Metacognitive Strategies for Reading Comprehension in Basic Education Students

Zoila Isabel Tamayo Navarro[1*]

[1]*Postgraduate School, Universidad César Vallejo. Perú.*

Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Review Article

ABSTRACT

The objective of this review article was to determine how metacognitive strategies improve reading comprehension in Basic Education students, for which it was proposed to search for and select the recent scientific investigations regarding metacognitive strategies and reading comprehension. Sixty papers published between 2015 and 2020 in indexed journals that address metacognitive strategies and reading comprehension were analyzed. For the choice of articles, four tables were used aligned to what was established in the flow diagram of the Prisma protocol. It was found that 70% of articles were based on metacognition theory, 15% on constructivist theory and the other 15% on other theories. It was evidenced that 50% of the studies belong to South America, while 25% to Asia and 25% to Europe. Metacognitive strategies help improve reading comprehension in elementary school students, favor self-regulation during the reading process. The role of teachers is very important for the use of appropriate and diverse strategies, techniques in order to strengthen learning and reading comprehension. The problem of reading comprehension is also manifested in the study of foreign languages. The application of metacognitive strategies programs or workshops highly favored reading comprehension, and their application in the reading development phases were planning, supervision and evaluation, which helped to significantly improve the comprehension of texts.

Corresponding author: Email: ztamayo@ucvvirtual.edu.pe;

1. INTRODUCTION

The reading comprehension is still a latent and critical problem facing today's education, where the era of technology and information seems to stun our basic education students, especially at the primary and secondary education levels; since you have a lot of information to read, however, you read little or nothing. On the other hand, the lack of reading habit and the little predisposition to read different types of texts, the ignorance of reading techniques and strategies, the absence of resources for reflection and criticality are a concern in public educational institutions. At the international level, according to UNESCO [1], reading comprehension has been a latent problem at different educational levels; In Perú, for example, at the levels: initial, primary and secondary, to the point that they finish their studies without knowing how to read well, that is, they do not develop basic reading comprehension skills, which is why more than 50% of the young people, between women and men, in Latin America and the Caribbean do not reach the basic levels of proficiency required for the comprehension of texts, 52% of adolescents and children, where it is understood that 62% in secondary education adolescents do not 46% have reading proficiency in primary education; for this reason it is considered as a new type of illiteracy installed in the region. According to the OECD [2], it indicates that society has been undergoing dizzying changes, especially in Latin American countries where reading and writing practices take a different course with the presence of virtual networks and platforms, where students have habits and styles of Life adapts easily to the control of social networks, before texts were read from printed media, now it is read in digital artifacts, a situation that Education had not been contemplating, which makes this problem of understanding texts accentuated in the School .

On the other hand, in Peru, the ECE test [3] indicates that, in the competence of reading written texts for students of the fourth grade of the primary level of regular basic education, they reach 24.2% at the level of beginning and 34.8% at the satisfactory level, and in 2nd grade of secondary education 37.5% at the beginning level and 16.2% at the satisfactory level. In this sense, MINEDU-Peru [4], based on the results, recommends that teachers provide opportunities for students to read various types of texts, in their respective genres, in continuous and discontinuous formats, with a variety of topics,

functions and diverse purposes, to provide spaces for feedback and reflection on those capacities that make it difficult, to address the problem in collegiate hours and in inter-learning groups. Therefore, according to the PEI (2017), it can be evidenced in the evaluation records that, more than 50% of students, achieve low marks in the basic areas, so it follows that, to the students in the different levels that are attended need to develop skills and abilities that lead us to improve the understanding of various types of texts, which is also observed to the detriment of their learning. Hence, it is necessary not only to reflect but to act decisively, to know and implement a set of metacognitive strategies that improve reading comprehension in Educational Institutions.

This research is based on the analysis and interpretation of different scientific articles on metacognitive strategies and reading comprehension in basic education at an international level, in order to know the different strategies that students used to enhance their reading skills, starting from reading of different types of texts, with different formats and different purposes, as well as making comparisons on the information of the study variables mentioned within the last 5 years of indexed journals and knowing the use of metacognitive strategies to improve reading and what results are they have given basic education in other countries. In this way, the main objective is to determine how metacognitive strategies improve reading comprehension in Basic Education students, with which it is proposed to search for and select recent scientific research regarding metacognitive strategies and reading comprehension, organize contents of scientific articles according to criteria in various columns in a double entry matrix and analyze the matrix data according to the contents and criteria established such as the effectiveness of methodological strategies, techniques and theories and that their results contribute to improving the understanding of texts.

2. BACKGROUND

2.1 At International Level

Novoa, [5], determined the complexity of the structure of a written text and the lexical understanding, that is, of those categories that contain meanings in the context; as well as its incidence in understanding the multiple types of texts and the reading skills established in Chilean students. He considered preparing two versions

of the same comprehension test, modifying the degree of difficulty of each of the texts. Passive vocabulary comprehension was measured in the vocabulary test in pictures (TEVI-R). This study allows us to know the differences found in the groups compared according to the degree of difficulty of the texts, however, it was not due to the comprehension of passive vocabulary that allows explaining the global understanding of reading in students, the disadvantage of good readers should be due to the time it takes to understand, but not the final result of reading.

