

# Assessing Oral Reading Accuracy and Speed in English as a Foreign Language: An Empirical Investigation of High-School Students in Japan

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## 1. Introduction

For most Japanese children, English input is quite limited, given English as a foreign language (EFL) circumstances. However, English communication skills are becoming increasingly essential nowadays, and the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has announced that the objective of English education is to cultivate the communication ability of Japanese children (MEXT, before 2009). To meet this objective, foreign language activities classes have been administered since the 2011 academic year, and now MEXT is embarking on a drastic reform of English education, with foreign language activities classes for third- and fourth-grade pupils and foreign language classes for fifth and sixth graders as a subject.

Nevertheless, referring to TOEFL iBT's score, the English proficiency level of Japanese EFL learners is relatively low and there seem to be numerous problems that need to be resolved (TOEFL Web Magazine; Yoshida, 2017 a). Therefore, a deeper understanding and inspection of the present condition regarding the English educational system will be worthwhile. Hence, this study attempts to explore existing problems in the current education and to identify implications for forthcoming educational reforms by examining high school students' oral reading performance.

## 2. Background and Previous Studies

### 2.1 Studying foreign languages

#### 2.1.1 Foreign language education in Japan

MEXT had authorized foreign language activities, in the classes of *integrated study*, for elementary school children from the third grade in 2002; however, it was not compulsory at that time. In 2006, a plan of one English activities class per week for fifth- and sixth-grade pupils was proposed, and foreign language activities classes became mandatory for those pupils in 2011 (Benesse educational research institute, 2006; MEXT, before 2009). The primary purpose of the initiation of foreign language activities classes—which can probably be safely described as English activities classes in Japan—was to cultivate the foundation of Japanese children's communication ability through exposure to English sounds. Furthermore, deepening the understanding of cultures and languages and nurturing an attitude

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of positive communication were also announced as objectives of foreign language activities (MEXT, before 2009). In addition, to accommodate globalization, an implementation plan for the English education reforms was declared in 2013 (MEXT, 2013). This plan included the consistent goal of English education in all schools, from elementary schools to high schools, to steadily foster communication ability.

Subsequently, since the 2014 academic year, a survey of English skills from the perspective of listening, reading, speaking, and writing skills of the third-year students of junior and senior high schools has been implemented from June to September; the purpose of the survey is to explore outcomes and problems of English education by determining and analyzing Japanese students' English competence and the current condition of their English learning. For example, in the case of third-year high school students of the 2017 academic year, their designated English proficiency level was such that more than 50% of them gain the ability to pass the grade pre-2 or the grade 2 of the Eiken tests (Eiken Foundation of Japan), which are equivalent to A 2 to B 1 levels in the Common European Framework of Reference for Languages (CEFR). However, the results of the 2017 survey revealed that none of the abovementioned four skills of English reached this achievement level; students' English proficiency levels seemed to be ranging from CEFR A 1 to A 2. The results also implied that their speaking skills were the most problematic, followed by their writing skills. In this regard, no improvement was confirmed since the previous survey. One of the questionnaires' results showed that approximately 35% of respondents wished to gain English skills that enable them to have everyday conversations and enjoy communicating in English when traveling abroad—the most common answer to the question about their purpose for studying English (MEXT, 2014, 2018). Considering these results, gaining communication skills that facilitate conversations in English is one of the most critical issues in English education for Japanese children.

According to the survey on the implementation of elementary schools' foreign language activities classes conducted by MEXT in 2012, it seemed likely to achieve success in English education to some extent (MEXT, 2014): 80% of junior high school students responded that English activities classes in elementary schools were useful for studying English in junior high schools, and many junior high school teachers evaluated that students' listening and speaking abilities improved compared with their abilities prior to the initiation of English activities classes. However, some problems were also reported, such as, 80% of junior high school students claimed that they wished for more opportunities to read and write English words in elementary schools.

The latest curriculum guidelines were officially announced in 2017 and enforced in 2020. The notable changes in English education were the implementation of foreign language activities classes for the third- and fourth-grade pupils, and foreign language classes as a subject for fifth- and sixth-grade pupils. Accordingly, the purposes of these classes were proposed more specifically and precisely (Yoshida, 2017 b). For example, regarding foreign language activities classes, the purpose continues to be for pupils to be able to not only talk about topics around them but also to express their own opinions and thoughts with proper consideration when they are communicating. Furthermore, the wording “communicate positively” was changed to “communicate independently.” This establishes the goal of cultivating a lifelong attitude toward learning foreign languages adding to communication in the classroom (Yoshida, 2017 b). Further, foreign language classes, namely English classes, include reading and writing activities; this is one of the most drastic reforms, and thus, its effect on the improvement of Japanese children's English is widely expected (Yoshida, 2017 b). One remarkable feature of Eng-

lish classes is reading and writing of phonetically familiar words and phrases by guessing and investigating the English word order. In other words, prior to reading and writing activities, sufficient exposure to English sounds must be provided. Consequently, the knowledge that Japanese children gain from English exposure will be highly fruitful, enabling them to take the next step toward their futures (Yoshida, 2017 a).

