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The Mental Lexicon of Elementary School Students in Indonesian EFL Context

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ABSTRACT

Learning English in primary schools needs to be supported by books and reading materials that are appropriate for the child's age level. If children's reading materials are adjusted to their age, children will not have difficulty in understanding their reading text. The purpose of this study was to find out the number and types of English words that were produced by elementary school-age children as the first step to map children's mental lexicon as a reference for the teacher to choose reading text in learning English at school or home. It was descriptive and qualitative research in which data was taken from elementary school students' English writing. The results show that the 1st grade of elementary school students produced 45 words in three different topics namely animals, drinks, and activities. The fourth grade of elementary school students produced 130 until 600 words in writing a fiction story and their total vocabulary were 636 words. The fifth grade of elementary school students produced 1400 words in some different topics namely daily routine, pets, hobbies, like, and dislike. In conclusion, the higher level of education the children have, the more words they produce. The influence of Indonesian and Arabic in students' composition indicates that Indonesian and Arabic are active languages that they use so that it can significantly affect the production of the English they are learning. Verbs that they produce imply that they can understand general and specific concepts possessed by each word.

Keywords: Mental lexicon, reading materials, children vocabulary, children corpus

Introduction

English is taught in Indonesia as a foreign language that has a very important role in establishing relations with the international community. Therefore, Indonesian students learn English from an early age so that students can get as much vocabulary as possible. By storing enough vocabulary in memory, it is hoped that students can arrange the vocabulary in the form of sentences according to their needs in communicating with foreigners who cannot speak Indonesian. This matter is in line with the hypothesis introduced by Krashen in 1977 that foreign language learners who often get the intake of foreign language vocabulary and sentences will save what he has understood into the memory system in the brain.

With a variety of family backgrounds and parenting patterns that exist in the community in Indonesia, a standard set of the vocabulary of Indonesian children in every age level needs to be determined. Families in big cities have different parenting styles from families in small cities. Some families consider language English as a second language that must be mastered by children. While other families consider English as a language that is not important for children to master. This difference in principle results in differences in supporting the children in the form of learning material such as facilities that support children in learning English. By realizing the importance of English as one of the languages that will support the success of children in the future, the family

will support the learning process by providing English books, television as a means to watch an English TV program or an English course as a place where children learn English outside of school. These are not obtained by children who live in a family that does not provide support in learning English. This causes a gap in English vocabulary acquisition in children and so far has not been well mapped.

Problems arise when the standard number of words need to be owned by elementary school students at each grade as a foundation in teaching English in school has not been described. Therefore, mental mapping of the lexicon is needed as a benchmark success of learning English in elementary school for each grade. This has been done by several institutions abroad such as Oxford University Press which publishes books at various levels. The levels are distinguished by a large number of vocabularies owned by its readers like level 3 for readers with 600 vocabularies, level 4 with 750 vocabularies, level 5 with 900 vocabularies, and level 6 with 1050 vocabularies. If a standard number of words for each grade is well mapped, parents and teachers will find it easier to choose reading materials according to their level. Therefore, the purpose of this research was to determine the number and types of English vocabulary by making an English corpus for elementary school-aged children as the first step to map children's mental lexicon as a reference for learning English in Indonesia school or at home.

It is also known as the mental "dictionary". The mental lexicon is set in phonologically and semantically related lexical units. The mental lexicon of a speaker consistently updates itself with new words and word meanings based on the situation linguistics encountered by the speaker. The mental lexicon also automatically gets rid of old unused words. Hansen (2017) said that age acquisition correlated highly with acquisition vocabulary size, but the new measure was more even and more sensitive to lexical effects.

Two questions have been a focus of research on the mental lexicon. First, what is the mechanism that allows fast and efficient access to information about words familiar in listening and speaking? Second, in what form is the information represented in the mind and brain of the listener/speaker? (Miozzo, 2008). Arguments about the growth of children's English vocabulary will be very closely related to the theory of Vygotsky. System of word meaning begins to build in children whose thinking is pre-logical and based on complexes in a word phylogeny. Children first learn words with concrete, pictorial meanings, form associations from general images in the form of words and generalizations which will change developmentally following various rules. The meaning of the word that is first learned by the child will act as the starting word (main, base) for the construction of the field individual mental semantics (Akhutina, 2003).

According to Akhutina's hypothesis (2003), the main meaning of a word that is built-in thought begins with complex "image meaning" (sensory representation). Therefore, in the form of pictures, children perceive from a logically considered point of view. The main meaning of a word will be built according to the laws of thinking in the brain. From this non-logical structure, words that are reinforced by the linguistic context will remain and those which not so amplified will continue to a latent state or disappear. The main meaning of a word is reference points to define the meaning obtained later in the field the same semantics. The main meaning of a word resides in a central position in the field of semantics, which makes it easy to save.

Recent studies show that the mental lexicon can shrink over time increasing the age of a person (Takashima & Yamada, 2009). This will limit the number of words that they can remember and learn. Mental lexicon development of the second language (L2) on bilingual speakers indicates that some speakers' languages are not stored together, but as separate entities that are actively selected in each linguistic situation.