Núñez and González, [6], analyzed the reading comprehension variables in a descriptive and participatory way with the SIMCE results and the standardized evaluations carried out in class. The population was a group of municipal schools in the city of Santiago and the sample was students of 5th grade, a group of the most socioeconomically disadvantaged, low and medium low. It also emphasizes that the abilities to understand written texts are not just a way to learn new knowledge; that, in addition, it is a necessary skill to insert oneself into society and interrelate with others in their own context. The authors present evidence on the impact that reading comprehension skills have on improving learning achievements in a fifth of ten schools in Chile. There it is concluded as a result that the variable that harms the SIMCE score the most are the functions of grammar and uses of spelling; vocabulary work is important throughout the school stage, having the ability to extract information from various types of texts and external factors such as the educational level of the family and the environment in which they live are also involved. Likewise, they mention that it is essential that students develop the ability to properly apply the spelling of grammatical structures for a better reading comprehension.

Álvarez and Martínez [7], in Colombia, establish how the development of metacognitive strategies and vocabulary learning predominates in the way autonomy and learning activities are worked with 30 eighth grade students from two public schools from Colombia. An increase in the use of strategies, the formation of metacognitive behaviors and different levels of autonomy was reported. They also consider incorporating strategies into training, making use of technological tools so that students can better control their learning and apply strategies that can be applied to different contexts. The instruments applied were a pre and post questionnaire, learning record, structured

interviews, self-assessment checklist and mind maps, and the data were analyzed with a grounded theory approach. Students who used metacognitive strategies outside the classroom, through webQuest, improved their vocabulary and if they plan, monitor and evaluate the learning process in individual and collaborative settings, they are likely to achieve better results. This research will be useful, considering the metacognitive strategies that significantly impact, individually or in groups, the learning that will lead to the autonomy of students.

Recio [8], in Spain, established a link between prosodic strategies (voice inflections, caesuras and phonic groups) and the quality of the comprehension of written texts of 72 primary school students. The methodology proposes an alternative view evaluating the prosody and attending to phonic criteria. In conclusion, it points out that a good prosodic organization is essential to understand a text, not being enough, it is necessary to apply other appropriate interpretive strategies to increase textual comprehension in primary school students.

Micai [9], in Seville, Spain explores metacognitive processes and their role in the comprehension of texts of children and adolescents with autism spectrum disorder (ASD); conducting research and behavioral experiments with eye-tracker (eye tracker). In order to observe if differences in the behavior of readers are present in the absence of cognitive or linguistic disabilities, in this study carried out these children and adolescents are had with another group of children and adolescents without ASD, both groups with the same chronological age, and similar characteristics such as receptive oral language, moderate non-verbal intelligence, and reading speed. They observe the different behaviors when reading; since, they could vary due to the top-down modulation strategies. In this sense, the research shows a limitation in the evidence that children and adolescents with ASD can positively modify their ability to identify errors in reading in response to certain guidelines. They still seem to maintain a very different reading pattern compared to controls. The research concludes that the results obtained more clearly specify that these people change their reading behavior less according to the purposes of the same, presenting less tendency to adapt their processing strategies to the requirements of the task. This makes it clear to us that the difficulties in understanding texts of children and

adolescents with ASD can be explained by the needs of adaptation of behaviors in reading, homework and planning, through a personalized program that uses techniques such as eye movements that facilitate the informational processing of online reading.

2.2 National Scope (Peru)

According to Cavero, [10], in his doctoral research study at the Enrique Guzmán y Valle University of Peru, he considers the main purpose of explaining the influence that exists between the understanding of written texts and their correlation with the production of texts, both competencies in the area of Communication, in students of 2nd grade of the primary level. This quasi-experimental design study worked with a population of 47 students of the second grade of primary level. The Text Production Test was used for this. The most relevant findings of this research are mentioned below: there is a significant influence in relation to comprehension with the production of texts in students of 2nd grade of the primary level; while in the pretest the control group obtained a low level constituting 70%, while the experimental group obtained 75% whose level is low. In the application of the post-test, the control group has a low level, constituting 48% and the experimental group is 62% with a medium level.

Arapa [11], proposes as a general objective to establish which of the reading strategies improve the comprehension of reading in students of 4th and 5th grade of secondary education of the EBR in a school in the city of Arequipa in 2018. The design was quasi-experimental, with the participation of 40 high school students and used a questionnaire. It was observed that the experimental group when the pre-test was applied, it obtained that 95% of the interviewees are located at a medium or regular level of reading understanding and only 5% are at an optimal or good level; after applying the post test, the results obtained were that 80% of the students are at a good level of reading comprehension and only 20% of the students are at a regular level. This clearly shows us the importance of the reading strategies program to better understand written texts. In the control group, it can be observed more clearly, both in the pretest and in the posttest that 95% of the interviewed students are at a medium or regular level of comprehension of written texts.

Ricaldi [12], established the objective of determining the effects and benefits of a program of cognitive strategies for the comprehension of written texts in students of the second grade of secondary school of the Institución Educativa Politécnico Regional del Centro, of the city of Huancayo. This research used the quasi-experimental design, with a population of 576 and a sample of 60 students, with non-probabilistic sampling. The instruments used were a strategy program and a questionnaire. The results of the investigation have allowed to determine that there is an important difference between the average reached by the students of the experimental group in the reading levels in pretest: 86.7% in the beginning, 13.3% in process; In the post-test, 6.7% in process and 93.3% in expected achievement, concluding that the execution of the application of cognitive strategies significantly influences the development of understanding of various written texts.

