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Exploration of the Impact of Language Proficiency on Vocabulary Association Patterns in English Language Education

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Abstract: This paper explores the lexical association patterns of English as a second language and their relationship with language proficiency. Through the vocabulary association test, the study analyzes the differences in vocabulary association between learners with different language levels. The participants were 100 non-native English-speaking undergraduate students from a top 200 university, such as the University of Nottingham, and a university outside the top 200, such as the University of Aberdeen; the two groups of learners differed in their vocabulary size and learning style. It was found that the two groups of learners differed significantly in vocabulary size, language background, and learning experience. In addition, the study raises three core questions: first, learners' lexical association patterns, second, differences in association among learners with different language proficiency levels, and third, other variables that affect vocabulary association ability. The limitations of the study are that reaction time was not measured and the influence of native language background on word association was not fully considered; future research should further explore these aspects.

Keywords: Lexical association patterns; Vocabulary association; Learning style; Language proficiency; Second language learners

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1. Introduction

Vocabulary is the most basic and important part of the language learning process, and it is only when having an adequate vocabulary that one can use the language better, understand other people's expressions, and be understood. However, the casual nature of English makes it difficult for learners to combine pronunciation, word form, and contextual forms in the process of learning vocabulary, leading to difficulties in learning English vocabulary today. More and more second language learners are also experiencing learning difficulties due to a lack of vocabulary, and currently, bilingual vocabulary studies are gaining a lot of attention in the field of linguistics. The nature of lexical association pattern processes remains controversial

in previous studies. Are the stimulus responses in the brain's lexical association task essentially accomplished by word-image associations or core semantic associations? As a result, research on lexical association is even more problematic with questions such as: what are the possible factors that influence lexical associations? Are there differences in lexical associations between students with different levels of proficiency in English? Consistent with the main aim of this study, this research focuses on gaining insight into the reality of "words" in English in the context of word association tasks and to generalize from word association to the overall organization of foreign language vocabulary. Therefore, based on Piaget's schema theory study, this paper uses quantitative analysis to derive the effects of different levels of language proficiency on second-language lexical associations through a lexical association test with learners of English as a second language. The paper seeks to explore the differences in lexical association patterns between learners of different language levels and to analyze the factors that contribute to these differences.

2. Literature review

In past research, word association tests have become a practical and quick method to study learners' mental vocabulary. It is clear that the lexical meaning and association processes of the second language vocabulary of language learners have been of interest to the field. Word association tasks were originally used in the field of psychology to obtain words that were associated with the corresponding "stimulus situation" in an immediate response situation, and the process usually presents participants with a word and asks them to say the first word that comes to mind in response to the presented stimulus [1]. It has also been argued that lexical associations can be made in a way that helps us to master the association of second-language words. Thus, through the investigation of lexical association responses, lexical association studies can provide an understanding of the semantic and morphological relationships between words in the lexicon, from which the associative and cognitive relations of words in a second language can be studied. In addition, some researchers have argued that lexical associations can tell us something about the lexical statistics and storage of a second language [2]. Past research has demonstrated the independence of bilingual lexical representations and the commonality of conceptual representations. This paper plans to attempt a preliminary overview of the mental lexical organization through an investigation of lexical associations of English learners.

The lexical association process of bilingual learners is the topic of the study project proposed here. Specifically, this study aims to examine the similarities and differences in the associative responses of English learners from different levels of proficiency. In past research, second-language lexical association patterns and native-language ways of thinking are different. Deyne and Storms [3] stated that "we are still far from understanding precisely the assumptions underlying the lexical system metaphor, and our understanding of the function of the second language lexical system is far from complete." Furthermore, the interpretation of semantic relations and word-form associations is often ambiguous. Additionally, it remains a matter of debate whether L2 learners' patterns of association differ significantly from those of native speakers. Further research on bilingual lexical associations is therefore warranted. This paper plans to investigate the similarities and differences in the association patterns of English language learners that have been overlooked in previous studies. The interpretation of the findings adds to the understanding of the lexical structure of English for non-native speakers and has the potential to explain the contradictions in previous studies. The final step in the data analysis was to identify potential elements that could have an impact on how bilingual lexical connections emerge. It is well known that words are not isolated in the

