



Classifying Parts of Speech to Improve Word Recognition in Reading.

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Abstract

The current study pointed to establish the influence of parts of speech classification on word recognition in students. For this purpose, it was considered necessary to apply an innovation plan based on strategies for classifying parts of speech through Google Classroom sessions and Canvas, to overcome students' difficulties in recognizing words successfully. Participants were 21 students among boys and girls with ages about eleven to twelve years old from a private educational institution. The research work applied a mixed approach design, that is quantitative and qualitative. Evidence showed students believe they have an insufficient level of knowledge for classifying parts of speech and recognized they translate words that cannot identify instead of understanding sentences in context. The survey applied showed that even though students favor technology, they have limited access to the Internet at home and presented insufficient skills to work with Canva for drawing or creating tree-diagrams. However, after the implementation of the innovation, students got an important improvement regarding the use of grammar and vocabulary recognition with a mean of 14.86 (SD 1.42), and a Cohen's d of 2.40, which determined an important progress. Finally, it was possible to conclude that the literature review and the application of the research tools made possible to establish a positive influence of parts of speech classification on word recognition in students. The intervention plan proved to be effective to help students recognize words in context successfully.

Keywords: Parts of speech, word recognition, EFL

Resumen

El presente estudio tuvo como objeto establecer la influencia de clasificación de las partes del habla en inglés en el reconocimiento de palabras en los estudiantes. Se aplicó un plan de innovación basado en estrategias de clasificación de partes del habla, mediante sesiones de Google Classroom y Canvas, dirigidas a superar las dificultades para reconocer palabras de manera eficiente. Los participantes fueron 21 estudiantes entre niños y niñas con edades de once y doce años de una institución educativa privada. La investigación aplicó un enfoque mixto. La evidencia mostró que los estudiantes percibían tener un nivel de conocimiento insuficiente para clasificar partes del habla, y reconocieron traducir palabras difíciles de identificar, en lugar de comprenderlas en contexto. La encuesta mostró que, a pesar de la preferencia de los estudiantes por la tecnología, tienen un acceso limitado a Internet en casa, y presentaron habilidades insuficientes para trabajar con Canvas para dibujar o crear diagramas de árbol. Sin embargo, luego de la implementación de la innovación, los estudiantes obtuvieron una mejora importante en el reconocimiento gramatical y de vocabulario, con una media de 14,86 (de 1,42) y Cohen's *d* 2.40, lo que determinó una mejora importante. Finalmente, se pudo concluir que la revisión de la literatura y la aplicación de las herramientas de investigación permitieron establecer una influencia positiva de la clasificación de las partes del habla en el reconocimiento de palabras en los estudiantes. El plan de intervención demostró ser eficaz para ayudar a los estudiantes a reconocer palabras en contexto con éxito.

Palabras clave: Partes del habla, Reconocimiento de palabras; Inglés como lengua extranjera.

Classifying Parts of Speech to Improve Word Recognition in Reading

Nowadays, the English language has got vast importance around the world. It has been accepted as a global language or lingua-franca in thousands of cultures, becoming the world more shareable, familiar, and accessible for everyone (Bohara, 2018). Billions of people speak English as a first or second language, either for professional or personal reasons; thus, achieving proficiency has broadened horizons and speeded the exchange of information, demonstrating an important network effect: the more people use it, the more useful it becomes (Education First, 2019a). Even though there is still a debate regarding other languages, such as Mandarin, overtaking English as a world language, Hidalgo et al. (2014) and his team at MIT Media Lab, argue for the preeminence of English, and identify it as the most influential language in the world. The authors created an interactive model that shows English is by far the largest hub of information and affirmed that, since English is the main language of the Internet, it can connect people across languages. Besides, for EF English Proficiency Index, learning English is a top priority for people in the world's market, because it is the language companies use to communicate (Education First, 2019b).

Despite the global importance of English, learning this second language is still a long and complex process. Murmary (2017) asserted that the learning environment is considered an essential issue that causes difficulties in second language acquisition, as humans face important problems when their surrounding is not appropriate for language acquisition. Limited learning environments and cultural differences are some of the issues that learners must deal with, especially when they need to convey a message. Moreover, there are also barriers to meaningful instruction, such as language load, which is particularly important, because it refers to the number of unfamiliar words that an English language learner needs to internalize (Abdullah,

2018). Besides, grammar, sentence patterns, vocabulary, or pronunciation, are some of the aspects of concern for learners. This makes clear that in order to master English as a foreign language, students must cover the different aspects this language implies, as the four skills, grammar, and culture (Brown, 2007, as cited in Mohammed, 2018).