Coz [13], seeks to demonstrate the results of the application of the metacognitive strategies program in the different levels of reading comprehension in third grade students of secondary education of the Bartolomé Herrera Educational Institution - San Miguel UGEL 03 - 2017. The design used it was quasi-experimental, with 45 participants and a sample of 36 students. The instruments applied in this research were a Text Comprehension Test and a Metacognitive Strategies Program. The results obtained allow us to see that, in the input evaluation, applied to the experimental and control group, they do not indicate major differences; while in the exit evaluation the experimental group achieved better averages than the control group in the reading levels: literal, inferential and critical. Likewise, it shows that the scores obtained in the entrance test by the two mentioned groups are equal; however, in the exit test, the best scores reached by the experimental group in relation to the control group show significant differences at 5%, at the literal, inferential and criteria levels; therefore, the specific and general hypotheses of this study are demonstrated. In conclusion, the development of the metacognitive strategies program presents a significant improvement in the levels of reading comprehension related to the traditional methodology in third grade secondary school students.

Larico [14], considered the objective of establishing how effective the "Reading to understand" Program is in the reading comprehension levels of the students of the

second grade of secondary education of the schools of the Adventist Educational Association of Lima. This research is of a quasi-experimental type, it worked with the entire population of 93 students and a Reading Comprehension Test was used as instruments to determine the literal, inferential and critical levels and Reading Cards to measure the program. The results reveal the significant difference in means between groups in global understanding and also with the literal, inferential and critical dimensions. Finally, it emphasizes that the aforementioned program is effective in serving the stated purpose.

2.3 Regional Scope

At the local level, Saldaña, (2019), mentions as an objective to measure the influence of the metacognitive strategies program to develop the attention-concentration of sixth grade students of primary education of the Educational Institution 80006 Nuevo Perú. This study is of an applied type with a quasi-experimental design, it worked with 44 students as a sample, applied as instruments a test, observation guides, and pretest and posttest. In the consolidated results it could be observed that 25% of the participants

reached Achievement Level A, the level of attention - concentration required; 66.67% of the students reached Achievement Level B, and a minimum 8.33% were located at an achievement level C. Therefore, it concludes that the application of the educational program of metacognitive strategies is significant in the development of attention- concentration of the mentioned students.

3. METHODOLOGY

The research belongs to the type of systematic review, which is defined as: "Integrative, observational, retrospective, secondary study, in which studies that examine the same question are combined." [15]. For which 60 scientific articles published between the years 2015 and 2020 of journals indexed in databases such as Scopus, Scielo, Ebscohost, Redalyc, Dialnet, DOAJ and Google Academic that address metacognitive strategies and reading comprehension were analyzed. In addition, experimental and correlational studies were considered that correspond to the level of basic education, and that the variable or variables constitute all or part of the study variables.
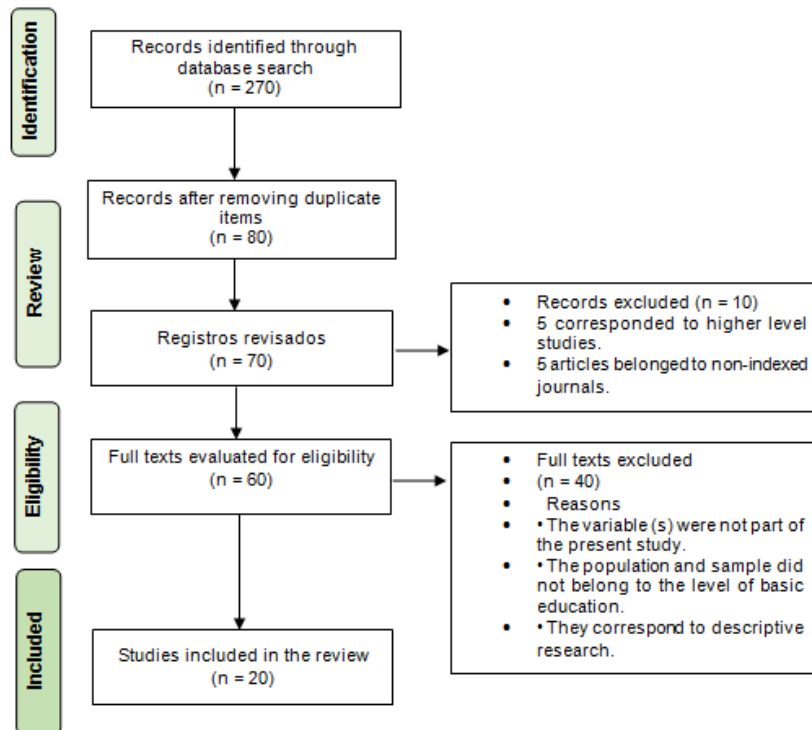

Fig. 1. Prisma 2009. Flow chart for the selection of scientific articles related to metacognitive strategies and reading comprehension

The articles were selected using four tables aligned to what was established in the flow chart of the Prisma protocol (see Fig. 1).

For this systematic review, the proposed procedure by Zapata [16] was used. First, the eligibility criteria for both inclusion and exclusion were established, then the databases were chosen to search for information by placing the keywords in the Spanish and English languages, initially 270 studies; duplicate articles were removed and 80 remained. Then, considering the years of publication and the level of study and type of research, 20 scientific articles remained.

