0(0%)
AP	44(88%)	5(10%)	1(2%)
Total	328(94%)	21(6%)	1(0%)

TABLE 5

The Results of the Production Task of Beginners (N=45)

Phrase	Head Initial	Head Final	Others
VP	42(47%)	45(49%)	3(3%)
NP	65(68%)	19(20%)	10(11%)
PP	48(50%)	36(39%)	10(11%)
AP	17(37%)	19(41%)	19(22%)
Total	172(53%)	119(37%)	42(10%)

Most of the intermediate students performed the production task correctly while the beginners had difficulties in deciding the head direction of the English phrases. In the case of VP, 98% of the intermediate students applied the head initial strategy while only 48% of the beginners applied the head initial strategy. These tendencies prevailed for the other phrases. With regard to NP, 92% of the intermediate students and 68% of the beginners organized the phrases correctly. A similar tendency was observed in the PP: 94% of the intermediate learners and 50% of beginners applied the head initial strategy.

As shown above, the head final strategy is frequently used by beginners. When a student attains a certain level of proficiency, the frequency of using the head final strategy with VP, NP, PP and AP is reduced to below 8% simultaneously. It seems that students firstly apply the head final strategy and as they reach a certain proficiency level, they apply the head initial strategy. Regarding previous debates on the possibility of the setting or resetting of parameters, this result shows that Korean EFL learners experience the resetting of the head direction parameter.

The results of the comprehension task show quite different patterns between the intermediate students and the beginners.

TABLE 6

The Results of Comprehension task of Intermediate Students (N=50)

Phrase	Head Initial	Head Final	Others
VP	85(84%)	14(14%)	1(1%)
PP	70(70%)	26(26%)	4(4%)
AP	48(97%)	0(0%)	2(3%)
Total	203(81%)	40(16%)	7(3%)

TABLE 7

The Results of Comprehension task of Beginners (N=45)

Phrase	Head Initial	Head Final	Others
VP	68(76%)	17(19%)	5(6%)
PP	17(19%)	62(68%)	11(13%)
AP	39(87%)	1(2%)	5(11%)
Total	124(55%)	80(35%)	22(10%)

There are three differences between the results of the production task and the comprehension task. First, most of the intermediate students were successful in interpreting the English VP, PP and AP phrases. However, the rate of using the head initial strategy in the comprehension task was lower than the rate of using it in the production task. The students seemed to have more difficulties in interpreting English head directions than in producing them.

Second, the performance of the intermediate students and the beginners did not show much difference. The difference in the comprehension task between the intermediate and the beginners was smaller than the difference in the production task. With VP structures, the intermediate students used the head initial strategy only 8% more than the beginners. The proficiency effect in the comprehension task was smaller than that in the production task. While productive processing of head direction is acquired abruptly at a certain stage of proficiency, receptive processing is not reset with the change of proficiency.

Third, the head initial strategy rate in PP was the lowest among the three phrases. Even the intermediate students used the head initial strategy only 70% of the time. Compared to the 94% of head initial strategy use in the production task, it is a low percentage. With the beginners, the head final strategy was used more frequently than the head initial strategy when interpreting PP structures. Only 19% of the beginners used the head initial strategy with PP phrases, while 68% of the beginners used the head final strategy.

The reason that the learners chose different head directions for the production task and the comprehension task should be explained. The intermediate students were successful in producing sentences. In contrast, they showed a strong tendency of applying the head final strategy in translating English sentences. One possible explanation for this discrepancy between the production and comprehension tasks is that the interference of the Korean head final structure made students decide the noun before the head is the complement of the head. As for the PPs, a preposition was placed between two nouns and the students had to decide whether to translate the preposition with the left noun or with the right noun. It is quite possible that the students thought that the left noun was connected to the head of the PP just as it is in Korean. The same

tendency was also found in the study of Kim and Hahn (2001). In the comprehension tests where the conjunction was placed between two competing clauses to its left and to its right, the learners showed the tendency of choosing the left clauses as its IP. Therefore, it seems that the head direction of a phrase was not completely acquired by the participants.

Then how can the students place prepositions before noun phrases in the production task? As stated above, frequently used verbs and prepositions were excluded in this study in order to minimize the effect of memorized chunks. If there is no interference of native language, the head direction might be easy to acquire. As previous studies showed that adult L2 learners recognize the difference in head direction in the first place, students might have a sense of the head direction of English due to their previous experiences in English class. Further studies need to investigate this issue.

2. The simultaneity of the acquisition of the VP head direction and the acquisition of the NP, PP and AP head directions by Korean EFL students in their early stages

Does the head direction of all four phrases change at one time, or is there a sequential developmental order in the acquisition of head direction? Concerning only VP, NP, PP and AP, their head directions were reset almost simultaneously. There is a noticeable change in the rate of error in all four phrases between the intermediate students and the beginners. If individual phrases are acquired separately in a sequence, there should be differences among the error rate of these four kinds of phrases with the intermediate students. However, at a certain level of proficiency, scoring 45 points on the mid-term exam in this study, the reset was completed and the rate of error in the head direction of all four phrases was abruptly reduced. For example, the overall percentage of using the head initial phrase among the intermediate students was over 90% for VP, NP, PP and AP. Even though the intermediate students were not exposed to PP phrases as much as they were to VP phrases, the percentages of the VP and PP head initial phrases were almost equivalent to each other.