One of the common problems that students experience in English Language Learning is related to word recognition, which is considered a low-level process, but the most frequent cognitive activity that the reading skill involves (Han, 2015). The reading skill makes meaning from the written word and requires learners to identify the word in print. This process is called word recognition and is one of the processes that the reading skill includes, being the others motivation, fluency, or comprehension (Don-Ezenne, 2014). In a foreign language, word recognition is a more complicated issue than in the native language, and involves factors associated to L1 and L2 such as learners orthography background in L1, because the language system differences may affect comprehension and recognition; another factor is the way word recognition is connected to reading outcomes, especially those related to comprehension; and the last factor about foreign language proficiency, which is directly linked to the speed in which students can recognize words (Han, 2015).

In Ecuador, English proficiency, as in many other non-native countries, is also a competitive advantage, and laws make English a required subject. The Ministry of Education, a public entity that regulates all levels of education in the public and private sectors, issued the English as a Foreign Language Curriculum for students from 2nd to 10th of Basic General Education (EGB in Spanish), as and 1st, 2nd, 3rd of Unified General Baccalaureate (BGU in Spanish), whose mother tongue is not English. This official document includes statistics and a framework based on the Common European Framework of Reference (CEFR) to learn English,

which is meant to simplify the learning process (Ministerio de Educación, 2016). However, despite the regulations and the framework given, English language acquisition has not achieved the level expected. Education First (2019a), an international organization that examines the acquisition of English skills in 26 countries, classified Ecuador as the country with the lowest level of English in Latin America, and in position 81 among the countries with very low English proficiency. One of the factors in the English language that Ecuadorian learners need to improve is related to the reading skill, especially focused on word recognition in all levels of education (Education First, 2019a, pp. 7, 11).

It was observed that students of 7th grade EGB of a private high school in Guayaquil, Ecuador, have important difficulties with the reading skill, mainly focused on recognizing words in an L2 context. They showed some problems understanding short and simple texts related to familiar matters, which resulted in inappropriate message decoding. A main possible reason could be students' failure in identifying the degree of closeness in lexical units in L2, which implies the recognition of each part of speech in English (Vera, 2019). It is particularly important because failure in word recognition changes completely the meaning of a message (Castles, et al., 2018). Also, students may experience deficiencies to distinguish elements of signal grammar, such as function words, word order, affixation, or intonation, confusing students when reading a text (Kourieos, 2014). A limited vocabulary due to a lack of reading culture, as well as the inability of reading in context are also factors that affect message decoding (Sanford, 2015). Consequently, the current study proposes the design of a set of activities to recognize words and classify parts of speech, directed to improve the reading skill in students of 7th grade EGB.

Several recent and seminal research related to parts of speech and/or word recognition in English language learning has been carried out. Sanford (2015) developed a study to identify the

factors affecting reading comprehension of English language students, in San Francisco, California, USA. The research explored the importance of word recognition and vocabulary, among others, and described them as factors that affect reading comprehension in students. The results obtained suggested cognitive and affective elements that influence reading comprehension and established the relative importance of multi-sensory direct instruction in the improvement of word recognition and vocabulary.

On the other hand, Alcívar (2018) developed a study directed to determine the relevance of methodological strategies to improve reading skill in learners, in a private high school in Machala, Ecuador. The research emphasized the significance of grammar, vocabulary, and word function as essential parts of the dynamic process of reading comprehension and suggested a set of teaching strategies to improve this skill in students. The application of the research tools established a positive influence on teaching strategies to improve vocabulary recognition and reading comprehension in students.

Besides, Castañeda (2018) developed a research project directed to determine the influence that pedagogical techniques have on reading comprehension in 9th-grade students of a private institution in Guayaquil, Ecuador. The study focused on word recognition as one of the main difficulties that students face and proposed a set of strategies and techniques to improve students' performance. Also, the application of the research techniques and tools, allowed to determine that the implementation of pedagogical techniques helped to improve the performance of students in reading comprehension.

Moreover, Ruiz (2019) carried out a research work aimed to find out whether parts of speech classification could improve students' reading comprehension in a private language school in Loja, Ecuador. Results obtained from the application of the research tools revealed that

participants' performance changed positively after the intervention. Therefore, it was possible to verify the effectiveness of parts of speech classification to improve reading comprehension.