4. RESULTS AND DISCUSSION

Table 1 shows the distribution of the systematic review of metacognitive strategies for reading comprehension in basic education students, where it is observed that 70% of scientific articles were based on the theory of metacognition, also called theory of Mind as mentioned by Crespo [17] which is expressed in the first years of life, also the importance of the theoretical line that is based on reading comprehension that has to do with the knowledge that must be regulated or controlled. Similarly, it was observed that 15% of scientific articles are based on constructivist theory such as Ausbel's significant learning, Vygotsky's [18] sociocultural theory, among others. The other 15% of the studies belonged to other theories, thus demonstrating that the largest number of studies were based on the theory of metacognition specifically related to reading comprehension that has to do with the control and regulation of the reading process. In this order, it is evident that 50% of the studies belong to South America, specifically Colombia, Chile, Argentina, Brazil and Peru; while 25% to Asia to countries such as Iran, Indonesia, Malaysia, and China, in the same way 25% to Europe, which correspond to Spain and the Netherlands.

The results of this systematic review are presented in detail below, which allowed us to identify that the problem of reading comprehension continues to be a latent point to be solved in Peru, as mentioned by Alvarado et al.[19], in the same way also at the international level, that is how Castrillón et al. [20], mention that the students of Medellín obtained in the tests know from 2014 to 2017, 34% are at a low level, noting a decrease from 11% to 7% in the advanced level with respect to the last year, Therefore, in his study, he applied metacognitive

strategies such as: learning to learn, with a duration of 2 months and 16 sessions through workshops; concluding that these strategies contributed significantly to the development of reading mainly at the literal and critical levels. This strategy considered within its activities narrative texts in exploration, argumentative, narrative in depth, expository and the comic strip. This study agrees with the research of Muñoz and Ocaña [21], who also state that in the application of metacognitive strategies they held workshops and these improved conscious processes, such as self-regulation during the reading process, also contributed to the pedagogical work of teachers.

On the other hand, Nicolielo et al. [22], in a study with phonological problem children, specify that memory plays an important role in understanding texts, especially in the long term. Learning difficulties involve failures in processing auditory, linguistic and cognitive information that affect the metacognitive processes to understand information. The metacognitive strategies used were: reading support, problem solving and general analysis of the text. When making comparisons between the groups, significant differences were found. In this sense, Benedict and Antia [23] also consider children with hearing difficulties in their study, with a sample of 3 student-teacher dyads, the strategy applied was CC&R, which aims to teach students to use self-questioning to the supervision and control of the reading comprehension process, if there are difficulties in this, questions are asked, they think aloud about the possible answer and follow this reading process throughout the text. Teachers were trained in these strategies, initially unaware of the strategies on thinking aloud.

Arif and Supramaniam [24], carried out a peculiar investigation with respect to the others with a sample of 20 students in Malaysia who belonged to a type of home education, which does not offer complete facilities that other educational institutions have, these students had difficulties to understand texts in the English language, it used the metacognitive strategy in its acronym in English MRS with the subcategories that correspond to global structure, supportive reading and problem solving, it also included peer tutoring which is a learning with the help of peers Topping, [25]. These authors suggest that the use of the strategies they used was not very effective, this may be due to the emotional state, behavior and attitude of the students, however, it also emphasizes that these strategies contribute

Table 1. Distribution of the systematic review of metacognitive strategies for reading comprehension in basic education students

Theoretical foundation of the investigations	Geographic distribution of the investigations
Theory of metacognition (70%)	South America: Colombia, Chile, Argentina, Brazil and Peru (50%)
Constructivist theory (15%)	Asia: Iran, Malaysia and China (25%)
Other theories (15%)	Europe: Spain and the Netherlands (25%)

Source: Own elaboration

in some way to reading comprehension but not effectively. In the same way, Gómez [26] mentions that the strategies used by students in a certain place may not work for students in another place, since metacognitive strategies have limits and each student has their own particular microcosm.

Fonseca et al. [27] determined if the LEE program is effective in improving text comprehension, only the experimental group showed a significant improvement in reading comprehension in students from Argentina. In the same way, Vásquez and Pérez [28], developed a program of playful strategies to improve the comprehension of texts in primary school students in Peru, which demonstrated a highly significant result in the comprehension of texts. On the other hand, Muijselaar et al. [29], considered examining whether the program intervention improves the reading of elementary school students, using a sample of 510 students from the Netherlands. This program was based on the Dutch Nieuwsbegrip method for reading comprehension which consists of using daily news in reading. It concludes in general that there was an increase in the knowledge of strategies between the pretest and posttest in the group that was operated on and this was not the case in the control group, but this intervention did not affect the level of reading comprehension. In particular, these last three studies that developed programs to help the understanding of texts in different countries show that the programs developed in Argentina and Peru obtained a very significant result.

Rodríguez et al. [30], considered planning, supervision and evaluation, which are important processes in reading comprehension, which is the equivalent of before, during and after reading, showing favorable results only in the intervention group. Likewise, Ramírez et al.[31], considered before as planning, during as supervision and afterwards as reading evaluation as strategies that help comprehension, emphasizing that they are posed as questions to

activities related to reading; each phase of the reading process considers strategies such as activating previous knowledge, testing hypotheses, answering questions, among others, concluding that from the study of both books more importance is given to the evaluation phase of the reading process. Hence, acquiring skills to develop reading comprehension is not easy, but it is very important for the academic success of all students of any language.

Polvani et al. [32] considered a sample of 470 Brazilian students, using the cloze test as an instrument, which is a text that deletes a word and has to be replaced by the corresponding one. The results indicated that it is simple for students to identify the main idea of a certain reading, they tend to be critical, have good reading comprehension and have a good command of the Portuguese language. On the other hand, Ghaith and El-Sanyoura [33] worked with 119 Lebanese students studying English as a foreign language, they investigated the application of metacognitive strategies and the interaction with reading comprehension, as survey instruments of SORS strategies and a comprehension test of English Reading (TOEFL), concluded that participants had a high use of problem solving and a moderate use in regards to comprehensive and supportive strategies.