### **2.1.2 Oral reading and foreign language learning**

Recently, the effect of oral reading on learning, including foreign language learning, has become widely known. Oral reading involves complicated processing: phonological processing, grammatical and semantic processing, oral pronunciation, and feedback through self-monitoring (Kadota, 2019). Oral reading requires functioning of these processes synchronously. Kadota (2019) maintains that oral reading is linked to four important keys to successful foreign language learning, which are input processing, practice, output production, and metacognitive monitoring. The four key points for English learning related to oral reading are briefly described here. The first step of oral reading is to convert visual input into sounds, namely, “decoding.” The acceleration of decoding speed facilitates comprehension processing, which is required for improving reading comprehension. This is the effect of input processing. Through the repeated practice of oral reading, phonetic information can be correctly and quickly repeated in our minds, and gradually this process becomes efficient. Consequently, the information is stored and transported to long-term memory. This is the process of new phrase’s internalization, which is the practice effect. The next element related to oral reading is output production. Through oral reading, we verbalize visual information in our minds and then articulate it, which is part of the processing required for speaking. This simulation of the speaking process promotes English-speaking ability. The final key is metacognitive monitoring, which is essential for foreign language acquisition. Metacognition in foreign language learning involves recognizing and reviewing learners’ own learning conditions objectively and adjusting them to their target languages. In the case of oral reading, learners can monitor their own output and make improvements as necessary. This behavior is essential for foreign language learning. To summarize, the repeated practice of oral reading can significantly affect foreign language learning; therefore, oral reading skills should be emphasized.

## **2.2 Communicative competence**

### **2.2.1 Definition of communicative competence**

Hymes (1972) first proposed the expression *communicative competence*, which has been designated as an objective of English language education in Japan. However, the definition of communicative competence varies; to begin with, Chomsky (1965) used the word *competence* as a representation of linguistic knowledge before Hymes, Canale and Swain, Widdowson, Taylor, and other researchers (Yanase, 2006). From the perspective of the abovementioned educational purpose of English communication, this study broadly follows Canale and Swain’s perspective. Thus, communicative competence consists of four elements: grammatical competence, sociolinguistic competence, discourse competence, and strategic competence (Canale & Swain, 1980). In other words, essential points of communication are not found in grammatical knowledge alone but involve adapting expressions according to the context, taking into account cultural and social situations, by applying grammatical rules (Widdowson, 1989). Furthermore, to maintain smooth communication, the importance of adequate response speed has been suggested by Kadota (2014). Therefore, to attain communicative competence, the ability to manipulate contextually appropriate phrases readily is required.

### 2.2.2 Formulaic sequences and communicative competence

Japanese learners of English tend to speak and write English using only their knowledge of grammatical rules and vocabulary. As a result, the output is prone to sound unnatural or peculiar to native ears, although each sentence may be grammatically correct (Yagi & Inoue, 2013; Pawley & Syder, 1983). One suggestion to address this issue is related to knowledge of formulaic sequences (FSs) (Kadota, 2012; Yagi & Inoue, 2013); FSs are prefabricated phrases stored in the mind as wholes and thus retrieved as single units from memory (Wray, 2002). Besides, it is generally accepted that FSs are frequently used in discourse and prevail in everyday language, regardless of whether it is spoken or written (Erman & Warren, 2000; Hill, 2000). Furthermore, FSs are not used in isolation but in context (e.g., Schmitt & Carter, 2004). Therefore, we can expect contextually proper interaction by adopting FSs in communication. Some researchers have also reported that FSs are processed more accurately and quickly than other sequences composed of the same number of words. Accordingly, FSs are generally spoken more fluently because of their holistic representation in the mind (Pawley & Syder, 1983). Other research has confirmed that even non-native speakers enjoy this FS advantage in language processing (Isobe, 2014; Jiang & Nekrasova, 2007). Looking at this advantage from a different perspective, processing FSs requires less cognitive burden than processing NFSs; therefore, we can allocate our cognitive resources to other activities of communication (Kadota, 2012). In brief, it is reasonable to regard FSs as one of the crucial factors of communicative competence (Yagi & Inoue, 2013). Among various types of FSs, the target sequences of this study were FSs including verbs because phrasal verbs are considered problematic for L2 teaching and learning (Moon, 1997).

## 3. Methods

### 3.1 Purpose and research questions

It is possible that the 2020 academic year is described as a revolutionary period for English education in Japan. Therefore, on the occasion of the initiation of the new English education, this study attempts to investigate the products of previous education by reviewing oral reading skills and FS processing to yield some insights. The research questions, regarding high school students who began to receive English education from foreign language activities classes in their fifth grade during the 2011 academic year, are as follows:

RQ 1: How accurately and quickly do they orally read English sentences?

RQ 2: Do they process sentences including FSs and NFSs differently?