The research studies referred to applied similar methodological procedures than the current study and focused on word recognition as a cognitive activity that the reading skill involves. However, there is a gap that the current study attempts to cover, referred to determine the influence of part of speech classification on word recognition, having as population students of 7th grade EGB or a private high school, and located in Guayaquil, Ecuador. It was noticed that many studies referred to the enhancement of the reading skill, but few of them covered the parts of speech classification directly; rather, grammar or word function proficiency were proposed to improve this skill.

The importance of the English language and the necessity of reading proficiency by identifying the degree of closeness in lexical units are aspects that surpassed horizons and turned teaching strategies essential to overcome difficulties in word recognition. The wrong decoding of a message, plus deficiencies to distinguish function words, or word order, confused students that needed to be overcome.

Literature Review

Many theorists and linguists have developed research regarding the way words are used in a sentence. However, there is a literature gap related to how describing the degrees of the closeness of lexical units can determine the relationship of words to recognize meaning. In this section, a set of theoretical foundations regarding the research variables are reviewed, to provide a clear understanding of the main concepts. The literature reviewed in this section are related to 1) reading comprehension, 2) word recognition, 3) parts of speech, 4) teaching strategies, 5) stretching sentences, 6) communicative language teaching, and 7) backward design.

Reading Comprehension

Reading comprehension is the action of understanding what is being read. Even though this is a quite simple definition, the action of comprehending a text is not (Rohman, 2017). The authors explained that it is an intentional, but active process occurring before, during, and after a person reads a piece of writing and describes it as an important pillar of reading.

Rohman (2017) also referred that one effective way of increasing comprehension in students is by helping them with text structure, as reading a text is a complex cognitive process for both the reader and the writer. The author asserted that when a student reads, he is using at the same time his awareness and understanding of phonemes. Additionally, Kenz (2019) explained that comprehension is a process that requires decoding the writer's words and using prior knowledge to understand the message.

Orfalea (2020) clarified that reading comprehension involves knowing several aspects of the English language. One of them is the knowledge of the way letters sound (phonemes) and how letters are combined (phonology) because it facilitates an accurate and fast word decoding. However, another even more important aspect is to have syntax understanding, that is, the way words and words endings are combined to form phrases and sentences, which requires knowing the parts of speech. This second aspect includes also having good semantics skills, which means good knowledge of word meanings. The author emphasized the fact that text comprehension strongly depends on the language abilities a reader has.

There are several language abilities an ESL reader should possess. Unfortunately, for each one, there is also a common obstacle, which is explained below (Orfalea, 2020):

- 1) Subskill: Students can decode new words easily and efficiently; therefore, the reading produced is effortless.

Obstacle: Decoding skills in students is not automatic, so their reading may be effortful.

- 2) Subskill: Students know the role of syntax, and how the parts of speech work in terms of function and word order.

Obstacle: Usually, students are confused by syntax rules, or by grammatically complex sentences.

- 3) Subskill: Students understand the meanings of words.

Obstacle: Students are confused by words that have different meanings.

Word Recognition

Words are crucial in the improvement of English language learning in students because, without enough words, learners will not be able to convey a message. Wilkins (1972, as cited in Farrel, 2013) affirmed: “. . . while without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (p. 2). In reading, recognizing words is particularly important, especially for ESL students.

Research has demonstrated that reading comprehension includes two components considered basic: word recognition, which means decoding, and also language comprehension, which refers to vocabulary; besides, the word recognition was defined as the ability to read words (Munger, 2019). According to Kessler and Treiman (2015), word recognition is considered an integral aspect of reading. The authors stated that even though readers can identify words easily, it is important to consider those linking semantics onto phonology and orthography is complicated. In addition, Poulsen and Graygaard (2016), affirmed that both form and meaning of words make readers easy to make connections and facilitate comprehension in reading.

Goodman (1967, as cited in Munger, 2019) affirmed that learning to read is equivalent to learning to speak because both are natural processes. However, Dehaene (2009) stated that the

human brain is certainly connected to speak from birth, but it is not the case of reading. The reason explained by the author is that people read an alphabetic script, which is a humankind invention. For this reason, English language learners need reading skills, and teachers' goals include helping students develop skillful reading comprehension, that is, the skills needed to be able to read the words on the page or decoding (Munger, 2019).

Hoover and Gough (1990, as cited in Roembke, et al., 2019) defined decoding as "efficient word recognition" (p. 315). The definition given differs from the traditional definition of decoding, which indicates the ability to explore words based on phonics rules. The authors' assertion implies an extended definition for decoding, one that includes a fast and accurate reading of words, which could be familiar or not. Based on the assertions above, decoding implicitly means recognizing which part of speech words belong to. Once people decode and understand the message, communication is ensured to be produced more effectively.