Doing the analysis of the scientific articles, studies were also found that had an additional variable to the variables of the present investigation, such as Mohseni and Ahangari [34], who considered, in addition to the variables of the present study, critical thinking, an important ability in students, according to the communicative and critical stance, they highlight reading comprehension as the initial stage of critical thinking, emphasizing the need to train readers with critical analyzes who are capable of synthesizing and evaluating their own reading. He even mentions other investigations that have corroborated the positive results where critical thinking promotes reading comprehension. In the same sense, Arif and Supramaniam [24] also

considered another variable in addition to the two that the study considers is peer tutoring, the results of this research clearly indicate that peer tutoring helped students, since they supported each other in the translation and understanding of the texts, as well as in the proper use of metacognitive reading skills; constituting a great support in the classroom. In these last two studies, the relationship between the three variables that ultimately contribute to students' reading comprehension is noted.

Ghaith and El-Sanyoura [33] emphasize it more when they mention that the categories of metacognitive reading strategies such as problem solving significantly predict a good understanding of texts at both the literal and higher order levels, this study agrees with others in that the strategy is preferred mostly at the secondary and higher level. In that order, Hernández and Sanabria [35] highlight how the diversity of metacognitive strategies constitute a whole structure that reinforces in one way or another the interpretation of different texts by students; as shown by the results obtained with the eighth grade students of an Educational Institution in Colombia. These similarities found in the two studies mentioned, despite the different realities and geographical contexts, are corroborated and emphasized the importance of the articulation or interlocking of metacognitive strategies in the reading interpretation of students.

Regarding the similarities found in the analysis of these scientific articles, it was found that two of them based their studies on constructivist theory, in that sense Fonseca et al. [27] speak exactly of meaningful learning and the relationship that exists between understanding and learning that is of utmost importance for the education of students, since several developed or developing countries are concerned with investigating how to improve this important issue. It also mentions that when applying metacognitive strategies the intervention group demonstrated significant improvements in reading comprehension. Likewise, Vásquez and Pérez [28] base their research on Vigotsky's sociocultural theory, Brunner's learning by discovery, Ausbel's significant learning, and Piaget's stages, who after applying a program of playful strategies to improve understanding of The reading achieved very effective results, especially in the literal and inferential dimension respectively.

On the other hand, it was found that four investigations applied the longest sessions with respect to the others, which is why Cabero et al. [36] worked on an educational technological material called: The adventures of Horace the Mouse, which had the purpose of increasing the level of metacognitive text comprehension strategies of elementary school students in Seville (Spain) who had problems understanding the reading. A total of 40 sessions were worked over 20 weeks, each week 2 sessions were worked in 2 days. The teacher acted as a mediator of learning, encouraging dialogue, interaction and reflection, establishing a suitable climate to achieve the expected learning. At the end of the sessions, they obtained significant results and it was well seen by the educational community. In reference to Mohseni et al. [34] developed 36 sessions, in 2 semesters with 18 sessions each, a program based on an inventory of metacognitive awareness strategies for reading (MARSI) for language learners, following an instruction method that consists of helping to develop students four critical thinking skills that are analysis, interpretation, evaluation and explanation; each session was worked in 3 phases. The results obtained showed that metacognitive training such as awareness of critical thinking achieved significant improvements in the comprehension of texts of global reading strategies. Likewise, Swart et al. [37] worked in 36 sessions with 510 fourth-grade students in the Netherlands, with the aim of improving the strategies for reading comprehension, which were to predict, clarify, make connections, question and summarize; before the intervention the teachers were trained. For the application of a strategy, teachers and children modeled thinking aloud how to apply it and collaborative learning also played an important role in this study. The results obtained, regarding the knowledge of reading strategies, was higher in the intervention group than in the control group, but despite the positive effect, said intervention did not affect the level of reading comprehension in the students. In the same sense, Wu and Valcke [38] developed 27 sessions with a random sample of 1,322 Chinese high school students in their research study, their objective was to apply a comprehensive multilevel model that involves factors of reading comprehension. The variables at the student level were: Gender, autonomous reading motivation, controlled reading motivation, metacognitive awareness of reading strategies (MARS), and family income. The variables at the class level included the teacher's rating and experience, concluding that the student's MARS and autonomous reading motivation established

two stronger correlations of text comprehension, while the teacher's rating and experience regulated the relationship between MARSI and reading comprehension.

In relation to the last 4 studies mentioned, generally the application of sessions of longer duration, give better results than the duration of short sessions, but there are some exceptions as previously observed. Unlike this point, there are also studies such as that of Logan et al.[39] which states that the competence and a readiness for reading of female students have a better understanding and attitude to reading. In addition, it is considered that there are other associated factors that intervene for a good development of reading comprehension such as the socioeconomic level of the family, experience of the teacher, among others. In the same sense, Varga [40] in a longitudinal study, over 4 years and seeks to contribute to reading comprehension by providing various teaching strategies and also to support students to perform metacognitive operations.

Technology has had a great advance in different fields, there is also talk of digital learning to reinforce reading in texts as mentioned by Beek et al. [41], who showed that students benefited from the practice of digital reading. In the same way, Ulloa and Díaz [42] in a study in a kindergarten in Chile, using audiovisual means to improve the comprehension of texts in English, showed that the videos were more attractive and gave positive results.