### 3.2 Participants

The participants of this study were 25 private high school students, and the research was conducted in their third term during the 2017 academic year, the same year as the survey referred to in section 2.1.1. The timing was such that they had finished studying the grammatical items that should be taught in English education in school and had probably not begun preparing for university entrance examinations. The participants were the first students to experience foreign language activities classes in the fifth grade in elementary schools in 2011. Prior to participating in this research, all participants received a brief explanation of the research and then signed written consent forms. At the end of the research, they also answered a simple questionnaire inquiring about their background in foreign language learning. This confirmed that all participants had experienced some kind of foreign language ac-

tivities classes in their elementary schools. None of them belonged to English-speaking club activities in high school. Twenty-four participants submitted their Global Test of English Communication (GTEC) for Students (Benesse Corporation) scores, and their mean score was 481.67 (range: 320-588). This indicated that their English proficiency levels ranged from CEFR A 1 to A 2, which were equivalent to levels of third-grade high school students of MEXT's survey in 2017. Therefore, it is safe to say that participants' performance reflects the present English condition of typical third-grade high school students to some extent. Participants received some candies for their participation. Throughout the research, participants were not given any instructions that attracted their attention to the word sequences.

### 3.3 Task and material

This study focused on oral reading performance and FS processing, with the objective of deriving implications for foreign language learning and communicative competence. This study adopted oral sentence reading as the task for evaluation. Concerning RQ 1 and RQ 2, 100 sentences and 30 simple verification sentences were prepared to evaluate participants' oral reading performance and to compare the processing of sentences including FSs and NFSs, because FSs generally do not exist in isolation but in context, and moreover, studies on processing of sentences including FSs are few. As processing speed tends to be subject to word familiarity, number of words and syllables, and so on (Gernsbacher, 1984), the stimulus sentences including verification sentences were carefully controlled for valid measurement of participants' oral reading processing. Additionally, the influence of preceding stimulus sentences on the processing of following stimuli—in other words, priming effect—was considered. Therefore, none of stimulus sentences of this task were contextually related to each other, in addition, they were randomly presented to each participant during the task.

One hundred stimulus sentences comprised 30 sentences including FSs, equivalent sentences including NFSs, and 40 filler sentences as distractors. All stimulus sentences consisted of high-familiarity words so as not to hamper participants' processing; thus, the overall English level of stimulus sentences ranged between grades 3 and 4. Elaborated explanation of controlled conditions for stimulus sentences of FSs and NFSs was provided from two perspectives: word sequences and contexts. First, 30 target FSs and 20 of their paired target NFSs were extracted from a stimulus list of Isobe (2014), and 10 target NFSs were modified for this study. The target word sequences of this study were phrasal verbs and phrases including verbs. The target FSs were word sequences that participants would probably have encountered in their English studies by the time of this research. The central word of an NFS paired with an FS was replaced with an equivalent word in terms of word familiarity (Yokokawa, 2006) and number of syllables. For example, a sample NFS paired with the FS "take part in" was "take work in." The extracted occurrence numbers of target FSs and NFSs were based on the Sketch Engine British National Corpus (BNC) tagged by CLAWS, and an unpaired *t*-test confirmed the significant difference in overall number of occurrences between FSs and NFSs ( $t(29.00) = 7.90, p < .001, r = .83$ ). Furthermore, the verb form, such as tense, aspect, and voice, was identical in each paired sequence. Some examples of stimulus word sequences of both types are shown in Appendix 1.

Next, target word sequences were embedded in 60 different sentences. Unpaired *t*-tests were conducted regarding several factors from two perspectives; as a whole sentence and also as individual parts, such as, those phrases that appeared before and after a word sequence. The results of *t*-tests from abovementioned two perspectives revealed that neither of mean word familiarity, number of syl-

**Table 1 Descriptive Statistics of Factors of Two Types of Whole Stimulus Sentences for Oral Reading and Results of *t*-test**

	FSs ( <i>n</i> = 30)		NFSs ( <i>n</i> = 30)		Results of <i>t</i> -test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Word Familiarity	6.39	0.19	6.43	0.14	$t(54.36) = -0.73$ ,	$p = .468, r = .10$
Number of Syllables	11.67	1.81	10.77	2.03	$t(58) = 1.82$ ,	$p = .075, r = .23$
Number of Words	8.27	1.36	7.93	1.26	$t(58) = 0.99$ ,	$p = .329, r = .13$
Readability	78.29	18.21	82.16	15.93	$t(58) = -0.88$ ,	$p = .385, r = .12$
Grade Level	4.26	2.48	3.60	2.46	$t(58) = 1.05$ ,	$p = .300, r = .14$

Note. FSs=sentences embedded with formulaic sequences, NFSs=sentences embedded with non-formulaic sequences; Word Familiarity=Yokokawa, 2006 (max:7), the mean value of word familiarity excluding word sequences; Readability=Flesch Reading Ease; Grade Level=Flesch-Kincaid Grade Level.

**Table 2 Factors' Mean Value of Before and After Word Sequences of Two Types of Oral Reading Stimulus Sentences and Results of *t*-test**

	Before		Results of <i>t</i> -test	After		Result of <i>t</i> -test
	FSs	NFSs		FSs	NFSs	
Word Familiarity	6.49	6.49	$t(58) = -0.01, p = .992, r = .00$	6.32	6.29	$t(58) = -0.30, p = .768, r = .04$
Number of Syllables	3.60	3.50	$t(58) = 0.21, p = .833, r = .03$	4.50	3.77	$t(58) = 1.53, p = .131, r = .20$
Number of Words	2.67	2.97	$t(58) = -0.88, p = .384, r = .12$	3.13	2.53	$t(58) = 1.78, p = .080, r = .23$