Even though developing word recognition is essential for reading, acquiring this skill is not easy for ESL students. Roembke et al. (2019) stated that usually, children access the words they have in their minds via written words, which helps them understand the way sentences are processed. At this point, a central aspect is to understand parts of speech to know the way in which words are combined to form grammatically correct and readable sentences. From the statements above, it is perceived that the development of word recognition is critical for advanced reading because it allows learners to gradually improve reading to a higher level.

On the other hand, when word recognition is not automatic, even at the lowest level, there is less attention available for reading comprehension. Graves et al. (2013) explained that when recognition of unfamiliar words is effortful, comprehension and learning from the text are compromised. In this case, knowing the function of each word is important for ESL students.

Akbari (2014) affirmed that researchers have not considered the role of grammar in reading, mainly, because reading is a receptive skill. The author suggested a strong and solid relationship between syntactic and reading comprehension; that is, learners' ability to comprehend texts increases when they use more complex sentences in their oral and written language.

Parts of Speech

Haspelmath (2015) stated that studies regarding the way adults learn a second language (L2) indicate they combine their capacity for instinctive language-learning in a similar way than the child learns its mother tongue, thus they are prone to make errors. The author explained that under this situation, parts of speech are important factors that help L2 learners in the production of correct utterances and understand a message. Furthermore, Vera (2019) indicated that in order to determine which items are closely related to others and to specify the degree of relationship among them, it is possible to apply the rules of phrase structure grammar, which requires the knowledge of each part of speech.

Regarding the parts of speech classification, Haspelmath (2015) explained that according to the purpose of grammatical description, words are classified into word classes. The author affirmed that there are eight parts of speech in the English language, thus words can be classified as one of them. Moreover, Haspelmath asserted that understanding each of the word classes is a necessary step to comprehend the way sentences are formed, and in this way, sentences produced or recognized can be both grammatically correct and readable.

Conversely to classifying parts of speech, Stockwell (2002, as cited in Hoffman & Bergs, 2018), affirmed that it is possible to consider a finite number of sentence patterns as grammar, each pattern containing one or more slots. Within each slot, there is a corresponding class of lexical units that may replace one another. An important disadvantage of this premise is that it

neither reveals the relationship of parts of sentences nor shows the way one kind of sentence may be related to another.

There are several ways to define the grammar. Some theorists believe that grammar is a system of patterns that organize words in a specific way (Vera, 2019). Through the skills of reading, speaking, and writing, the author explained that people internalize those grammatical patterns, until they can recognize immediately the correct form of a word or a sentence.

Grammar is as important for the native speaker than for non-native. Though common errors at encoding or decoding language in English may signal that even native English speakers can make mistakes, including the parts of speech, which are considered the basics. Consequently, knowing the parts of speech is essential for both producing or recognizing good sentences.

The eight parts of speech in English language are classified into nouns, pronouns, verbs, adjectives, adverbs, conjunctions, prepositions, and interjections (Haspelmath, 2015). Further explanation of each part of speech is included in Appendix 1.

Google Classroom

Xu et. al (2018) highlighted the importance of technology in education and explained that it provides a wide range of opportunities to get resources and make learning a pleasant experience.

Google Classroom is defined as a set of free tools including storage, documents, and email service. This resource was designed with the collaboration of teachers and is aimed to save time, organize their classes, and facilitate communication between teachers and students.

Among the benefits this resource brings are the following:

- Easy setup: It provides an easy way to set up a class. Teachers can invite students and also their colleagues.

- Saves time and paper: It helps teachers to organize their classes, creating sessions, distributing assignments, and encouraging communication.
 - Better organization: The to-do page and the class calendar give learners the option of checking the assignments.
 - Enhanced communication and feedback: This option helps teachers create assignments for students, send messages, and class discussions.
 - Affordable and secure: Classroom is a free resource for schools as well as for individuals.
- (Google, 2020)

Communicative Language Teaching (CLT)

Tootkaboni (2019) explained that CLT approach is learner-centered. The author affirmed that in English, the CLT focuses on language learning success through real and meaningful communication. Moreover, Tootkaboni (2019) added that students learn to use the language when they are involved in real communication.

In Ecuador, the Ministry of Education has published guidelines for English teachers on preparing their plans and learning objectives. The document promotes a communicative approach referring to the language as a tool for interaction and communication (British Council, 2015).