Metacognitive strategies are also essential in English reading, as noted by Muhid et al. [43] in their study with 50 students showed significant results that metacognitive strategies had on reading performance, several strategies were worked on, but the most used was selective attention and the least used was self-reflection. In the same sense, Gutiérrez and Ruíz [44] investigated the effects of training in metacognitive reading strategies in two educational contexts of Spanish students, the group that carried out the strategic training obtained better scores, highlighting the importance of strategies in the understanding of The texts. Likewise, Reshadi-Gajan et al. [45] to improve reading comprehension in English in Iranian students used a computerized RMSA system with significant results. Also, Çakıcı [46] emphasizes the need to use metacognitive strategies in students as a skill to improve reading comprehension in English. Likewise, the

study carried out in a Philippine school, in Manila [47] corroborated, they highlighted that there was a significant performance in reading and vocabulary of the students of the experimental group, it also mentions the fundamental role that teachers play in the development of reading strategies.

Several investigations also mention that inferential skills are linked to reading comprehension, such as Soto et al. [48] in their study with 190 Chilean high school students who belonged to 2 public schools and private schools, they carried out two studies; In the first, they evaluated 3 dimensions of metacomprehension: planning, monitoring and evaluation, but only the self-reported metacognitive strategies in planning and evaluation gave a significant variation in comprehension of texts with inferential questions. In the second, they observed that meta-understanding was linked to performance at different levels of understanding. He concluded that the results of the two studies are related to high text comprehension, especially inferential ability. Also, Larrañaga et al. [49] in their research also propose 3 metacognitive strategies: Global reading strategies, creativity strategies that are directly related to inferences and personalization strategies. In addition, it is important for this research to take into account the levels of reading comprehension, as Prado, J. [50] considers at the levels: literal, inferential and critical. Finally, from the above, it can be pointed out that the results obtained corroborate the effectiveness of metacognitive strategies in understanding narrative texts.

5. CONCLUSIONS

Metacognitive strategies help improve reading comprehension in elementary school students, favor self-regulation during the reading process. The role of teachers is very important for the use of appropriate and diverse strategies, techniques in order to strengthen learning and reading comprehension. The problem of reading comprehension is also manifested in the study of foreign languages. The reading concern is at the international level, as evidenced by the information collected in Malaysia, Indonesia, the United States, Colombia, Chile, Argentina, among others. The application of metacognitive strategies programs or workshops highly favored reading comprehension, and their application in the reading development phases were planning, supervision and evaluation, which helped to significantly improve the comprehension of texts.

The incorporation of new technologies helps metacognitive strategies to improve reading comprehension in students, so that readers can pass the levels of literal, inferential and critical reading comprehension indistinctly, since there is not necessarily a gradation. In this way, the process of reading comprehension occurs throughout the student's life.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. UNESCO. La mayoría de latinoamerianos culminan la secundaria sin saber leer bien; 2017.
   Available:https://www.semana.com/educacion/articulo/unesco-niveles-de-lectura-en-america-latina/541971
2. OCDE; 2018.
   Available:http://repositorio.minedu.gob.pe/bitstream/handle/MINEDU/5908/La%20competencia%20lectora%20en%20el%20marco%20de%20PISA%202018.pdf?sequence=1&isAllowed=y
3. ECE. ¿Qué aprendizajes logran nuestros estudiantes?; 2018.
   Available:http://umc.minedu.gob.pe/wp-content/uploads/2018/10/Informe-Nacional-ECE-2018.pdf
4. MINEDU. Programa curricular de educación primaria. Lima: Ministerio de Educación; 2016.
5. Novoa Lagos A. Complejidad textual, vocabulario pasivo y comprensión lectora en escolares chilenos de segundo ciclo básico. Literatura y Lingüística. 2019; 40:251-272.
   DOI:https://doi.org/10.29344/0717621X.40.2068
6. Núñez-Valdés K. Medina-Pérez JC, González-Campos J. Impacto de habilidades de comprensión lectora en el aprendizaje escolar: Un estudio realizado en una comuna de la región metropolitana, Chile. Revista Electrónica Educare. 2019;23(2):1-22.
   DOI:http://dx.doi.org/10.15359/ree.23-2.2
7. Álvarez C, Barón C, Martinez M. Promoting the use of metacognitive and vocabulary learnig strategies in eighth-graders. Íkala, Revista de Lenguaje y Cultura. 2018;23(3).
   DOI:http://dx.doi.org/10.17533/udea.ikala.v23n03a06
8. Recio Pineda S. Prosodia y comprensión lectora en educación primaria. Barcelona: Universitat de Barcelona; 2017.
   Available:https://www.tdx.cat/handle/10803/454820
9. Micai M. Reading comprehension mechanisms in autism spectrum disorder metacognitive processes and executive function. Sevilla: Universidad de Sevilla; 2018.
   Available:https://idus.us.es/handle/11441/75576
10. Cavero Ramirez F. La comprensión de textos y su relación con la producción de textos en el área de comunicación en estudiantes de 2° grado de educación primaria de la Institución Educativa N° 1193 Emilio del Solar, Chosica Ugel 6, Vitarte 2014. Lima: Universidad Nacional de Educación Enrique Guzmán y Valle; 2019.
    Available:http://repositorio.une.edu.pe/handle/UNE/4353
11. Arapa Mamani V. Estrategias de lectura para mejorar la comprensión lectora en estudiantes del cuarto y quinto año de secundaria en una Institución Educativa, Arequipa 2018. Trujillo: Universidad César Vallejo; 2019.
    Available:http://repositorio.ucv.edu.pe/handle/20.500.12692/37776
12. Ricaldi Morales J. Efectos de un programa de estrategias cognitivas en la comprensión lectora en estudiantes de segundo grado de educación secundaria de la Institución Educativa Politécnica regional del centro Huancayo. Lima: Universidad Nacional de Educación. Enrique Guzmán y Valle; 2019.
    Available:http://repositorio.une.edu.pe/handle/UNE/3431
13. Coz Bustamante AG. Aplicación del programa de estrategias metacognitivas en los niveles de comprensión de lectura en estudiantes del tercer grado de educación secundaria de la Institución Educativa Bartolomé Herrera San Miguel UGEL 03 - 2017. Lima: Universidad Enrique Guzmán y Valle; 2019.
    Available:http://repositorio.une.edu.pe/handle/UNE/3581
14. Larico Gutierrez MC. Eficacia del programa "Leyendo para comprender" en los niveles de comprensión lectora de los estudiantes de segundo grado de