human brain's lexical system but have connections with each other, and Schmitt and McCarthy [4] claimed that effective associations of a word with other words facilitate their lexical learning. We therefore hope that word association research will contribute to our understanding of how words are effectively remembered and restricted. The process of vocabulary learning is more than just a morphological and syntactic matching process. The process generates a series of processes of mental stimulation. Meara [5] suggested that this may involve some kind of complex absorption process, where newly encountered words gradually find their place in the learner's second language vocabulary. Therefore, this study plans to test and compare second language scholars of different levels of English to obtain the similarities and differences among them and to analyze them to obtain the factors that may influence these.

Another noteworthy point concerns the relationship between schema theory and lexical association. The term "schema theory" refers to a conceptual model for describing human knowledge that represents the information gained from a person's numerous personal encounters with things, people, circumstances, and events. In Jean Piaget's basic argument, it appears that memory depends on the schema of the matching activity and that representations represent only the graphic features of the schema. In terms of the influence of schema on memory, Jean Piaget [6] argued that memory activity involves the "recapitulation and recall as is" of particular objects or events, and that memory activity is accompanied by refinement or approximation, and orientation in time corresponding to the correct or incorrect. In contrast, Fitzpatrick [7] argued that schema applies to all new scenarios that can be assimilated and that, in general, schema activation is not related to past experience. She similarly noted that comparative studies of the associative behavior of native and non-native speakers seem to tend to assume that native speakers' responses to associative tasks are sufficiently homogeneous for us. The associative schema in L2 is systematically different from that in L1. However, Fitzpatrick [8] argued that it is the unsuccessful implementation of word association tasks that has failed to uncover the exact modalities and associated structures of the word association. Despite the fact that several earlier research in the field compared the word association patterns of native and non-native languages, it is also debatable whether proficiency is a reliable measure of learners' native language similarity in word association tasks. In light of this, the current study should take into account a few experimental issues in order to guarantee the validity of the lexical association task and accomplish the objective of using lexical association to comprehend second language learners' vocabulary as well as to investigate the impact of language proficiency on second language lexical association.

So far, past studies that have used schema theory to explore the relationship between background knowledge and foreign language learning have mainly focused on the areas of reading and listening. Very little has been done in the area of language vocabulary. When teaching a second language, specific vocabulary teaching strategies have not gotten the same amount of attention as other knowledge and abilities. This seems to be a long-standing problem, as Meara pointed out [9]. Indeed, most of our widely held views about vocabulary teaching are still strongly rooted in practices that were prevalent decades ago, and she also pointed out that the role vocabulary plays in the language is conspicuously neglected by most language teachers. With these issues in mind, this paper hopes to offer some suggestions for the future of vocabulary teaching in a second language.

3. Methodology

3.1. Participant

This study aimed to investigate the effect of proficiency on lexical associations in second language practice,

the participants were 100 undergraduate students whose first language was not English, selected by random sampling. One group of learners (n = 50) was from a university ranked in the top 200 in the world (University of Nottingham) and the other group (n = 50) was from a university ranked outside the top 200 in the world (University of Aberdeen). They received English language courses at the educational level and improved their language proficiency at university entry based on the required English language level. The first group of participants effectively learned English vocabulary independently, with a vocabulary of around 8,000 words. The second group learned words through traditional rote memorization, increasing their vocabulary to around 5,000 words. Thus, the analysis of the second language learners who participated in the study revealed differences between the two groups in terms of language background, language proficiency, vocabulary size, and vocabulary learning experience. The research project also raised three research questions, as follows:

(1) What are the lexical association patterns of second language learners whose second language is English?

(2) How do second language learners with various degrees of English language acquisition differ in their vocabulary associations?