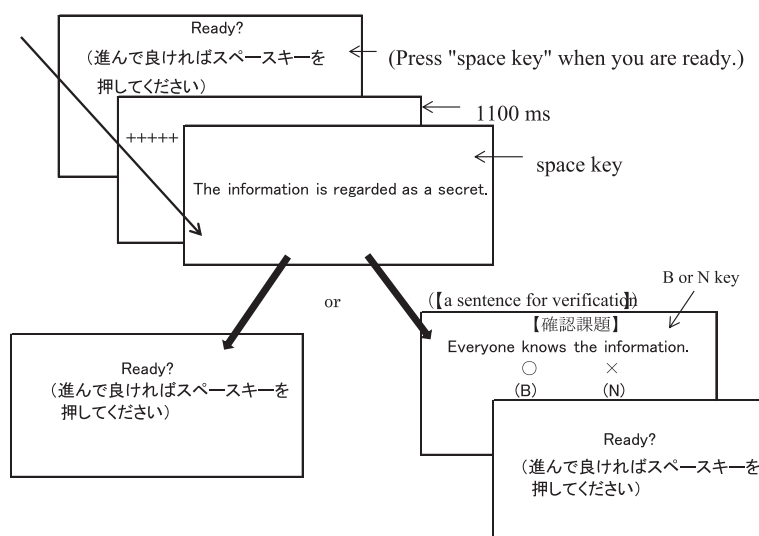
Note. Before=before word sequences, After=after word sequences; FSs=sentences embedded with formulaic sequences, *n* = 30; NFSs=sentences embedded with non-formulaic sequences, *n* = 30; Word Familiarity=Yokokawa, 2006 (max:7), the mean value of word familiarity excluding word sequences; Readability=Flesch Reading Ease; Grade Level=Flesch-Kincaid Grade Level.

lables, and number of words, Flesch Reading Ease, Flesch-Kincaid Grade Level by Microsoft Word software showed statistical differences in stimulus sentences among sequence types. The results of unpaired *t*-tests were illustrated in Table 1 and Table 2.

Finally, 30 simple verification sentences were also devised to ensure participants' conscientious reading; 10 verification sentences were prepared for each stimulus sentence type: sentences including FSs, those including NFSs, and filler sentences. These simple verification sentences were controlled to be equivalent between sequence types from the same aspects; results of Mann-Whitney U tests were as follows: word familiarity,  $U = 32.00, p = .174, r = .31$ ; number of syllables,  $U = 36.50, p = .293, r = .31$ ; number of words,  $U = 30.00, p = .119, r = .35$ ; readability,  $U = 42.50, p = .551, r = .13$ ; and grade level,  $U = 44.50, p = .672, r = .10$ . Similarly, there were no significant differences between the two types of oral reading stimulus sentences that were paired with verification sentences, which was confirmed by utilizing Mann-Whitney U test: word familiarity,  $U = 32.00, p = .174, r = .31$ ; number of syllables,  $U = 36.50, p = .293, r = .24$ ; number of words,  $U = 30.00, p = .119, r = .35$ ; readability,  $U = 42.50, p = .551, r = .13$ ; grade level,  $U = 44.50, p = .672, r = .10$ . Some example of stimulus and verification sentences are shown in Appendix 2.

### 3.4 Procedure

The oral sentence reading task was administered individually in a quiet room. Prior to engaging in it, all participants received a brief overview of the task, including voice recording (by OLYMPUS, V 802), and completed written consent forms. The task took approximately 25 minutes. All instructions were provided in Japanese, and stimulus sentences were presented in English on a laptop computer



**Figure 1 The two types of flow of a trial in the oral reading training task.  
The correct response to a verification sentence: B for Yes.**

screen (SONY VAIO; SVE 15114 FJB, screen size 34.6 cm width and 19.4 cm height) with stimulus presentation software SuperLab<sup>®</sup> 5. Prior to 100 oral reading trials, the participants did three exercises including one verification sentence. After the exercises, the participants pressed the space key according to the directive statement to start a trial. When the space key was pressed, a fixation marker “++++” appeared for 1100 milliseconds (ms) in the center of the screen. Next, a stimulus sentence was automatically displayed until participants pressed the space key. The moment the stimulus sentence was presented, participants were instructed to simultaneously read aloud and comprehend the stimulus sentence as accurately and quickly as possible and to press the space key. When participants encountered verification sentences after pressing the space key to indicate that they had finished reading the sentence, they were required to judge whether the verification sentence contained a roughly similar meaning to the previous stimulus sentence, and to press B for YES or N for NO. In the case of the verification sentence, there was no need to read aloud, so as not to interrupt their retrieval of processed information in their minds. The title of verification sentence was indicated in Japanese to avoid participants confusing the verification sentence with stimulus sentences. After pressing the space key to finish the oral reading, or judging the connotation of the verification sentence, participants were prompted to continue the trial by pressing the space key. SuperLab<sup>®</sup> recorded all key presses. Participants engaged in the oral sentence reading task at their own pace and were allowed to take a short break every 20 trials if they wished. Any information that would make them aware of FSs was not provided to participants throughout the exercises and task. The two trial procedures in the oral sentence reading task are shown in Figure 1.

