LEXICAL AND SYNTACTIC KNOWLEDGE IN ENGLISH OF HIGH-SCHOOL STUDENTS IN SOBRAL

Author(s): Felipe Lima Chaves[1]; Ana Lara Parente Lima Sousa[2]; Talisson Lira Julio[3]; Candice Helen Glenday[4]

[1]Curso de Letras, CENFLE, UVA; E-mail: felipechavestm@gmail.com,
[2]Curso de Letras, CENFLE, UVA; E-mail: analaraparente1207@gmail.com,
[3]Curso de Letras, CENFLE, UVA; E-mail: liratalis@gmail.com,
[4]Docente/pesquisador, CENFLE, UVA. E-mail: candice_glenday@uvanet.br.

Abstract: Research reports that lexical and syntactic knowledge in second language influences learners' reading comprehension. Thus, the aim of this study was to investigate the lexical and syntactic knowledge of high-school students in state schools in Sobral, Ceará, using four tests, namely, reading comprehension test, vocabulary breadth test, vocabulary depth test, and a syntactic knowledge test, to assess their reading comprehension skills in English. Although the results of this study are preliminary, they suggest that the students do not have sufficient vocabulary knowledge for proficient reading comprehension. Thus, our study suggests that schools should focus on developing vocabulary more than focusing on grammar to improve students' reading skills.

Keywords: vocabulary, syntax, ENEM, English.

INTRODUCTION AND OBJECTIVE

Second language acquisition (L2), particularly English, is fundamental for Brazilian students to achieve academic success. Within the second language abilities, L2 reading comprehension is fundamental for research and academic achievement as lexical (or vocabulary) knowledge is related to good reading skills. Given that Brazilian high-school students are expected to develop L2 reading comprehension skills for the National Exam (ENEM) as well as for further studies in higher education, we sought to investigate the relationship between lexical and syntactic knowledge and reading comprehension.

Lexical knowledge is an important element in the study of second language acquisition because by knowing words students can predict the probability of encountering a word in print, know the limitations on the use of the word, the semantic value of the word, the different meanings associated with the word, and the syntactic behavior associated with the word (Choudhury, 2015).

Within the generative approach, the words of a language, at a syntactic level, have certain properties that complement the meaning of other words. For example, when we read or hear a sentence such as "Ana loves …", we expect a complement of a verb, which could be "Anna loves books". In this model, "the derivation of sentences begins with access to the mental lexicon" (Mioto, 2013, p. 125). The mental lexicon, in addition to containing the meaning of the word, it also contains information about the category of the words (Chomsky, 1995). Through the knowledge of these categories, we acquire the structure of the language, that is, syntactic knowledge.

Two aspects, breadth and depth of vocabulary, are considered when measuring lexical knowledge. The Vocabulary Size Test (VST) (Laufer; Nation, 1999) measures the number of words the learners know, that is the breath of vocabulary, and the Word Associates Test (WAT) (Reed, 2000) measures the quality of lexical knowledge, that is the depth of vocabulary. If lexical knowledge is important to acquire syntactic knowledge, which is the strongest predictor for reading comprehension, depth or breadth?

Studies (Mohammadi; Afshar, 2016; Webb; Paribakht, 2015) have reported that lexical knowledge plays an important role in reading comprehension. However, while studies

(Kaivanpanah, 2009; Shioutsu; Weird, 2007) have found that syntactic knowledge is a better predictor for reading comprehension, others (Zhang, 2012; Susoy; Tanyer, 2019) have shown that vocabulary knowledge depth is a stronger predictor than syntactic knowledge for reading comprehension.

Since the guidelines for the ENEM exam state that the English language test in ENEM assesses the students' ability to associate words and expressions as well as their knowledge of the language and its mechanisms (Brasil, 2018), the aim of this study was to investigate the degree of the students' lexical and syntactic knowledge and if these would affect the outcome on reading comprehension. To conduct our study, we used a similar methodology used in the study of Susoy and Tanyer (2019).

MATERIAL AND METHODS

PARTICIPANTS
The participants in our study were 3rd year high-school students at the state school EEMTI Monsenhor José Gerardo in Sobral. A total of 107 students participated in the study. The data were collected in August 2023.

INSTRUMENTS
The study data were collected using 4 tasks, partly replicating the experiments reported by Susoy and Tanyer (2019): vocabulary breadth test (VST); vocabulary depth test (WAT); a syntactic knowledge test; and reading comprehension test.