Several studies in the field of mental lexicon have also been carried out. Tamminen and Gaskel (2013) investigated whether new words could be integrated into the existing semantic network by teaching participants new meaningful words and then using these new words as prime numbers in a two semantic priming experiment, in which participants perform a lexical decision task

for familiar words. Then Boudelaa and Marslen-Wilson (2015) conducted five cross-modal priming experiments examining processing morphologically complex forms in the three main subdivisions of the verbal lexicon Arabic nouns, verbs, and primitive nouns. Jager, Green, and Cleland, (2015) investigated to see if word frequency could have a similar effect on storage, with low-frequency words having a high representation of overlap overlapping and high frequency of words that have low representation of overlap. Fricke, Baese-Berk, & Goldrick (2016) conducted a study to determine the dimensions of which phonological similarity contributes to the phonetic lexical with a fixed effect not answered. They reanalyzed phonetic data from previous studies, testing differences in predictions of phonological definitions with different similarities. Tytus (2018) studied using two experimental paradigms, the image naming task and the Stroop task interference to cope with the structure of the multilingual mental lexicon, more specifically, the process of multilingual non-selective lexical access.

Material and Methods
Materials
The materials used in this study is an offline corpus named AdTAT which stands for Adelaide Text Analysis Tool. This software was created by lecturers at The University of Adelaide and is provided on the university's website. It was freely downloaded as a tool to collect and analyze students' writing.

Methods
The research method used was a descriptive and qualitative study. The data were in the form of children writing in English. This research was started by sending a broadcast in some Whatsapp groups. Then, three teachers responded to the broadcast and filled out a form as a consent letter in Google Form. The teachers taught three different grades in three different private elementary schools namely 1st, 4th, and 5th. There were 48 students (14 students at 1st grade, 6 students at 4th grade, and 28 students at 5th grade) from 3 private elementary schools in Bogor that voluntarily joined this research. They were assigned by their teacher who also voluntarily joined. The topic of writing was adopted to the learning topic being studied by students so that teachers can give an assessment. Then the students' writings were put together in the form of an offline corpus. Then, a grouping of words by type, namely nouns, verbs, adjectives, adverbs, prepositions, pronouns, and conjunctions was conducted. In addition, the grouping of words was done based on their nature such as general words and specific words. The last step was making a list of words by type, nature, and age of the child.

Results and Discussion
The first research problem can be answered and described as follows. According to the data that had been collected, the compositions of elementary school students at 1st grade are only at the word level as a list of vocabulary. The number of words they produce is 45 words. The teacher provides vocabulary based on one particular theme. From the data written by students, 3 different themes have been studied by students, namely animals, drinks, and activities. In terms of animals, there are 9 types of animals written by students, namely ant, bee, butterfly, cat, lizard, dog, fish, bird, and chicken. In terms of drinks, there are 8 types of drinks written by students, namely milk, coffee, milkshake, ice cream, tea, coconut water, orange juice, and water. In terms of activities, there are 5 types of activities written by students, namely run, swim, fly, walk, and jump.

Data from the writings of elementary school students in 4th grade shows that there are variations in words, phrases, and sentences produced. They can write short stories in English using their own words. Most of the students wrote animal stories (fables) and some others wrote stories related to daily activities. In writing animal stories that are categorized into fictional stories such as fairy tales, they can write verbs in the right tense, namely simple past tense and past continuous tense. The number of words they managed to write in one essay ranged from 130 to 600 words.

The total vocabulary produced by elementary school students in 4th grade is 636 words. Their understanding of the use of punctuation to express direct and indirect sentences is good, judging from the use of the correct quotation marks and the correct word after the quotation marks. The word order in the sentences they produce has followed the correct sentence structure in English.

Data written by elementary school students in 5th grade shows that in total, 1,400 words have been successfully produced. The themes of their writings are daily routines, pets, hobbies, and likes and dislikes. In writing all these themes, they can write verbs in the right tense, namely the simple present tense. The number of words they managed to write in one essay ranged from 59 to 300 words. The sum of all the vocabularies produced by 5th-grade elementary school students is 1930 words. The vocabulary used in their writing is following the theme of each writing. In terms of daily routine, the students write vocabulary such as wake up, get up, take a shower, go to the bathroom, brush teeth, get dressed, join online class, eat a snack, study the Koran, chat with my family, read storybooks, play with my rabbit, prepare some books based on schedule, prepare myself, my uniform, read manga, watch k-drama, play basketball, play badminton, do homework, watch television, wash dishes, have breakfast, take a nap, have free time, play with balls and ropes, play games, sweeping, mopping, folding the blankets, study math, learn English, take a break, clean the bedroom, take wudhu, pray *subuh*, join zoom meeting, have lunch, have dinner, discuss interesting issues of the day, go to the playground, spend time together, watching Netflix films, wash dishes, cook fried rice, go to sleep, and go to bed. In terms of pet, they produce words such as cat, like play, likes, want, have, sad, allergic, run, around, toys, old, house, cute, give, and school. In terms of a hobby, they write words such as a hobby, reading, books, different, topics, disease, about, dinosaurs, fossils, body, famous, people, cycling, fun game, soccer, singing, dancing, fun activities, and mom's friend. In terms of like and dislike, they produce vocabularies like play, soccer, like, dislike, volleyball, friends, basketball, bicycle, action, movie, singing, basketballer, favorite, dance, voice, music, crazy, listening, playing games, reading, writing, cooking, school, study, ice cream, fried chicken, rice, like, eat, sports, watching anime, Korean movies, love, hate, football, drawing, anime character, drama, k-pop, liar, toys, electronic items, dogs, drakor, swim, to teach, working, caretaking, swim, marathon, french fries, fried rice, noodles, satay, spaghetti, passion fruit, durian, YouTuber, top gamer, food, snacks, rice crackers, sweets, watching anime series, garlic, red onion, smell, pit bull dog, dog breeds, balloons, pop, sound, a ball soft, novel books, vegetables, favorite food, favorite drink, and bubble tea.

