

WHAT SENTENCE STRUCTURES ARE IMPROVED BY CHUNK-BASED EXERCISES?

Fumiya Shinozaki¹, Haruyo Yoshida²

¹Tennoji Junior High School Attached to Osaka Kyoiku University, 4-88 Minami Kawahori-cho,
Tennoji-ku, Osaka, 5430054 Japan

²Osaka Kyoiku University, 4-698-1 Asahigaoka, Kashiwara, Osaka, 5828582 Japan

Abstract

This study investigates the effects of chunk-based exercises on English sentence structure by looking at second language learners' proficiency. Oral sentence building (OSB), an aural-oral exercise where a learner needs to manipulate chunks and construct a sentence, was used. Five kinds of grammatical items were the focus of analysis. One hundred forty-two junior high school students conducted OSB 10 times for 10 days. The study indicates that OSB enhanced the sentence structures of both high and low proficiency learners. Above all, t-test showed a significant difference in the use of gerunds. One of the findings was that chunk-based learning would be more effective for beginners or intermediate learners.

Key words: oral sentence building, sentence structure, chunk, oral exercise

1. INTRODUCTION

There has been an increase in the discussion over the effective way to teach and learn English. In this respect, it is beneficial to speculate about certain combinations of words or “chunks”. Ellis (1984) brought up the possibility of effects of formulaic speech or expressions on second language development. In fact, 58.6% of the spoken discourse comprises some combinations of words, referred to as prefabs, which enables us to process language more efficiently (Erman & Warren 2000). Flowerdew and Miller (2005) supports the idea that learning in chunks has some positive effects, stating that effective listeners pay attention to bigger chunks while others including beginners or those who are not familiar with English sounds focus on processing smaller units such as single words.

More importantly, some empirical studies have proven the effects of chunks to some extent. Yamaoka (2015) conducted an experiment on Japanese first-year university students, and compared the influence of a random-sentence list with that of a patterned-sentence list for oral reading practice in picture description tasks, discovering that such a chunk-based exercise would improve fluency and accuracy. In the same way, Taguchi (2007) conducted an experiment where Japanese college students practiced speaking with a set of grammatical chunks through communicative drills and the memorization of dialogues that contained the target chunks. The results suggest that learners were able to use memorized chunks as a basis for the creative construction of discourse. These findings can corroborate some effects of chunk-based exercises.

However, few studies concerning chunks have paid attention to detailed grammar acquisition, while some other studies focus on the development of reading or listening abilities as reported by Uchibori and Chujo (2004), Hijikata (2005), Yubune (2012), and etc. Although the studies by Yamaoka (2015) and Taguchi (2007) introduced above are considered to relate to grammar, specifically what sentence structures can be improved by chunk-based exercises still remains controversial. Therefore, it is important to discuss the effects of chunk-based exercises on sentence structures. Accordingly, the present study was undertaken in order to reveal how chunk-based exercises contribute to developing sentence structures. Oral sentence building (OSB) was employed in this study because it is a chunk-based exercise especially pertaining to syntax.

2. THE DEFINITION OF ORAL SENTENCE BUILDING

Now then, what is OSB? It seems that the definition of OSB is not clear enough yet. Although it has not really been popular as a form of practice, it is sometimes used as a method to assess speaking skills, and Negishi (2007) also refers to it as a speaking test where examinees make a meaningful sentence by rearranging sets of words that they hear. The same type of questions are used in the speaking test Versant (Pearson Education Inc. 2016). Generally, these sets of words are called chunks.

The definitions of chunks may vary according to users such as researchers, situations, contexts, or perspectives just as Weinert (1995) indicates by claiming that there are various labels for apparently the same phenomenon. For instance, Miller (1956) defines chunks as units of information that a person can process at one time. On the other hand, Adachi (2009) maintains that teachers at schools in Japan often divide a sentence into bundles by what is called sense group or thought group, and calls such word groups “learning chunks”. Chunks used in an OSB question are similar to the ideas of the learning chunks.

In order to clarify how those chunks appear in OSB, Table 1 shows the procedure of an OSB question. A learner listens to three learning chunks heard every one second. Those chunks are basically heard at random, but there are five patterns of the arrangement (Table 2).

To sum up, OSB can be defined as an aural-oral chunk-based exercise in which a learner listens to three learning chunks heard in a random order and answers orally after rearranging them to make a meaningful sentence.

Question	to hear the news / the boy / was disappointed
Phase 1	You hear: “to hear the news”.
Phase 2	In one second, you hear: “the boy”.
Phase 3	In another second, you hear: “was disappointed”.
Phase 4	Within five seconds, you rearrange those chunks to make a meaningful sentence, verbalizing the answer: “The boy was disappointed to hear the news”.