### 3.5 Data analysis

Data collected by SuperLab<sup>®</sup> and IC recorder were submitted for analysis. The accuracy and speed of oral sentence reading were calculated using the data from voice recordings; participants’ oral reading voice data were examined utilizing speech analysis software program Praat (by Paul Boersma and David Weenink, University of Amsterdam). For accuracy of comprehension, the data of key presses

for verification sentences recorded by SuperLab® were used. A paired *t*-test was utilized to reveal the processing differences in sentences including FSs and NFSs.

Prior to the analysis, the participants' ability to successfully read the presented sentence without any errors was judged by the experimenter and one rater, who is an experienced high school English teacher, based on the criteria. Certain cases were deemed errors when there were words read with wrong pronunciation, reread or omitted words, or morpheme errors such as omission or addition of *-ed*, third singular or plural *-s*. Nowadays, multiple Englishes are becoming generally accepted; therefore, in terms of pronunciation, intelligibility was valued above extreme preciseness. However, cases of mispronunciation that could lead to misunderstandings were considered errors. The rate of interrater reliability was 93%, which reached 100% after adequate discussion. The proportion of data evaluated by the two raters was 20%; the rest of the data were carefully assessed by the experimenter in accordance with the same judgment criteria. The number of sentences a participant was able to finish reading without any errors and number of sentences a participant read in the task were the subject of the oral reading accuracy analysis, while only the data of sentences a participant was able to read without errors were the subject of the oral reading speed analysis (syllables/second), which was calculated by using the data of the number of syllables and reading duration in milliseconds of the sentences successfully read.

## 4. Results

### 4.1 Overall oral reading accuracy and speed

With respect to RQ 1, the descriptive statistics for overall mean oral reading accuracy and speed obtained from the oral sentence reading task are shown in Table 3. As a result of the judgment of oral reading accuracy by rigorous criteria, the mean accuracy rate was 0.67. This also indicates that the English level and volume of stimulus sentences were adequate for participants of this study.

**Table 3 Descriptive Statistics for Accuracy and Speed in the Oral Reading Training Task**

	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Accuracy	.67	.11	.45	.85
Speed (syllables/s)	3.10	0.42	1.98	3.98

Note. *N* = 25.

### 4.2 Processing of FSs and NFSs

#### 4.2.1 Oral reading accuracy and speed of sentences with FSs and those with NFSs

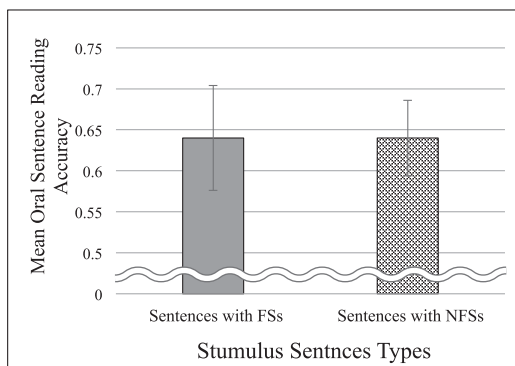
First, regarding RQ 2, Table 4 presents the descriptive statistics for the mean oral reading accuracy of the stimulus sentences including FSs and those including NFSs. Figure 2 is a graphical presentation of Table 4. In this study, error bars on graphs denote a 95% confidence interval (CI). A paired *t*-test

**Table 4 Descriptive Statistics for the Oral Sentence Reading Accuracy of FSs and NFSs**

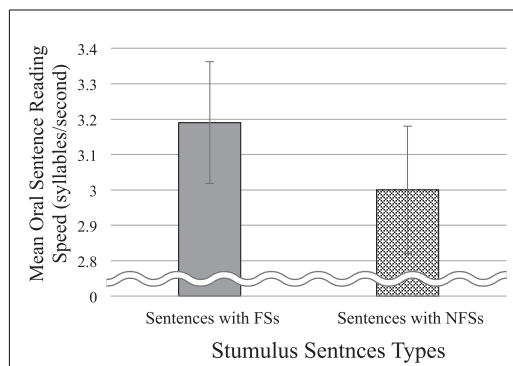
	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Sentences with FSs	.64	.16	.33	.93
Sentences with NFSs	.64	.11	.43	.83

Note. *N* = 25. FSs = formulaic sequences, NFSs = non-formulaic sequences.





**Figure 2** The mean oral sentence reading accuracy.



**Figure 3** The mean oral sentence reading speed.

FSs=formulaic sequences; NFSs=non-formulaic sequences. Error bars denote 95% CI.

**Table 5** Descriptive Statistics for the Oral Sentence Reading Speed of FSs and NFSs

	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Sentences with FSs	3.19	0.41	1.95	4.01
Sentences with NFSs	3.00	0.45	1.97	3.90

Note. Unit: syllables/s. *N* = 25. FSs = formulaic sequences; NFSs = non-formulaic sequences.

did not demonstrate a significant difference in oral reading accuracy between sentences with FSs and those with NFSs:  $t(24) = -0.07$ ,  $p = .949$ ,  $r = .02$ . This result indicates that no FS advantage seemed to be observed in terms of oral sentence reading for the participants of this study.