The production results of the intermediate students also show that the rate of using the head initial strategy with AP was not very different from that of other phrases even though the students were exposed less to AP structures than other phrases. AP structures first appear in a textbook for second graders. There are much fewer AP structures than VP and PP structures in the textbook. But students already understand that an adjective should come before its complement. Even though students do not know that adjectives need "be" verbs and proper prepositions as in *Linda is afraid of a bear*, students consistently put "afraid" before its complement.

This finding does not seem to accord with Hahn's (2000) longitudinal study and Kim and Hahn's (2001) study of the acquisition of the CP and VP head directions, where Korean EFL students' acquisition of the PP head direction and, CP head direction, respectively, were found to be significantly delayed compared with their acquisition of the VP head direction. Kim and Hahn (2002) argued that evidence for parameter availability could be shown by the clustering effect accompanied by the new fixing of the target value. The mere fact that target structures linked to a single parameter are somehow learned by L2 learners in the end doesn't stand as evidence for parameter-setting/resetting, if the structures are found to be acquired separately (Kim and Hahn, 2002). Therefore, if learners' headedness of different phrasal categories is found to be set differently, it can be taken as an indication that the X-bar principle is not parameterized. If future studies examine more closely students who are at the beginner level, the discrepancy between this study and previous studies might be resolved.

In L1 acquisition, children are exposed to all of the sentence structures at the same time from the very beginning. Caretakers tend to make sentences simple, but the sentences usually contain all of the phrases: VP, NP, AP, PP and sometimes even CP. Children might notice the similarity of all the phrases from the input and set the head direction simultaneously. However, in EFL settings such as in Korea, students are not exposed to input that contains all of the related phrases at the same time. For example, AP usually appears first in a textbook for the second-year student in middle school, and CP is firstly used in a textbook later than AP. EFL students are not exposed to natural speech but to well-sequenced input. They do not have chances to translate and produce adjective clauses and complementizer clauses before they arrive at a certain level of proficiency.

We must not hastily decide that the head direction parameter does not work in the EFL context. In the absence of the head direction parameter, the learners will resort to general and non-language specific cognitive mechanisms such as hypothesis testing on phrase structures. It is quite impossible to explain the simultaneity of the acquisition of head direction in VP, NP, PP and AP with the help of general cognitive mechanisms. More studies on the EFL context are needed.

Ⅴ. Conclusion

This study aimed to examine whether a head direction parameter is available to Korean EFL students. The first major finding of the present study is that the resetting of the head direction parameter occurs with Korean EFL students. They initially assume the Korean parametric value. When they are forced to produce L2 sentences whose meaning

they do not know how to express, they easily resort to L1 parametric values to produce L2 sentences. This study also showed that parameter resetting seems to occur throughout VP, NP, PP and AP simultaneously as learners attain a certain level of proficiency. Even though the students were exposed to little input related to AP structure, they produced head initial AP structures in their production task. However, parametric resetting did not occur with the comprehension task. It seems that the position of the prepositions in the sentences of the PP tests confused the students. These aspects of the comprehension task require further investigation. It is suggested that grammaticality judgment tasks might be more useful than translation tasks in testing students' receptive knowledge. It is because in comprehension task, participants might just apply Korean word order to English sentences and translate them word by word.

Though it is necessary to be very cautious in drawing pedagogical implications from the findings of this study, it is possible to draw some implications for language pedagogy. These findings show great potential for the explicit teaching of the head direction of English structures. Though beginners in their early learning stages seem to have difficulties in producing sentences with regard to the head directions of phrases, there is little instruction on basic phrase structures.

In the past, students just memorized given English sentences mechanically and the error of the head direction, therefore, might not have frequently appeared in the classroom. However, if communicative language learning and meaningful interactions are to be used in English classes and students are to be compelled to express their own thoughts in English in group discussion activities, beginners' errors of head direction might be fossilized.

(18) Teacher: What did you do yesterday?
      Student: I church go.
(19) Teacher: Where is your pencil?
      Students: Chair…under.

Since this study shows that the head directions of VP, NP, PP and AP are somewhat reset simultaneously, teachers can facilitate their acquisition by instructing their students on the headedness of general phrases. Therefore, future studies could examine whether explicit instruction on head direction reduces errors of head direction.

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APPENDICES

1. The production task

☺ 다음 단어들을 그림의 의미에 맞게 나열하시오.

1) a watermelon, Linda, hold	2) a ball, Minho, throw
_____	_____
3) the sun, a man, under	4) a board, a cat, behind
There is _____ .	There is _____ .
5) afraid, a woman, a bear, is	
_____ .	
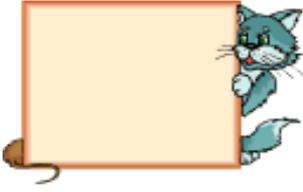
2. The comprehension task

☺ 다음의 문장을 해석하시오.

1) Linda invites Yumi to the birthday party.

_____ .

2) Minho helped John yesterday.

_____ .

3) There is a circle in a square.

_____ .

4) There is a dog in front of a cat.

_____ .

5) Jane is proud of Susan.

_____ .

3. Participants' dictionary

< 단 어 도 우 미 >

watermelon: 수박	invite: 초대하다
a girl: 여자 아이	birthday party: 생일잔치
hold: 들고 있다.	help: 도와주다
throw: 던지다	yesterday: 어제
sun: 태양	circle: 원
cat: 고양이	square: 사각형
board: 판자	front: 앞
afraid: 두려워하는	proud: 자랑스러운
woman: 여자	
bear: 곰	

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