Based on the vocabulary data described above, elementary school students in 5th grade produce the highest number of vocabulary compared to elementary school students in 1st and 4th grade. The size of the vocabulary produced by students is directly proportional to the level of education achieved. The higher the class in which students study, the more vocabulary is generated. This result is not in line with what was said by Tang (2007) who showed the results of his study as evidence that students with higher grades do not certainly have a greater number of vocabulary mastered than students with lower grades. Tang found that his research subjects who were students of English as a second language had a small vocabulary size and poor vocabulary knowledge. It is, therefore, necessary to develop systematic and curricular vocabulary and step-by-step instructions that take the vocabulary size and knowledge of the learner into account to address individual differences observed across school levels or between school types.

The writings produced by elementary school students in 5th grade show several vocabularies that were influenced by Indonesian such as *sereal, drakor, bubur, Indo, opor, ayam, PJJ's, rendang, PKN, cicak*, and *IPA*. The influence of Arabic is also found in students' writings in the form of vocabulary such as *shubuh, wudhu, isha, tadarus*, and *asr*. Meanwhile, in the compositions of elementary school students at 4th grade, there are several Indonesian vocabularies such as *makan, neng*, and *warung* produced by them. This indicates that there is an influence of Indonesian in their writings. The influence of Arabic is also found in the writings of elementary school students at 4th grade such as *Insha Allah, Allah*, and *Amen*. These things indicate that Indonesian and Arabic are active languages that they use so that it can significantly affect the production of the English they

are learning. This is in line with what was stated by Tytus (2018) who found that although French is a dormant language in his research subjects, the production of other languages affects French production because other languages are more actively used compared to other languages. This is characterized by significantly slower production of French compared to other languages they speak.

The vocabulary produced by elementary school students in 5th grade shows that they can choose words properly and correctly according to the similarity relationship between general and specific concepts possessed by each word. They can understand the generalization structure based on the similarity system. This is in line with the concept offered by Vygotsky (Akhutina, 2003) that each generalization structure is based on a system of similarities and certain similarity relationships between general and specific concepts. In writings with the theme of daily routine, elementary school students in 5th grade can choose verbs that fall into the category of daily routine such as get up, wake up, take a shower, have breakfast, and so on. Therefore, the vocabulary group can be written as the following daily routine - get up, wake up, take a shower, have breakfast according to the equivalent of the general word and specific word in particular. In addition, students who wrote the theme of things they liked and didn't like we're able to categorize vocabulary according to the category of food and drink. The equivalent of common words and special words is food – spaghetti, fried rice, rice crackers, satay, and drink – bubble tea.

Conclusion

Mapping the mental lexicon of elementary school students in the Indonesian EFL context is a step of providing a reading text as English learning media for them based on their age level. There is a limited report of the vocabulary size of the students in Indonesia. Therefore, the purpose of this research was to determine the number and types of English vocabulary by making an English corpus for elementary school-aged children as the first step to map children's mental lexicon as a reference for learning English in Indonesia school or at home. According to the data that had been collected, the compositions of elementary school students in 1st grade are only at the word level with several 45 words in a list of vocabulary. Data from the writings of elementary school students in 4th grade shows that there are variations in words, phrases, and sentences produced with a total number of 636 words. The number of words they managed to write in one essay ranged from 130 to 600 words. Data written by elementary school students in 5th grade shows that in total, 1,400 words have been successfully produced. The themes of their writings are daily routines, pets, hobbies, and likes and dislikes.

Elementary school students in 5th grade produce the highest number of vocabulary compared to elementary school students in 1st and 4th grade. The size of the vocabulary produced by students is directly proportional to the level of education achieved. The higher the class in which students study, the more vocabulary is generated. This result is not in line with what was said by Tang (2007). However, the influence of Indonesian and Arabic in students' composition indicates that Indonesian and Arabic are active languages that they use so that it can significantly affect the production of the English they are learning. This is in line with what was stated by Tytus (2018). The results of this research are also in line with the concept offered by Vygotsky (Akhutina, 2003) that each generalization structure is based on a system of similarities and certain similarity relationships between general and specific concepts. In writing with the theme of daily routine, elementary school students in 5th grade can choose verbs that fall into the category of daily routine such as get up, wake up, take a shower, have breakfast, and so on.

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