Next, the descriptive statistics for the mean oral reading speed of stimulus sentences embedded with FSs and those with NFSs are illustrated in Table 5. A graphical presentation of Table 5 is displayed in Figure 3. Similarly, a paired  $t$ -test was conducted, and the  $t$ -value revealed a significant difference in oral sentence reading speed between the two types of the stimulus sentences:  $t(24) = 5.28$ ,  $p < .001$ ,  $r = .73$ . This demonstrates that sentences including FSs were read more rapidly than those including NFSs.

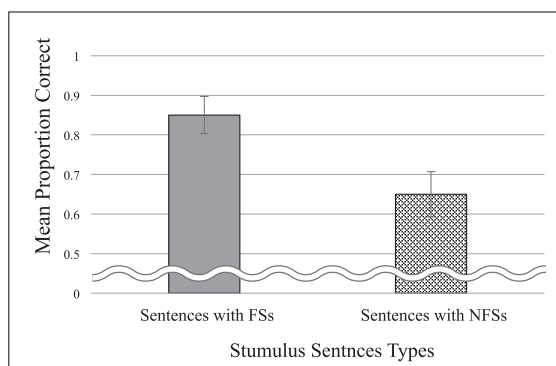
#### 4.2.2 Comprehension accuracy of sentences with FSs and those with NFSs

Concerning differences in accuracy of comprehension of sentences including FSs and those including NFSs, the data of verification sentences were analyzed. Table 6 illustrates the descriptive statistics of the proportion correct of participants' judgment of verification sentences, and Figure 4 is a graphical representation of Table 6. A statistically significant difference was confirmed by a paired  $t$ -test:  $t(24) = 6.60$ ,  $p < .001$ ,  $r = .80$ . The result indicates that participants grasped the meaning of the stimulus sentences including FSs more accurately and deeply than those including NFSs.

**Table 6** Descriptive Statistics for Proportion Correct of Judgment for Verification Sentences in the Oral Sentence Reading Task

	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Overall	.73	.11	.37	.90
Sentences with FSs	.85	.16	.30	1.00
Sentences with NFSs	.65	.13	.30	.90

Note. *N* = 25. FSs = formulaic sequences, NFSs = non-formulaic sequences.



**Figure 4** The mean proportion correct of judgment for verification sentences in the oral sentence reading task. FSs=formulaic sequences; NFSs=non-formulaic sequences. Error bars denote 95% CI.

## 5. Discussion and Conclusion

The purpose of this study was to identify some implications for the new English education curriculum implemented in the 2020 academic year by examining the products of previous education. In relation to the key points of foreign language learning and communicative competence, this study focused on oral reading ability and compared FS and NFS processing in English sentences. Participants of this study were students in their third term of second-year high school who first received foreign language activities classes when they were in the fifth grade in elementary school during the 2011 academic year. According to their answers on questionnaires, they were first exposed to English sounds in 2011 at the latest.

The accuracy rate of oral reading, regarding RQ 1, was 0.67, despite relatively easy levels of English sentences. One possible reason for this result could be the strict judgment criteria; however, unskilled oral reading seemed to cause this problem. As for the oral reading speed calculated by the data of sentences read without errors, the number of syllables in one second was 3.10. When decoding for oral reading was successful, participants seemed to be able to read whole sentences smoothly. The improvement of phonological decoding from letters to sounds by the adoption of the new English education system seems promising.

The next issue concerns RQ 2; the results indicate a partial difference in processing between sentences including FSs and those including NFSs. That is, participants read sentences embedded with FSs more rapidly than those with NFSs, while their oral reading accuracy showed no difference among sentence types. As stated in section 2.1.2, oral reading is a complicated task; therefore, the result of oral reading accuracy is possibly influenced by various factors such as phonological decoding and articulation, rather than being influenced by sequence types alone. For example, oral reading might require a significant effort for some participants; consequently, few resources for accurate decoding may remain. In other words, accurate oral reading that is simultaneous to comprehension requires a considerable degree of cognitive burden, and thus training seems essential. With respect to the result of the oral reading speed, which showed a significant difference among sentence types, participants processed sentences with FSs more quickly than those with NFSs when they read the stimulus sentences successfully. Considering that the controlled conditions of the two types of sentences were equivalent from several angles, it would be safe to assess that this result can be attributed to FS ad-

vantage, which corresponds with previous studies. Furthermore, the result of the verification sentence analysis indicates that sentences including FSs were comprehended more accurately than those including NFSs. Owing to the holistic processing of FSs, the language processing burden may be reduced, which could work to facilitate comprehension of whole sentences; this is also corroborated by previous studies stated in 2.2.2. Furthermore, deep comprehension could lead the contents of sentences with FSs to remain firmly in participants' memory trace. Looking at this result differently, EFL learners' oral reading output may not necessarily reflect their comprehension of English when they are simultaneously required to engage in oral reading and comprehension of English sentences.