Backward Design

Traditionally, a lesson plan begins with standards and learning objectives. Then, the teacher plans instructional activities based on the standards considered. The assessment is frequently an additional step that when is implemented is tied to the standards included in the plan. However, Bean (2015) suggested looking at the standards first to develop content objectives and plan assessments to evaluate if students mastered the content, and once

assessments are planned, teachers can plan the instructional activities that are supposed to be effective. This description of planning refers to backward design.

In this regard, Wiggins and McTighe (2005) argued that it is common that teachers remain focused on textbooks, favoring lessons as well as class activities, instead of looking at the output first, as it represents the desired results. This traditional process, the authors said, means that teachers focus mainly on the teaching, and not the learning. This means teachers spend a great deal of their time planning the things they will do in the classroom, the materials they will include, the questions they will ask students, instead of considering students' needs to achieve the learning objectives first.

The authors classify the stages of backward design in three:

- 1) Identify desired results. In this stage, the authors consider the objectives, the content standards, and also the review of the aspects expected in the curriculum. This step calls for clarity about priorities.
- 2) Determine acceptable evidence. Wiggins and McTighe (2005) suggest thinking in terms of collecting assessment evidence, and encourages teachers to assume the role of assessor, before designing any unit or lesson.
- 3) Plan learning experiences and instruction. The authors emphasized that once the results were identified, teachers need to think and plan appropriate instructional activities (Wiggins and McTighe, 2005, pp. 18-19)

To conclude, word recognition is defined as the ability to read words, and it is important to consider that it is not automatic, being one of the main concerns the fact that when recognition of unfamiliar words is effortful, comprehension and learning from the text are compromised. One aspect that helps is knowing the function each word has in the English language. Regarding

parts of speech, it has been established that it is crucial to produce and understand utterances as they are considered the grounds of sentences, as students cannot write or read them correctly if they do not know at least some of them. Some research has been developed regarding the topic. However, the relationship between parts of speech and word recognition has not been covered deeply. Moreover, there is no research on the influence of parts of speech classification on word recognition conducted in elementary school. Consequently, the current study proposed to focus on the research gap between the two research variables by fulfilling the objectives described.

Objectives and Research Questions

General Objective.

- To establish the influence of parts of speech classification on word recognition in students.

Research question.

Given students' difficulties in recognizing words successfully, and the gap in the literature mentioned, the current study considers it necessary to apply an innovation plan to overcome this problem.

As a result, the problem presented derives on the following research questions:

- To what extent will the classification of the parts of speech improve word recognition in reading?
- What are the students' difficulties during the process of word recognition?

Innovation

Knowing the parts of the speech is one of the most important aspects when learning a new language. To improve word recognition, and therefore reading comprehension in students,

this current research work proposed the design of a set of strategies for classifying parts of speech, directed to improve the reading skill in students of 7th grade EGB.

This innovation involved classifying parts of speech through Google Classroom sessions to improve students' word recognition and reading comprehension. For the implementation, the researcher applied the backward design model. Participants had to classify words into the corresponding parts of speech category on Google Classroom sessions according to the tree diagram.

The innovation took place in a total of 20 hours, in a timeframe of two weeks, that is two hours per day. The CLT approach, which was based on a student-centered practice, was the basis for innovation, promoting, and supporting learning with meaningful activities.

As part of the innovation process, the following procedures were applied: a) the sessions were carried out according to the plan established and the independent material prepared for the lessons; b) the tree-diagram basics was introduced to students to describe the degree of closeness of lexical units in a sentence. The online resources used for this purpose were Google Classroom and Canvas; c) the researcher provided students plenty of material to recognize words and improve reading through parts of speech; d) students had to determine which items are closely related to which others and to specify the degree of relationship, so they recognized words and as a consequence the part of speech they belonged; e) students had to classify the corresponding parts of speech according to the context provided by the material selected; f) students used the online resource to create a tree-diagram by themselves and classify the words in the sentences included in the worksheet provided by the teacher, giving access to the teacher, who monitored the activity; g) students participated actively in the activity and worked collaboratively to draw the tree-diagram of a reading passage.

Methodology

This research is aimed to help participants to improve word recognition in reading through parts of speech classification. Google Classroom and Canvas are used to facilitate this purpose. The study applied a mixed approach design, that is quantitative and qualitative (Hernández et. al, 2014). The inductive and deductive method helped to collect primary data through research tools, to reach conclusions.