(3) What are some other variables that might affect how vocabulary association abilities in English language learners develop?

3.2. Procedure

The quantity of words generated by participants under the circumstances of lexical connections was tested in this study using quantitative analysis. For the sake of efficiency, this experiment was carried out online, and for the duration of 25 minutes, participants were instructed to write down any English phrases that immediately sprang to mind as they saw each image. An introduction test was performed before the formal experiment in order to validate the timing, order, and instructions utilized in the test. To make sure that everyone was comfortable with the test, the researcher described it, questioned the participants in their native tongue, and provided them with three sample words through a video connection before the association test began. When asked to perform the word association task, participants were instructed to write down the word that came to mind when a cue word appeared. This was followed by a link to the test, which was clicked to start the test. The process of this study consisted of three steps.

Step 1: The word association test was designed as an online test. The entire experiment was sent to participants as a link, with the cue word appearing as a question in the link, and participants were asked to spell out the word they thought of as the answer to the task following the cue word.

Step 2: Participants were asked to complete the task within a given time frame. For each cue in the previous step, participants were asked to write down its associated word within one minute. Each cue was presented for 30 seconds, which included time to produce an associated word and prepare the next word. Furthermore, participants were not allowed to change their answers throughout the process.

Step 3: Finally, the data were collected and some useless data were discarded. For example, some of the cued word associations were replaced with native translations by some participants, so they were discarded for further analysis as they were not relevant to the experiment.

The test words used in this project were all taken from the vocabulary-level test word list by Schmitt *et al.* [10], with 15 nouns, adjectives, and verbs each. The test words were chosen with the following aspects in mind: (1) The word list is widely used in lexical association studies and can be easily compared with previ-

ous studies. (2) The word list classifies words according to their frequency. The words selected for this experiment were all familiar words in the 5000–10,000 word range, words that the testers had encountered in the study materials and should have acquired. (3) The word list covers nouns, adjectives, and verbs, and to a certain extent covers the overall vocabulary structure.

3.3. Data analysis and discussion

The analysis of the experimental data, following a reliability analysis, allowed us to obtain the results of the English lexical association test, which allowed us to compare the similarities and differences in lexical association behavior. Firstly, the words produced by the participants through lexical association were categorized and effectively collected according to whether they were similar in meaning or pronunciation to the cue words. In addition, the number of words produced by association was calculated for each participant. For each participant, a set of data on their word associations was available. Next, the number of various associative answers for each participant was tallied, along with the sum of all replies, the mean, and their share of all responses. The data were then imported into SPSS28.0.1.1 and subjected to descriptive statistics, chi-square tests, and *t*-tests, respectively, to explore the differences in the categories of associative responses between the two groups of English language learners and to obtain whether proficiency was significant for vocabulary association. The analysis of the two experimental groups above allowed us to obtain the differences in the results between the two groups. The analysis will allow us to understand the patterns of lexical associations of second language learners and the specific data that can be obtained on the differences in lexical association factors between the two learning styles for second language learning, which can provide valid and feasible guidelines for future research in the field of second language teaching.

4. Conclusion

A possible limitation of the design of this study is that only one indicator was examined when measuring the lexical association behavior of the experimental participants, which still has other influences. The experiment examined the average number of responses that learners were able to produce but did not measure the reaction time of the experimental participants to make the associations. Since the participants had different language backgrounds, it is also unknown whether vocabulary is associated in the same way as in the native language. The speed at which learners produced lexical associations allowed us to see the availability of associative words in their basic vocabulary. Future research could therefore look at both the number and duration of lexical associations produced by learners, providing a new direction for the study of lexical associations. Another limitation of this study is the issue of linguistic context. Whether and how L1 influences learners' production of bilingual lexical associations during online English lexical processing, and the existence of grammatical structures similar to those in Spanish as a native language and English. Therefore, future research could empirically examine the cross-linguistic contextual influences on learners' production of bilingual lexical associations.

Disclosure statement

The author declares no conflict of interest.

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