In conclusion, second-grade high school students in their third term in this study, who seemed to have the same English proficiency levels as high school students in MEXT's survey, differently processed sentences including FSs from those including NFSs. Their oral reading accuracy probably needs improvement but they are able to enjoy FS advantage in oral reading speed and sentence comprehension. Though a discrepancy exists between the designated achievement level established by MEXT and the virtual level, this may be an encouraging result; Japanese high school students may have the potential for efficient FS processing. In the 2020 academic year, English education in Japan, especially in elementary school, would make a great leap. This will provide Japanese children with more exposure to English sounds and letters; accordingly, the improvement of phonological decoding accuracy and speed can be expected as well. One of the objectives of education should be to foster autonomous and disciplined Japanese EFL learners, encouraging Japanese children to acquire spoken and written English input spontaneously. This will give them more opportunities to encounter FSs, which can evoke Japanese children communication ability in English, even in EFL circumstances. Most importantly, foreign language learning should include instruction on the importance of English sounds.

## 6. Limitations and Further Study

This study has three limitations worth noting. First, stimulus conditions were carefully controlled as much as possible, however, other factors might have affected participants' language processing. Next, the analysis results were restricted to the stimuli and participants adopted in this study. The third limitation is related to the difficulty of comparing this study's result to other academic years' results. The implementation of further research will address these issues. Moreover, research including pre- and post-test should be attempted to explore effective teaching and learning methods of FSs for Japanese EFL learners in the future.

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### References

- Benesse educational research institute. (2006). *Shogakkoeigo koremaden nagare* [The history of English education in elementary school in Japan]. Retrieved from [https://berd.benesse.jp/berd/center/open/report/syo\\_eigo/2006/pdf/data\\_17.pdf](https://berd.benesse.jp/berd/center/open/report/syo_eigo/2006/pdf/data_17.pdf)
- Canale, M., & Swain, M. (1980). Theoretical basis of communicative approaches to second language teaching and testing. *Applied Linguistics*, 1(1), 1-47.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: The MIT Press.
- Erman, B., & Warren, B. (2000). The idiom principle and the open choice principle. *Text*, 20, 29-62. Retrieved from [115](http://lex-</a></p></div><div data-bbox=)

tutor.ca/n\_gram/erman\_warren\_2000.pdf

- Gernsbacher, M. A. (1984). Resolving 20 years of inconsistent interactions between lexical familiarity and orthography concreteness, and polysemy. *Journal of Experimental Psychology: General*, 113 (2), 256-281.
- Hill, J. (2000). Revising priorities. In M. Lewis (Ed.), *Teaching collocation: Further developments in the lexical approach* (pp.47-69). Hove, England: Language Teaching Publications.
- Hymes, D. H. (1972). On communicative competence. In J. B. Pride & J. Holmes (Eds.), *Sociolinguistics* (pp.269-293). Harmondsworth, England: Penguin Books. Retrieved from <http://www.homes.uni-bielefeld.de/sgramley/Hymes-1.pdf>, <http://www.homes.uni-bielefeld.de/sgramley/Hymes-2.pdf>
- Isobe, Y. (2014). *Psycholinguistic reality of formulaic sequences: Evidence from Japanese EFL learners* (Unpublished doctoral dissertation). Graduate School of Language, Communication, and Culture, Kwansei Gakuin University.
- Jiang, N., & Nekrasova, T. M. (2007). The processing of formulaic sequences by second language speakers. *The Modern Language Journal*, 91(3), 433-445.
- Kadota, S. (2012). *Shadoingu · ondoku to eigohutoku no kagaku: inputto kara autoputto e* [The science of shadowing, oral reading, and acquisition of English]. Tokyo, Japan: Cosmopia.
- Kadota, S. (2014). *Eigo jotatsu 12 no pointo: Kagakuteki riron ni motozuiku gaikokugoshutoku seiko no hiketsu* [Twelve tips for successful learners of English: The tips for success in second language acquisition based on scientific theory]. Tokyo, Japan: Cosmopia.
- Kadota, S. (Ed.). (2019). *Ondoku no kouka to shido no barieshon* [The effects and instructional variation of oral reading]. *Eigo no sensei ouen magajin 2019 spring* [Learning teacher magazine], 2-7.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT). (before 2009). *Shogakko gaikokugo katsudo saito* [The site of foreign language activities in elementary school]. Retrieved from [http://www.mext.go.jp/a\\_menu/shotou/gaikokugo/index.htm](http://www.mext.go.jp/a_menu/shotou/gaikokugo/index.htm)
- MEXT. (2013). *Gurobaruka ni taoshita eigokyoikukaikaku jishshikeikaku* [The practical plan for English education reform to accommodate Globalization in Japan]. Retrieved from [http://www.mext.go.jp/b\\_menu/houdou/25/12/\\_icsFiles/afidfile/2013/12/17/1342458\\_01\\_1.pdf](http://www.mext.go.jp/b_menu/houdou/25/12/_icsFiles/afidfile/2013/12/17/1342458_01_1.pdf)
- MEXT. (2014). *Kongono eigokyoikuno kaizen · jujitsu hosaku ni tsuite hokoku: gurobaruka ni taio shita eigokyoikukaikaku no itsutsuno teigen* [Report on improvement and substantial plans for forthcoming English education: Five proposals for English education reform to accommodate Globalization]. Retrieved from [http://www.mext.go.jp/b\\_menu/shingi/chousa/shotou/102/houkoku/attach/1352464.htm](http://www.mext.go.jp/b_menu/shingi/chousa/shotou/102/houkoku/attach/1352464.htm)
- MEXT. (2018). *Heisei 29 nendo eigoryoku chosakekka koko sannensei no gaiyo* [Summary of results of survey on English proficiency levels of third-year high school students in the heisei 29 academic year]. Retrieved from [http://www.mext.go.jp/a\\_menu/kokusai/gaikokugo/\\_icsFiles/afidfile/2018/04/06/1403470\\_03\\_1.pdf](http://www.mext.go.jp/a_menu/kokusai/gaikokugo/_icsFiles/afidfile/2018/04/06/1403470_03_1.pdf)
- Moon, R. (1997). Vocabulary connections: multi word items in English. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition, and pedagogy* (pp.40-63). Cambridge University Press.
- Pawley, A., & Syder, F. H. (1983). Two puzzles for linguistic theory: Nativelike selection and nativelike fluency. In J. C. Richards & R. W. Schmitt (Eds.), *Language and communication* (pp. 191-226). London, England: Longman.
- Schmitt, N., & Carter, R. (2004). Formulaic sequences in action: An introduction. In N. Schmitt (Ed.), *Formulaic sequences: Acquisition, processing and use* (pp.1-22). Amsterdam, The Netherlands: John Benjamins.
- TOEFL® Web Magazine. Retrieved from [https://www.ets.org/s/toefl/pdf/toefl\\_tsds\\_data.pdf](https://www.ets.org/s/toefl/pdf/toefl_tsds_data.pdf)
- Widdowson, H. G. (1989). Knowledge of language and ability for use. *Applied Linguistics*, 10(2), 128-137.
- Wray, A. (2002). *Formulaic language and the lexicon*. Cambridge University Press.
- Yagi, K., & Inoue, A. (2013). *Eigo teikei hyogen kenkyu: Rekishi, hoho, jissen* [English phraseology: History, method, practice]. Tokyo, Japan: Kaitakusha.
- Yanase, Y. (2006). *Dainigengo komyunikeshonryoku ni kansuru rironteki kosatsu: eigokyoikunaiyo eno shishin* [logical discussion on communication ability in second language: a guide to contents of English education]. Tokyo, Japan: Keisuisha.
- Yokokawa, H. (Eds.). (2006). *Nihonjin eigo gakushusha no eitango shinmitsudo: Moji-hen* [English word familiarity for Japanese English learners: Written words]. Tokyo, Japan: Kuroshio.