Table 1. The Procedure of an OSB Question

Pattern ACB	(A) the boy / (C) to hear the news / (B) was disappointed
Pattern BAC	(B) was disappointed / (A) the boy / (C) to hear the news
Pattern BCA	(B) was disappointed / (C) to hear the news / (A) the boy
Pattern CAB	(C) to hear the news / (A) the boy / (B) was disappointed
Pattern CBA	(C) to hear the news / (B) was disappointed / (A) the boy

Table 2. The Five Patterns of Chunk Arrangement

3. PREVIOUS STUDIES

3.1. Shadowing, repeating vs. oral sentence building

OSB seems like the same kind of practice method as shadowing (SH) or repeating (RP) in that all of them require learners both to manipulate audio input and to verbalize.

First of all, what types of drills is OSB classified into? Paulston and Eruder (1976) discern mechanical drills and meaningful drills by whether or not they entail semantic understanding. The concept of levels of processing by Craik and Lockhart (1972) says that semantic processing is the deepest in the degree of processing compared to the other two; phonemic processing and structural processing

respectively. It also explains that input can be retained longer when stimuli requiring semantic or cognitive analyses are given, compared to when they are not. Furthermore, SH can be regarded as an online activity and RP as an offline activity because RP provides some pauses for learners to process input (Kadota 2007). This implies that the more time learners have before verbalizing, the more semantically they tend to process input. In addition, Ota (2010) supports the idea that sufficient semantic processing is necessary to maintain incoming information in the course of RP. Thus, it is possible that OSB also demands semantic processing so as to hold the information in chunks. Consequently, it can be said that OSB has an aspect of a meaningful drill analyzing input semantically as well as structurally and is an exercise with a deep processing level.

Now, we would like to infer the effects of OSB from those of SH and RP. Tamai (2005) did research on the differences in the effects of prosody shadowing and dictation on a listening test, reporting that SH gave more significant effects on the intermediate group and subgroup than dictation did. These results were likely produced because SH promoted automatization of phonetic perception, the ability to process information without conscious effort. Moreover, Kadota (2012) suggests that contents shadowing can internalize target words or grammar since it focuses more on lexical chunks, grammar, and meanings. According to Shiki et al. (2010), who revealed a difference between SH and RP, RP settles target language elements in the long-term memory. Based on these reports, OSB might have an impact on internalization of chunks or sentence structures rather than automatization of phonetic perception.

3.2. The effects of oral sentence building

The question has remained unanswered about what effects OSB actually has on the development of sentence structures. It is crucial to survey previous studies relevant to OSB in order to clarify what is known and what is not.

A study conducted by Shinozaki (2013) researched how OSB affected learners' speaking skills. There were 30 participants composed of 17 university students, 11 graduate students, one Chinese research student, and one credit auditor at a national university. They took OSB tests and picture description tests as a pretest and a posttest. During the period between the pretest and the posttest, they spontaneously worked on OSB practice at the maximum of 30 times. As a result of a correlation analysis between the improvements in the OSB tests and the number of OSB practice, they weakly correlated to each other ($r = .366$, $df = 28$, $p = .046$). It concluded that the participants were able to pay attention to function words such as preposition and articles. It was also evident from the results of the picture description tests that the number of dysfluency errors including restating, discontinuing and so forth decreased significantly ($r = -.402$, $df = 28$, $p = .028$). However, this study did not directly show the effects of OSB on sentence structures.

Moreover, a questionnaire survey administered by Shinozaki (2014) suggested an interesting possibility. The participants were 154 first-year students at a junior high school attached to a national university, who experienced OSB practice eight times. The survey contained a free description type question asking "How do you think OSB affected your English?" The summary of their answers partly mentioned that OSB could increase the speed of structuring sentences by understanding input in a chunk unit.

Now, here is a question: "More concretely, what sentence structures are improved by the chunk-based OSB exercise?" Generally speaking, there are some grammatical items that are either difficult or easy to learn. In terms of the difficulty of the language use in writing, Negishi (2012) clarified it in the course of finding criterial features by conducting an experiment toward 233 first-year high school students, where they wrote a free composition with a certain theme. He created a ranking of difficulty of grammatical items, and Table 3 shows the parts which are related to this study, quoted from the list he made. It is not obvious that a chunk-based learning leads to the same results as his study.

Criterial features	Difficulty	Standard error
SVOC	-0.532	0.223
gerund (used as object of verb)	-0.071	0.265
it ~ for ...to do	0.673	0.363
gerund (used as subject)	1.159	0.452
infinitive (adverb, cause)	2.085	0.703
indirect question	2.777	0.986

Note: This quotes and represents some related parts from Negishi's study (2012).