Participants

The students that will take part of the research project are 21 kids among boys and girls with ages about eleven to twelve years old from a private educational institution. The majority of them are mixed-raced, mid class and none of them show any other sexual orientation than heterosexual or girls and boys as gender identity. In this class, there is a 25% of the students who receive extra English classes from local language academies. Therefore, there is another 20% of the students who receive support in assignments and preparations for exams from a private teacher at home.

The participants of the research project were pre-evaluated using a diagnostic test to determine their level of the reading skill, and students' prior knowledge of vocabulary. The results showed that students had important deficiencies in their reading skill and vocabulary. This test results revealed a low score for each of the 5 parts of the proficiency test (Table 1). The total Mean was 19.05, around half of possible marks students were able to get, and the STDEV was 6.15.

Table 1.*Proficiency test for reading results*

	N	Min	Max	Mean	STDEV
Part 1	21	2.00	8.00	3.86	1.74
Part 2	21	2.00	8.00	4.38	1.80
Part 3	21	3.00	8.00	4.43	1.40
Part 4	21	2.00	6.00	3.38	1.40
Part 5	21	2.00	6.00	3.00	1.18
Total		12.00	36.00	19.05	6.15

Elaborated by: Holguín, K. (2020).

Ethical Considerations

To succeed in the development of this research, it was needed to focus on ethical positions that can ensure students correct development of their knowledge as well as themselves as people. Howe and Moses (1999) stated that “both quantitative and qualitative research warrant strict scrutiny, and researchers need to be aware that particular research methods bring certain ethical issues to the fore” (p.56). The ethical issues that the authors stated have arisen are informed consent, beneficence, respect for confidentiality, and respect for privacy.

Instruments and Data Analysis

In the current study, the following research tools have been applied to measure the research variables: a survey, an interview, a pre, and a posttest.

First, a proficiency English test for reading was administered to determine students' English level. I included 36 questions divided into 5 parts. Parts 1, 2, and 3 included questions from 1 to 24, in which students had to fill in the blanks with the correct items based on the use of

English and vocabulary. Part 4 included questions from 25 to 30, directed to identify similar meaning in words, and part 5, which included questions from 31 to 36, oriented to use context to aid comprehension.

Then, a students' survey was carried out. It was made up of 12 items described in English and Spanish. There was only a pre survey and it had a Likert scale that went from strongly disagree to strongly agree. It was applied to know students' use of technology. This survey was designed and applied through Google Forms.

Besides, an interview to gather students' perceptions about parts of speech and word recognition was also held. It included 5 open-ended questions and was applied to 10 students that represented around the 50% of the class.

Finally, a pre and a posttest to measure students' reading skills and vocabulary were administered. The test had 23 questions, 18 of them had a multiple-choice format and were directed to measure reading comprehension in 3 different kind of texts. The other 5 questions were taken from the previous passages to measure students' ability to recognize the parts of speech and requested students to show the step-by-step derivations.

Data Analysis

Research question 1. The data collected through the survey were processed in Microsoft Excel where a frequency table was obtained. A Proficiency test for reading, as well as a pre and a posttest were administered. Their results were recovered and organized also in Microsoft Excel and then transferred to IBM SPSS Statistics 25 where the minimum, maximum, mean, and standard deviation were calculated. Additionally, to measure the effect size of the intervention, the Cohen's *d* formula was applied.

Research question 2. A students' interview was applied to obtain their perceptions about the difficulties they have regarding parts of speech and word recognition. This information was organized and processed by hand. Learning logs regarding students' perceptions regarding the innovation were also applied.

Results

Follows the analysis of the data obtained through the application of the research tools, which represent the main findings of the study.

Results for research question 1, *To what extend will the classification of the parts of speech improve word recognition in reading?*

The pretest results indicated a low level of knowledge of vocabulary recognition and parts of speech, while the posttest confirmed an important improvement. The Mean for the pretest in the first 18 questions regarding the use of grammar and vocabulary recognition was 8.38 (SD 3.54), while the Mean for posttest was 14.86 (SD 1.42), which represents a minor fluctuation (Table 2). Cohen's d was 2.40, which determines an important difference between both tests.

Table 2.

Pre and Posttest Results

	N	Minimum	Maximum	Mean	Standard Deviation	Cohen's d
Pretest	21	5	18	8.38	3.54	2.40
Posttest	21	14	18	14.86	1.42	

Elaborated by: Holguín, K. (2020).