educación secundaria de los colegios de la Asociación Educativa Adventista central este de Lima metropolitana. Lima: Universidad Nacional Mayor de San Marcos; 2017.
Available:https://hdl.handle.net/20.500.126 72/7447

15. Beltrán GÓ. Revisiones sistemáticas de la literatura. Revista Colombiana de Gastroenterología. 2005;20(1):60-69.
Available:http://www.redalyc.org/articulo.oa ?id=337729264009

16. Zapata Rojas J. Capítulo Métodos en una Revisión Sistemática; 2020.
Available:https://www.youtube.com/watch? v=jbN8mXHRy_Y

17. Crespo N. La metacognición: Las diferentes vertientes de la teoría. Signos. 2000;33(48):97-115.
DOI:http://dx.doi.org/10.4067/S0718-09342000004800008

18. Vigotsky L. El desarrollo de los procesos psicológicos superiores. Barcelona: Grijalbo; 1979.
Available:https://www.bibliopsi.org/docs/ca rreras/obligatorias/CFP/educacional/eraus quin/Unidad%202/Vigotsky%20-%20el%20desarrollo%20de%20los%20p. %20cap%204.pdf

19. Alvarado Guevara E, Rosales León TF, Alarcón Diaz MA, Alcas Zapata N, Luy-Montejo A, Nuñez Lira L. Teaching strategies for text comprehension of basic education students. Psychology and education. 2020;57(1):31-39.
Available:http://repositorio.ucv.edu.pe/han dle/20.500.12692/43955

20. Castrillón Rivera EM, Morillo Puente S, Restrepo Calderón LA. Diseño y aplicación de estrategias metacognitivas para mejorar la comprensión lectora en estudiantes de secundaria. Ciencias Sociales y Educación. 2020;9(17):203-23.
DOI:https://doi.org/10.22395/csye.v9n17a1 0

21. Muñoz-Muñoz Á, Ocaña de Castro M. Uso de estrategias metacognitivas para la comprensión textual. Cuadernos de Linguística Hispánica. 2017;29:223-244.
DOI:https://doi.org/10.19053/0121053x.n2 9.2017.5865

22. Nicolielo-Carrillo A, Pinheiro Creniette P, Rocha de Vasconcellos S. Relationship between phonological working memory, metacognitive skills and reading comphehension in chldren with learning disabilities. JAOS; 2018.

23. Benedict K, Rivera M, Antia S. Instruction in metacognitive strategies to increase deaf and hard of hearing students´ reading comprehension. Deaf studies and deaf education. 2015;1-15.
DOI:https://doi.org/10.1093/deafed/enu026

24. Arif MM, Halim N, Supramaniam K. Enhacing reading comprehension through metacognitive reading strategies peer tutoring among year 7 student at home school centre. Asian Journal of University Education. 2020;16(1).
DOI:https://doi.org/10.24191/ajue.v16i1.89 81

25. Topping K. Trends in peer learning. Educational Psychology. 2005;25(6):631-645.
DOI:https://doi.org/10.1080/014434105003 45172

26. Gómez J. A cognitive approach to L2 reading comprehension and the limits of description. Colombian Applied Linguistics Journal. 2016;18(2):119-130.
DOI:https://dx.doi.org/10.14483/calj.v18n2. 9080

27. Fonseca L, Migliardo G, Simian M, Olmos R, León J. Estrategias para mejorar la Comprensión lectora: Impacto de un programa de intervención en español. Psicología Educativa. 2019;25(2):91-99.
DOI:https://doi.org/10.5093/psed2019a1

28. Vásquez GA, Pérez Azahuanche MA. Estrategias lúdicas para la compresnsión de textos en estudiantes de educación primaria. REDIECH. 2020;11:e805.
DOI:https://doi.org/10.33010/ie_rie_rediech .v11i0.805

29. Muijselaar M, Swart N, Steenbeek-Planting E, Droop M, Verhoeven I, Jong P. The effect of a strategy training on reading comprehension in fourth grade students. The Journal of Education. 2018;6:690-703.
DOI:https://doi.org/10.1080/00220671.201 7.1396439

30. Rodríguez Ribero B, Calderon Sánchez M, Leal RM, Arias-Velandia N. Uso de estrategias metacomprensivas para el fortalecimiento de la comprensión lectora en estudiantes de segundo ciclo de un colegio oficial en Bogotá, Colombia. Folios, 2016;44:93-108.
Available:http://www.redalyc.org/articulo.oa ?id=345945922006