Note: The bigger the number is, the more difficult each feature is.

Table 3. The Ranking of Difficulty of the Sentence Structures

4. PURPOSE

The purpose of this study is to identify the direct effects of OSB on the improvement in sentence structures. The research questions are as follows:

1. Does OSB influence learners differently according to their proficiency?
2. If there are differences in the increase in points among the kinds of sentence structures, how so?

5. METHOD

5.1. Participants

The participants were 142 third-year junior high school students attached to a national university in Japan, all of whom were native speakers of Japanese. At school, they have been learning English as a subject for approximately three years.

5.2. Instrument and procedures

The participants took a grammar test in advance in order to select target sentence structures. The test contained 10 sentence structures in which the author felt the participants would often make errors. All were written questions with 10 word rearrangement questions and 10 translation questions. There was one question for each kind of sentence structure.

Based on the test results, the top five most frequently errored sentence structures were the target items: *infinitive (adverb, cause)*, *it ~ for ... to do*, *indirect question*, *gerund*, and *SVOC*.

The pretest contained 10 OSB questions, 10 word rearrangement questions, and 10 English translation questions. As to OSB questions, since the test environment made it impossible for the participants to answer orally, they wrote answers on the answer sheet on the conditions that they were not allowed to take notes while listening and given 15 seconds to answer per question. They tried four example OSB questions right before the pretest in case they were not used to the question format.

In 10 English classes conducted from January to February in 2017, the participants answered 10 OSB questions in turns in pairs first, and then as the whole class after that.

The posttest contained the same 10 OSB questions, slightly different 10 word rearrangement questions, and slightly different 10 English translation questions.

5.3. Analysis

When it comes to scoring the OSB and word rearrangement questions, one point was given to complete answers and no point was given to answers with any mistakes except spelling mistakes. In scoring English translation questions, answers with some mistakes were regarded as correct unless the mistakes were specific to concerned sentence structures; for example, “She like talking with her mother.” was considered correct because this was a question for gerund, not third-person singular present.

In order to compare and analyze the results of the pretest and posttest, paired *t*-test was employed. Table 4 shows the procedure of the experiment.

1. Grammar test to select five target sentence structures
2. Pretest (10 OSB questions, 10 word rearrangement questions, 10 translation questions)
3. Practice with 10 OSB questions for 10 days
4. Posttest (10 OSB questions, 10 word rearrangement questions, 10 translation questions)
5. Analysis with <i>t</i> -test

Table 4. Procedure of the Experiment

6. RESULTS

In this study, there were three kinds of questions: OSB questions, word rearrangement questions, and translation questions. This section focuses on the most and second most improved sentence structures in each kind of question.

The participants as a whole improved *SVOC* ($t(141) = -9.36, p < .001, 95\% \text{ CI } [-.827, -.539]$) and *gerund* ($t(141) = -9.24, p < .001, 95\% \text{ CI } [-.641, -.415]$) in the OSB questions, *indirect question* ($t(141) = -4.119, p < .001, 95\% \text{ CI } [-.323, -.114]$) and *it ~ for... to do* ($t(141) = -2.52, p < .05, 95\% \text{ CI } [-.239, -.029]$) in the word rearrangement questions, and *gerund* ($t(141) = -11.99, p < .001, 95\% \text{ CI } [-.804, -.576]$) and *SVOC* ($t(141) = -7.55, p < .001, 95\% \text{ CI } [-.542, -.317]$) in the translation questions.

The high proficiency group improved *SVOC* ($t(34) = -5.122, p < .001, 95\% \text{ CI } [-.998, -.431]$), *infinitive* ($t(34) = -3.40, p < .01, 95\% \text{ CI } [-.593, -.150]$) and *gerund* ($t(34) = -3.40, p < .01, 95\% \text{ CI } [-.593, -.150]$) in the OSB questions, *indirect question* ($t(34) = -2.92, p < .01, 95\% \text{ CI } [-.339, -.061]$) and *SVOC* ($t(34) = -2.38, p < .05, 95\% \text{ CI } [-.265, -.021]$) in the word rearrangement questions, and *gerund* ($t(34) = -4.57, p < .001, 95\% \text{ CI } [-.825, -.318]$) in the translation questions.