The vocabulary tests were the Vocabulary Size Test (VST) (Laufer; Nation, 1999) and the Word Associates Test (WAT) (Reed, 2000). The VST assesses the breadth of vocabulary knowledge, and the total number of items in the VST is 100. To find the number of word families that the participant knows, the number of correct answers is multiplied by 200. The items range from high-frequency words to low-frequency words and the maximum score can be 20,000-word families. The WAT assesses the depth of lexical knowledge, and it has 40 items. Each item gives an adjective or a noun followed by 8 words. The participant is asked to choose four words that are semantically related to the adjective or noun provided in the item and the maximum score can be 40 points.

The items for the syntactic knowledge test were selected from TOEFL that consisted of 45 multiple-choice basic items about grammar and 20 of these items required the participants to identify the correct syntactic order in one of the multiple-choice items. The maximum score can be 45 points.

For the reading comprehension test, we selected four texts used in previous editions of ENEM. In this test, students had to distinguish facts and details from the text as well as important ideas and infer information. For each text there were multiple-choice comprehension items, totaling 13 items for the four texts and the maximum score is of 13 points.

The research project was submitted and approved by the Research Ethics Committee of the Universidade Estadual Vale do Acaraú, Sobral, Ceará, under protocol CAAE 71118223.4.0000.5053.

RESULTS AND DISCUSSION
As this study is reporting preliminary data, before discussing the results, it is important to point out some significant findings regarding the data collected. First, most tests were invalid due to the detection of patterns on the answer sheets, such as answering using drawings or just choosing the same option for several items. Second, as there were four tests, we administered two tests on one testing day and the other two tests were administered on the following day. As the tests were administered on two different days, most students missed one day of testing.

After excluding all the invalid tests, we analyzed the remaining data. A total of 66 WAT tests were administered, 39 tests were invalid. Of the 27 tests considered valid for correction, the scores ranged from 0 to 6 points. As the results were not significant, we have excluded the WAT scores from the analysis.

The results for the VST were as problematic as the WAT. Of the 58 tests administered, only 9 were valid. Although most tests were excluded, the data from these 9 tests indicate that the participants' breadth of vocabulary knowledge ranges from 4,000-word families to 10,000-word families. From a teaching point of view, in courses not focused on well-defined areas of use, such as in high-school English, only the words in the most frequent 2,000 words of English (the high-frequency words) deserve individual attention (LAUFER, 1999). However, as most participants did not complete the task, it could suggest that the students may not have sufficient breadth of vocabulary knowledge and schools could focus on developing students' vocabulary.

The results of the Syntactic Knowledge Test were more promising. Of the 70 tests administered, 39 tests were considered valid for correction. However, the scores of participants were not higher than 23 points out of 45, as shown in Figure 1.

Despite the better results concerning participation, the mean score in the Syntactic Knowledge test was 11.6 points. Considering that lexical knowledge is important for syntactic processing, the results of this test could suggest that participants would benefit from more in-depth vocabulary input.

The results of the Reading Comprehension Test were the best regarding validity: of the 77 tests administered, 63 of them were considered valid for correction. As shown in Figure 2, one student scored 10 points and two participants scored 0 points.
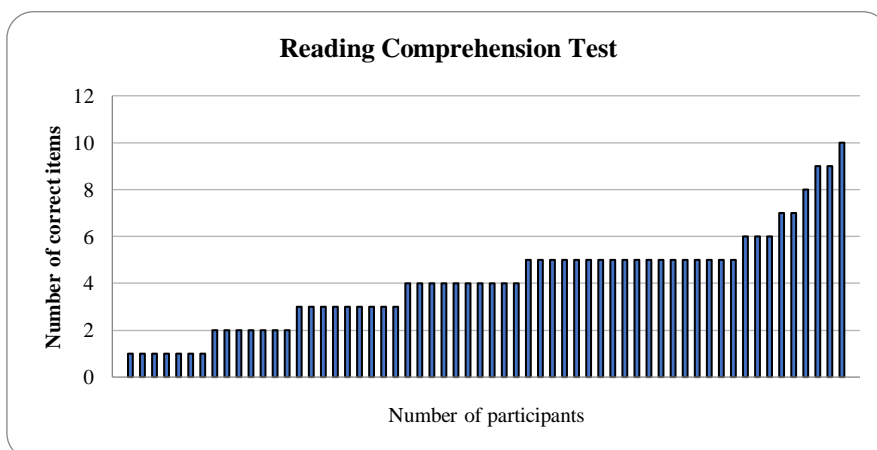

Figure 2: Scores of participants in the reading comprehension test.

Although participants were more engaged in this task, 33 participants scored from 1 to 4 points, 22 participants scored from 5 to 6 points and only 6 participants scored from 7 to 10 points. The mean score was 4.1 points.