- Yoshida, K. (Ed.). (2017 a). *Heisei 29 nenban shogakko shin gakushushidoyoryo no tenkai: gaikokugo hen* [The expansion of new curriculum guidelines for foreign language classes of heisei twenty-ninth]. Tokyo, Japan: Meiji tosho.
- Yoshida, K. (Ed.). (2017 b). *Heisei 29 nenban shogakko shin gakushushidoyoryo no tenkai: gaikokugo katudo hen* [The expansion of new curriculum guidelines for foreign language activities classes of heisei twenty-ninth]. Tokyo, Japan: Meiji tosho.

#### Appendix 1: Examples of stimulus FSs and NFSs

FSs	NFSs	FSs	NFSs
be divided into	be invited into	carry out	happen out
look forward to	look outside to	agree with	hurry with
suffer from	behave from	result in	escape in

Note. These examples are stimulus word sequences extracted from a stimulus list of Isobe (2014).

#### Appendix 2: Examples of stimulus sentences for oral reading task and verification sentences

Number		Verification Sentences	Answers
1	I have been advised to <i>give up</i> smoking by doctors.	I have health problems.	Yes
2	On weekends, the rooms <i>are filled with</i> children.		
3	Friends <i>were invited into</i> our dinner last night.	We had guests yesterday.	Yes
4	After a rest, I will <i>start back to</i> recording.		
5	There are many stars in the sky.	It's raining.	No
6	I will take tea instead of coffee.		

Note. No.1 and 2 for FSs; No.3 and 4 for NFSs; No.5 and 6 for filler. In this Appendix, the target word sequences are given in italics; however, in the task, the word sequences were presented in normal font.

# Assessing Oral Reading Accuracy and Speed in English as a Foreign Language: An Empirical Investigation of High-School Students in Japan

Hiroko Nishimura\*

## ABSTRACT

With the aim of fostering the communicative ability of Japanese children, foreign language activities classes for fifth- and sixth-grade pupils were officially implemented in 2011 (the Ministry of Education, Culture, Sports, Science and Technology; MEXT, before 2009). Furthermore, new curriculum guidelines were enforced in the 2020 academic year. In addressing this revision phase, this study attempted to examine the current products of English education and to identify problems and implications. The participants were high school students in their third term of the second grade, and seemed to have English proficiency levels equivalent to those of typical third-grade high school students (MEXT, 2018). From the perspective of foreign language learning (Kadota, 2019) and communicative competence (e.g., Hymes, 1972), participants' oral reading accuracy and speed were measured and were analyzed for formulaic sequence (FS) processing compared with non-formulaic sequence (NFS) processing. The results indicated that participants' phonological decoding required more training, but that they read sentences with FSs more rapidly than those with NFSs. Exposing Japanese children to English sounds and reading and writing activities at the earlier language learning stages will expand their opportunities to gain input, leading to an improvement in phonological decoding and FS processing.

**Key words:** foreign language activities, communication ability, oral reading

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