On the other hand, questions to measure students' ability to recognize parts of speech showed that half of students got low grades in the pretest, while they improved considerably their

grades after the intervention, in the Posttest. The mean for this part of the Pretest was 2.05 (SD 1.80), while the Posttest had a Mean of 4.76 (SD 0.54), resulting in a much less fluctuation (Table 2). Cohen's d was 2.04, which also represents a significant difference between both tests. In other words, that the innovation had positive results.

Table 2.

Parts of speech questions Results

	N	Minimum	Maximum	Mean	Standard Deviation	Cohen's d
Pretest	21	0	5	2.05	1.80	2.04
Posttest	21	3	5	4.76	0.54	

Elaborated by: Holguín, K. (2020).

Something relevant to mention is that students got better grades in the first part of the pretest, that is, when the reading skill and vocabulary recognition was measured. Instead, their grades were lower in the parts of speech recognition section.

Results for research questions 2, *What are the students' difficulties during the process of word recognition?*, determined that students faced difficulties of several types. First, students showed a poor level of text-processing in both the proficiency test and pretest administered, caused by an effortful recognition of words due to an inadequate knowledge of parts of speech that compromised comprehension. Second, the survey applied (Table 3) showed that even though students favor technology, they have limited access to the Internet at home and presented insufficient skills to work with Canva for drawing or creating tree-diagrams.

Table 3.

Students' survey results

ITEMS	Mean
1. I like technology	2.00
2. I have access to technology at home and at school	4.00
3. I have Internet service at home	5.00
4. I use an email address	3.00
5. I know how to use Google Drive	4.00
6. I know how to use Google Classroom	5.00
7. I can use other applications for learning English	4.00
8. I can use Microsoft Word	3.00
9. I can use Microsoft Excel	6.00
10. I know how to find information at the Internet	6.00
11. I can use Canva to draw	4.00
12. I can use Canva to create diagrams	4.00

Elaborated by: Holguín, K. (2020).

Students were also interviewed to gather their perceptions about parts of speech and word recognition and identify the possible difficulties they may face in this process. The perceptions obtained were the following:

Question #1. How much do you like reading?

Most students like reading. Some of their answers include expressions such as “I enjoy it!”, “I love reading ”, or “I’m happy when I read”. However, most of them they feel frustrated because they confuse word function. Phrases such as “...but I sometimes it is confusing” or “The books have lots of new words”, were also collected.

Question #2. How good are you at classifying parts of speech?

Students consider their level of knowledge for classifying parts of speech is not enough and find difficult to recognize them when reading. To question #2 some of their replies were “Sometimes I do not understand phrases”, or “I always confuse adverbs and adjectives”.

Question #3. When you read, do you translate each word in the text or you understand the meaning in context? Explain.

Most students affirmed they frequently translate words that cannot identify and that it is difficult for them to understand sentences in context. What is more, the major confusion most of them experience is between adverbs and adjectives, especially because of their position in a sentence. Some of their answers were “I do. I use Google Translator when the sentence is difficult”, or “Yes, because there are words that I cannot recognize in a sentence”.

Question #4. Can you recognize the parts of speech of words when you read? Explain.

Most students answered they cannot understand parts of speech easily when reading. Some of their replies were “I confuse adverbs”, “Sometimes I don’t know where the subject is”, “I confuse the meaning because I think a word is an adjective, but it is a noun”.

Question #5. Do you feel you understand English passages better?

Most students interviewed affirmed they have difficulties to understand English passages, mainly because they cannot remember the meaning of words, and get confuse with the parts of speech. Among their answers, can be found the following: “No. Sometimes I cannot understand long sentences because some words are confusing”, or “I don’t know confusing words”.

Discussion

The current study was driven by two research questions, which pointed to establish the influence of parts of speech classification on word recognition in students. This section compares the findings of this study against the theory and previous studies.

Research question 1 was directed to determine the improvement that part of speech classification caused to word recognition in reading. The pretest showed students' difficulties in vocabulary recognition and parts of speech that led to poor comprehension. However, after the intervention, it was confirmed an important improvement, as students were able to recognize words by classifying parts of speech as well as the function each of them had in sentences. These results coincide with Poulsen and Gravgaard (2016) affirmation in the sense that recognizing parts of speech meaning and function helps students to make connections in reading. Some other authors obtained positive results in their studies related to word recognition and parts of speech.