The low proficiency group improved *gerund* ($t(34) = -5.16, p < .001, 95\% \text{ CI } [-.796, -.347]$) and *it ~ for ... to do* ($t(34) = -4.62, p < .001, 95\% \text{ CI } [-.740, -.288]$) in the OSB questions, *indirect question* ($t(34) = -2.45, p < .05, 95\% \text{ CI } [-.575, -.054]$) and *it ~ for ... to do* ($t(34) = -2.26, p < .05, 95\% \text{ CI } [-.706, -.037]$) in the word rearrangement questions, *gerund* ($t(34) = -5.65, p < .001, 95\% \text{ CI } [-.932, -.439]$) and *SVOC* ($t(34) = -4.83, p < .001, 95\% \text{ CI } [-.853, -.347]$) in the translation questions.

Table 5 summarizes the results of *t*-test, showing the top two types of sentence structures which had outstanding increases in the average points.

	OSB	Word rearrangement	Translation
The whole	1. SVOC 2. gerund	1. indirect question 2. it ~ for ... to do	1. gerund 2. SVOC
High proficiency	1. SVOC 2. infinitive, gerund	1. indirect question 2. SVOC	1. gerund
Low proficiency	1. gerund 2. it ~ for ... to do	1. indirect question 2. it ~ for ... to do	1. gerund 2. SVOC

Table 5. Notable Increases in the Average Points (ranking up to the second)

7. DISCUSSION

This study aims to reveal how a chunk-based learning promotes acquiring certain sentence structures on the premise that all the target sentence structures had been taught in class at some point before the study. Therefore, this resulted in the participants reviewing them; therefore, it is natural that the increases in the average points were seen in almost all the sentence structures.

In the OSB and word rearrangement questions, English words which should be used were given to the participants, so these two kinds tested their passive ability to use the target sentence structures; to the contrary, the translation questions assessed their relatively active ability to use them since there were no English words shown, although Japanese cues were provided. From this perspective, the participants as a whole and the high proficiency group developed the passive use of *SVOC* and *indirect question* and the active use of the *gerund* the most. Similarly, the low proficiency group improved the passive use of the *gerund* and *indirect question* in the passive use and *gerund* in the active use the most. It is interesting to see that the low proficiency group made progress in *gerund* both in the passive and active use.

In addition, compared with Negishi's study (2012), there are some similarities and differences between his study and our study in each result, even though the results of his study are only an example, and of course, they might be different depending upon the themes. First of all, *SVOC* can be thought as a relatively easy sentence structure. As to *gerund*, two kinds of use were tested or seen in each study. The reason why *gerund* had a remarkable increase in our study is because many participants used it as a subject (Pre: Mean .20, Post: Mean .78, $t(141) = -13.33$, $p < .001$, 95% CI [-.671, -.498]), suggesting that the repetitive practice with OSB helped them realize the usage of the *gerund* as a subject. In contrast, *indirect question* is regarded as a difficult sentence structure in his study, but it was the most developed one in the word rearrangement questions in our study. This is presumably because the participants learned it relatively recently and it was easier for them to recall. At the same time, the participants in his study might have avoided using complicated grammar including *indirect question* as Negishi mentions.

Finally, there are inconsistent results between the high and low proficiency groups. There is a possibility that advanced learners had already developed a sense of chunks, meaning that the increases in the average points might be attributed more to reviewing than to OSB. In fact, the *gerund* was the only sentence structure that was significantly developed in the translation questions. Turning our attention to the low proficiency group, the second most improved sentence structure was *it ~ for ... to do* in the OSB and word rearrangement questions. This sentence structure is, because of its characteristics, easy to divide into three chunks, which would have helped the participants to develop a sense of chunks.

8. CONCLUSION

It is an eternal task for teachers, learners, and researchers to pursue the most effective way to learn English, and with that, this paper cast a spotlight on the possibility of chunks. The previous studies discussed the effects of chunk-based learning, suggesting that it has some impacts on numerous aspects of English proficiency. Nevertheless, there was little evidence that it could contribute to improving syntax, above all, specific sentence structures. OSB, a chunk-based exercise which deals with manipulation of chunks and structures, was utilized so as to disclose the effects on them. As a result of the repetitive OSB practice, different effects were confirmed between the high and low proficiency groups. It is interpreted from the discussion that OSB was the most effective for the high proficiency group to learn *SVOC* and *indirect question* as a passive ability and *gerund* as an active ability. On the other hand, the results of the OSB and word rearrangement tests signify that it was useful for the low proficiency group to be able to understand *indirect question* passively. Additionally, those of the OSB and translation questions reveal that they can develop *gerund* both as a passive and active abilities. These findings lead us to presume that a chunk-based learning is more effective to beginners or intermediate learners.

As a limitation, this study handled only controlled questions, so it cannot guarantee the results of other cases. A continuous study that requires participants to use more active abilities by using open questions and as such would demonstrate the more direct effects of a chunk-based learning on the development of sentence structures.

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