As our data is preliminary and the study is ongoing, we did not carry out any statistical analysis at this moment. Nevertheless, we can make some inferences based on the results obtained. Table 1 shows all the results of the tests administered to the participants at the state school EEMTI Monsenhor José Gerardo.

Table 1: Data from all tests.

Tests	Mean score of valid tests	Number of valid tests	Number of invalid tests
WAT	1.74	27	39
VST	6,266	9	49
Syntactic knowledge	11.6	39	31
Reading comprehension	4.1	63	17

According to the results reported by Susoy and Tanyer (2019), the Pearson correlation coefficient score was higher than .60 for the vocabulary depth variable, which means that there is a statistically significant relationship between vocabulary depth and L2 reading comprehension scores. Comparing our results with the findings of these authors, although without performing statistical analysis, the mean score of WAT (1.74) and of the reading comprehension test (4.1) suggest that there could also be a relationship between these two scores in the results of the tests.

These findings reinforce the possible relationship between lexical and syntactic knowledge and L2 reading comprehension. Further studies at other public state schools must be conducted to investigate if there is a relationship between vocabulary depth and reading comprehension.

CONCLUSION

Two conclusions can be drawn from the results of this study. First, most participants were not committed to the tests. This could suggest that English is not considered an important school subject or that students do not understand the relevance and impact of a second language for their future education and professional life. Second, the low scores in all four tasks of participants who did complete all tasks suggest that schools could focus on developing lexical knowledge, particularly depth of vocabulary, rather than exclusively teaching grammar.

As previously stated, our findings are preliminary. We will administer the four tasks at other state schools in Sobral to verify if these results are consistent and use statistical methods to analyze the data.

ACKNOWLEDGEMENT

REFERENCES

BRASIL. **Lei de diretrizes e bases da educação nacional**. Brasília, DF: Senado Federal, Coordenação de Edições Técnicas, 2017.

BRASIL. Ministério da Educação. **Base Nacional Comum Curricular**. Brasília, 2018.

CHOMSKY, Noam. **The Minimalist program**. Cambridge: MIT Press, 1995.

CHOUDHURY, A. S. Second/foreign language lexical competence: its dimensions and ways of measuring it. **I-manager's Journal on English Language Teaching**, [s.l.], v. 5, n. 3, p. 34-42, Jul-Sep 2015. Disponível em: https://eric.ed.gov/?id=EJ1097372. Acesso em: 24 set. 2023.

KAIVANPANAH, S.; ZANDI, H. The role of depth of vocabulary knowledge in reading comprehension in EFL context. **Journal of Applied Sciences**, [s.l.], v. 9, n. 4, p. 698-706, 2009.

LAUFER, B.; NATION, P. A vocabulary-size test of controlled productive ability. **Language testing**, Israel, v. 16, n. 1, p. 33-51, 1999. https://doi.org/10.1177/026553229901600103

MIOTO, Carlos; SILVA, Maria Cristina Figueiredo; LOPES, Ruth. **Novo manual de sintaxe**. São Paulo: Editora Contexto, 2013.

MOHAMMADI, S. M.; AFSHAR, N. B. Vocabulary knowledge learning and reading comprehension performance: which one is superior – breadth or depth? **International Journal for 21st Century Education**, [s.l.], v. 3, n. 2, p. 5-14, 2016.

READ, J. **Assessing Vocabulary**. Cambridge, UK: Cambridge University Press, 2000.

READ, J. The development of a new measure of L2 vocabulary knowledge. **Language Testing**, Cambridge, v. 10, n. 3, p. 355–371, 1993. https://doi.org/10.1177/026553229301000308

YALIN, S.; WEI, T. The Relative Significance of Vocabulary Breadth and Syntactic Knowledge in the Prediction of Reading Comprehension Test Performance. **Chinese Journal of Applied Linguistics**, [s.l.], v. 34, n. 3, p. 113-126, 2011. https://doi.org/10.1515/cjal.2011.028

SUSOY, Z.; TANYER, S. The role of vocabulary vs. syntactic knowledge in L2 reading comprehension. **Eurasian Journal of Applied Linguistics**, [s.l.], v. 5, v. 1, p. 113–130, 2019. https://doi.org/10.32601/ejal.543787

WEBB, S.; PARIBAKHT, T. S. What is the relationship between the lexical profile of test items and performance on a standardized English proficiency test? **English for Specific Purposes**, [s.l.], v. 38, p. 34-43, 2015. https://doi.org/10.1016/j.esp.2014.11.001

ZHANG, D. Vocabulary and grammar knowledge in second language reading comprehension: A structural equation modeling study. **The Modern Language Journal**, Singapore, v. 96, n. 4, p. 558-575, 2012. https://doi.org/10.1111/j.1540-4781.2012.01398.x