Alcívar (2018), on the other hand, emphasized in her study the significance of grammar, vocabulary, and word function as essential parts of reading comprehension. Castañeda (2018), in addition, stated in his study that word recognition is one of the main difficulties that students face in reading comprehension; and Ruiz (2019) analyzed the improvement of reading comprehension in students through parts of speech classification. Orfalea (2020) affirmed in his research that students improve reading comprehension through word recognition. In addition, Cohen's *d* result (2.04) indicated a significant difference between the pre and posttest, which confirmed that the innovation results were positive.

Research question 2 aimed to identify students' difficulties during the process of word recognition. The results determined that students had an inadequate level of text-processing that impede them to recognize words easily, compromising comprehension. The importance of word

recognition is stated by Castles et. al (2018) who affirmed that the process of classifying parts of speech affects students' word recognition and comprehension.

In addition, some students faced problems regarding technology that made them difficult to draw or create tree-diagrams for classifying parts of speech. The role of technology in education is an issue that must be considered. According to Xu et. al (2018), technology is particularly important in education, as it enhances students' opportunities to access online resources and improve learning experience.

Conclusion

The current research work establishes the influence that the classification of parts of speech has on word recognition in students. The main conclusions of the study, based on the research process and questions are drawn as follows:

Research question #1. To what extend will the classification of the parts of speech improve word recognition in reading? The literature review and the application of the research tools made possible to establish a positive influence of parts of speech classification on word recognition in students. Different authors carried out a variety of similar studies that theoretically supported the current research work.

The application of the intervention plan has proved to be effective to help students successfully recognize words in context. Parts of speech classification using tree-diagrams played an important role in students' achievement, who initially confused word classes and functions. When students managed to classify parts of speech they understood their function in a sentence and internalized their class, meaning and use. Consequently, it is possible to affirm that the intervention contributed to students' word recognition and reading comprehension.

Research question #2. What are the students' difficulties during the process of word recognition? Students' low level of knowledge for classifying parts of speech was determined by the application of a pretest, in which it was possible to identify their difficulties for recognizing words in context. On the other hand, the posttest administered after the intervention, resulted into a significant improvement in word recognition. The survey administered has showed limited resources and insufficient technological skills in students for operating specific software for drawing tree-diagrams, even though they have a favorable position regarding the use of technology. The interview results allowed to perceive students' frustration and confusion when recognizing word functions, as well as students' practice of translating word by word in a sentence to recognize meaning.

Limitations

Several limitations were found in this research work, which can be taken into consideration in further studies. As a first point, it is important to mention the sample size, which may result small to take a broad view and to be generalized to a larger population. Another limitation was the small number of studies related to the use of tree diagrams for parts of speech classification. This limitation was compensated partially by research works about grammar and word classifications aimed to improve word recognition. Finally, it was not possible to evaluate the limitations students had for accessing to internet and the time they dedicate to practice their technological skills as elements that can help them improve their language competence.

Recommendations

Based on the data collected and the process of this research work, it is possible to recommend the selection of a larger sample for the application of the innovation in future studies, thus, results could be generalized to a larger population. It is also advisable to assign

more time for the application of the innovation, that is, at least two more weeks, as in this way students will get more chances for improving their knowledge of parts of speech and word recognition. Additionally, it is important to encourage the development of more studies regarding parts of speech and word recognition, as research work about these topics are limited. Another crucial aspect is to consider the existing available research with respect to internet connectivity and accessibility, and to promote this kind of research in this country to evaluate the level of dedication students have to improve language competence through technology.

It is strongly recommendable the application of a set of strategies for classifying parts of speech focused on word functions and directed to improve word recognition and comprehension in students, as it proved to be effective. The use of technology is crucial in this intervention, since the use of the internet provides students wide access to resources to improve their competence in parts of speech. Consequently, the institution should support the plan supplying the resources needed and providing teachers with the time and training they require to update and improve their digital competences.

The intervention should be reviewed and updated on a regular basis to reflect students' needs. Surveys, interviews, observations and learning logs should be applied to identify students' difficulties in word recognition. The plan must go hand in hand with the dynamism of technology, as it is characterized by its constant innovation, so it will be necessary to consider the new resources available.

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Appendix 1

Parts of Speech

Available upon request.

Appendix 2

Backward Design – Action Plan

Available upon request.

Appendix 3

Students' Survey: Use of Technology

Available upon request.

Appendix 4

Students' Interview

Available upon request.

Appendix 5

Cambridge Proficiency Test for Reading

Available upon request.

Appendix 6

Reading Pre and Posttest

Cambridge Key (KET) English Test for Reading (Cambridge, 2015)

Available upon request.

Appendix 7

Learning Logs

Available upon request.