31. Ramírez Peña P, Rossel Ramírez K, Nazar Carter G. Comprensión lectora y

metacognición: Análisis de las actividades de lectura en dos textos de estudio de la asignatura de Lenguaje y Comunicación de séptimo año básico. Estudios Pedagógicos. 2015;(2):213-231. DOI:http://dx.doi.org/10.4067/S0718-07052015000200013

32. Polvani Trassi A, Oliveira K De, Monteiro Inácio A. Reading comprehension, learning strategies and verbal reasoning: Possible relationships. Psico-USF. 2019;24(4):615-624. DOI:https://doi.org/10.1590/141382712019240401

33. Ghaith G, El-Sanyoura H. Reading comprehension: The mediating role of metacognitive strategies. Rading in a Forein Language. 2019;31(1):19-43. Recuperado el 23 de Octubre de; 2020. Available:http://eds.a.ebscohost.com/eds/detail/detail?vid=4&sid=2d58901c-da2e-4cb7-a008-efb537ba1533%40sdc-v-sessmgr03&bdata=Jmxhbmc9ZXMmc2l0ZT1lZHMtbGl2ZQ%3d%3d#AN=EJ1212814&db=eric

34. Mohseni F, Seifoori Z, Ahangari S. The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension. Cogent education. 2020;7. DOI:https://doi.org/10.1080/2331186X.2020.1720946

35. Hernández Gómez J, Sanabria Marín KM. Estrategias metacognitivas: Andamiaje de la comprensión lectora. La Tercera Orilla; 2018. Available:https://revistas.unab.edu.co/index.php/laterceraorilla/article/view/3475

36. Cabero AJ., Piñeiro Virué R, Reyes Rebollo M. Material Educativo multimedia para el aumento de estrategias de metacognitivas de comprensión lectora. Perfiles Educativos. 2018;11(159). Available:http://www.redalyc.org/articulo.oa?id=345945922006

37. Swart N, Steenbeek-Plantación E, Droop M, Verthoeven L, De Jong P. The effect of a strategy training on reading comprehension in fourth-grade students. The Journal of Education. 2018;111(6):690-703. DOI:https://doi.org/10.1080/00220671.2017.1396439

38. Wu L, Valcke M. Factors associated with reading comprehension of secondary school students. Educational Siences: Theory & Practice. 2019;19(4):34-47.

DOI:http://dx.doi.org/10.12738/estp.2019.4.003

39. Logan S, Jonston, Johnston R. Gender differences in reading ability and attitudes: Examining where these differences lie. Journal of Research in Reading. 2009;32:199-214. DOI:https://doi.org/10.1111/j.14679817.2008.01389.x

40. Varga A. Metacognitive perspectives on the development of reading comprehension: A classroom study of literacy text-talks. Literacy UKLA. 2017;51(1). DOI:https://onlinelibrary.wiley.com/doi/full/10.1111/lit.12095

41. Beek M, Opdenakker MC, Spijkerboer AW, Brummer L, Ozinga HW, Strijbos JW. Scaffolding expository history text reading: Effects on adolescents´ comprehension, self-regulation, and motivation. Learning and Individual Differences. 2019;74. DOI:https://doi.org/10.1016/j.lindif.2019.06.003

42. Ulloa Salazar G, Díaz Larenas C. Using an Audiovisual materials-based teaching strategy to improve EFL young learners' understanding of instructions. How. 2018;25(2). DOI:http://dx.doi.org/10.19183/how.25.2.419

43. Muhid A, Rizki Amalia E, Hilaliyah H, Budiana N, Nizarudin Wajdi M. The effect of metacognitive strategies implementation on students´ reading comprehension. International Journal of Instruction. 2020;13(2). DOI:https://doi.org/10.29333/iji.2020.13257a

44. Gutiérrez Martínez A, Ruíz de Zarobe Y. Comparing the benefits of metacognitive reading strategy instruction programme between CLIL and EFL primary school students. elia, Estudios de linguística inglesa aplicada. 2017;17:71-92. DOI:10.12795/elia.2017.i17.04

45. Reshadi-Gajan E, Assadi N, Davatgari Asl H. Reading-metacognitive strategy Awareness and use in reciprocal teaching settings: Implementing a computarized RMSA system. Journal od Educational Computing. 2020;1-30. DOI:10.1177/0735633120937437

46. Çakıcı D. An overview of metacognitive strategies in reading comprehension skill.

The Journal of Academic Social Sience Studies. 2017;57:67-82.
DOI:https://doi.org/10.9761/JASSS7074

47. Gatcho A, Hajan B. Augmenting senior secondary ESL Learners´ reading skills through explicit instruction of metacognitive strategies. JEELS. 2019;6(1):1-23.
Availavle:https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED605010

48. Soto C, Gutiérrez de Blume A, Jacovina M, McNamara D, Benson N, Riffo B. Reading comprehension and metacognitive: The Importance of inferential skills. Cogent education. 2019;6.

DOI:https://doi.org/10.1080/2331186X.2019.1565067

49. Larrañaga E, Yubero S, Elche M. El desarrollo de estrategias para la comprensión de textos narrativos. Literatura em Debate. 2017;11(21):162-179.
Available:http://hdl.handle.net/10578/21460

50. Prado J. Didáctica de la lengua y la literatura para educar en el siglo XXI. Madrid: La Muralla S.A; 2004.